







REGIONAL MULTI-HAZARD MITIGATION PLAN



For Cass, Clay, Jackson, Platte and Ray counties and their incorporated cities in Missouri

MID-AMERICA REGIONAL COUNCIL • JUNE 2015

MARC
MID-AMERICA REGIONAL COUNCIL

STATE OF MISSOURI EMERGENCY MANAGEMENT AGENCY

MEMC
Metropolitan Emergency Managers Committee

FOREWORD

To the Citizens of the Kansas City Region:

Since its beginnings in the early 1800s, the Kansas City metropolitan area has experienced the adverse effects of natural and technological disasters. Historical records indicate that natural hazards, particularly floods and tornadoes, have had a profound effect on the region. In the last five years, a range of hazards have affected our area, along with incidents across the country that remind us of the devastating effects of a disaster, such as the catastrophic EF5 tornado in Joplin, Missouri, which killed 158 people, injured more than 1,100, and caused $2.8 billion in damages in 2011.

Unfortunately, there is no way to prevent disasters from occurring. The impact of disasters, however, can be mitigated. By developing and applying prudent hazard mitigation strategies and actions, we can limit the effects of disasters and reduce losses. With an informed community willing to take action before disaster strikes, the Kansas City metropolitan area can be a safer place to live, work and play.

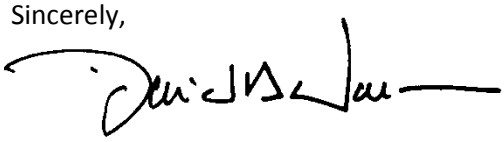
Since November 2004, all local governments have been required to have an approved hazard mitigation plan in order to be eligible to apply for and receive certain funds under the FEMA Hazard Mitigation Program. These plans must be updated at least once every five years in order to continue eligibility for FEMA hazard mitigation project grant funding. Mitigation plans identify the natural hazards that could impact communities, identify actions to reduce losses from those hazards, and establish a coordinated process to implement those actions.

Since 2004, MARC, at the invitation of SEMA and in partnership with the Missouri Association of Councils of Government (MACOG), has worked with local officials in Jackson, Clay, Platte, Cass and Ray Counties and jurisdictions within those counties to prepare a *Regional Multi-Hazard Mitigation Plan* that helps local governments, school districts, businesses, community groups and citizens in those jurisdictions with their planning and mitigation efforts. This 2015 Plan update reflects changes in the planning area, includes additional hazards, notes progress made on mitigation actions from previous plans and identifies new mitigation actions.

The plan addresses the range of hazards that may affect the Kansas City region: tornadoes, severe thunderstorms, severe winter weather, flooding, levee failures, dam failures, drought, heat waves, wildland fires, earthquakes, mass transportation accidents, hazardous materials incidents, emerging infectious disease, trans-boundary animal disease, public mass shooting incident, civil disorder, cyber disruption, and terrorism.

Hazard mitigation is a dynamic and ongoing process. MARC, as the facilitator of this regional mitigation planning effort, welcomes your comments and suggestions for improving this plan. Please direct comments and suggestions to the Mid-America Regional Council, 600 Broadway, Suite 200, Kansas City, MO 64105.

Sincerely,



David A. Warm
Executive Director

Table of Contents

Section 1: Introduction and Planning Process 1

1.1 Purpose 1

1.2 Background and Scope 1

1.3 Planning Process 3

1.3.1 Background 4

1.3.2 Planning Team Kickoff 4

1.3.3 Plan Section Review and Update Methodology 10

1.3.4 Review and Incorporation of Existing Plans 13

1.3.5 Public Involvement 15

Section 2: Planning Area Profile 19

2.1 Planning Area Description 19

2.2 Planning Area Geography and Environment 20

2.2.1 Geography 20

2.2.2 Waterways and Water Resources 20

2.2.3 Land Cover 22

2.3 Demographics 25

2.3.1 Population Density 25

2.3.2 Population Trends – Total Population 26

2.3.3 Population by Age 28

2.3.4 Population by Race and Ethnicity 33

2.3.5 Poverty 40

2.4 Kansas City Regional Economy 43

2.4.1 Planning Area Economy 46

2.4.2 Employment by Industry 48

2.4.3 Employment Location 50

2.4.4 Education and Income 52

2.4.5 Property Value 53

2.5 Planning for the Future 56

2.5.1 Population Forecasts 56

2.5.2 Land Use 59

2.5.3 Population and Employment Forecast 66
2.6 Critical Infrastructure 70
2.6.1 Transportation 70
2.6.2 Roadway System Infrastructure 71
2.6.3 Roadway System Condition 72
2.6.4 Bicycle/Pedestrian Trails 73
2.6.5 Freight and Goods Movement Facilities 73
2.6.6 Transit Service and Ridership 75
2.6.7 Modes of Travel 75
2.6.8 Congestion 76
2.6.9 TTI Urban Mobility Reports 76
2.6.10 Travel Time 77
2.6.11 Other Critical Infrastructure 77
2.7 Attachments 90
Section 3: Capabilities Assessment 98
3.1 Data Gathering Methods 98
3.2 Review and Incorporation of Existing Plans 99
3.3 Community Profile Survey Findings 103
3.3.1 Planning and Regulatory Capabilities 103
3.3.2 Administrative and Technical Capabilities 113
3.3.3 Financial Capabilities 120
3.3.4 Education and Outreach Capabilities 122
3.3.5 Safe Growth Audit 133
3.3.6 Floodplain Management and NFIP Participation 145
3.3.7 School Profile Survey Findings 156
3.4 Regional Capabilities 164
3.5 Attachments 166
Section 4: Risk and Vulnerability Assessment 262
4.1 Overview and Changes from 2010 Plan 262
4.2 Hazards Not Included in the Plan and Reasons for Elimination 263
4.3 Identifying Hazards and Risk Assessment 265
4.3.1 Overall Risk Determination 265
4.4 Hazard Analysis Summary 274

4.5 Vulnerability Assessment and Potential Loss Estimation 288
4.5.1 Loss Estimations for “Non-Area Specific” Hazards 289
4.5.2 Establishing the Statistical Risk Assessment Methodology 290
4.5.3 Derivation of Statistical Risk Assessment Methodology’s Loss Estimation Calculation 290
4.5.4 Loss Estimations for “Area Specific” Hazards 292
4.5.5 Deletion of Section 3.3.3a from the 2010 Plan and Addition of Problem Statements 293
4.6 Tornadoes 294
4.6.1 Historical Occurrences 295
4.6.2 Probable Locations 300
4.6.3 Extent, Severity, Magnitude 300
4.6.4 Probability of Future Occurrence: High 303
4.6.5 Vulnerability Analysis and Potential Loss Estimates 304
4.6.6 Problem Statements 308
4.7 Severe Thunderstorms (Wind, Hail, Lightning) 309
4.7.1 Historical Occurrences 312
4.7.2 Probable Locations 319
4.7.3 Extent, Severity, Magnitude 319
4.7.4 Probability of Future Occurrence: High 323
4.7.5 Vulnerability Analysis and Potential Loss Estimates 323
4.7.6 Problem Statements 325
4.8 Severe Winter Weather 326
4.8.1 Historical Occurrences 328
4.8.2 Probable Locations 332
4.8.3 Extent, Severity, Magnitude 333
4.8.4 Probability of Future Occurrence: High 335
4.8.5 Vulnerability Analysis and Potential Loss Estimates 336
4.8.6 Problem Statements 337
4.9 Flooding 338
4.9.1 Historical Occurrences 340
4.9.2 Probable Locations 343
4.9.3 Extent, Severity, Magnitude 343
4.9.4 Probability of Future Occurrence: High 346
4.9.5 Vulnerability Analysis and Potential Loss Estimates and Changes from 2010 Plan 346

4.9.6 Problem Statements 351
4.10 Levee Failures 352
4.10.1 Historical Occurrences 357
4.10.2 Probable Locations 360
4.10.3 Extent, Severity, Magnitude 360
4.10.4 Probability of Future Occurrence: Low (500-year Event) to High (100-year Event) 362
4.10.5 Vulnerability Analysis and Potential Loss Estimates 362
4.10.6 Problem Statements 363
4.11 Dam Failures 364
4.11.1 Historical Occurrences 365
4.11.2 Probable Locations 365
4.11.3 Extent, Severity, Magnitude 369
4.11.4 Probability of Future Occurrence: Low 370
4.11.5 Vulnerability Analysis and Potential Loss Estimates 370
4.11.6 Problem Statements 372
4.12 Drought 373
4.12.1 Historical Occurrences 373
4.12.2 Probable Locations 383
4.12.3 Extent, Severity, Magnitude 384
4.12.4 Probability of Future Occurrence: High 386
4.12.5 Vulnerability Analysis and Potential Loss Estimate/Drought Risk Assessment 388
4.12.6 Problem Statements 391
4.13 Heat Waves 392
4.13.1 Historical Occurrences 394
4.13.2 Probable Locations 395
4.13.3 Extent, Severity, Magnitude 395
4.13.4 Probability of Future Occurrence: High 398
4.13.5 Vulnerability Analysis and Potential Loss Estimate/Heat Wave Risk Assessment 399
4.13.6 Problem Statements 400
4.14 Wildland Fires 401
4.14.1 Historical Occurrences 401
4.14.2 Probable Locations 404
4.14.3 Extent, Severity, Magnitude 406

4.14.4 Probability of Future Occurrence: High 406
4.14.5 Wildland Vulnerability Analysis and Potential Loss Estimates 406
4.14.6 Problem Statements 411
4.15 Earthquakes 412
4.15.1 Historical Occurrences 413
4.15.2 Probable Locations 416
4.15.3 Extent, Severity, Magnitude 416
4.15.4 Probability of Future Occurrence: Low 418
4.15.5 Earthquake Vulnerability Analysis and Potential Loss Estimates 419
4.15.6 Problem Statements 423
4.16 Emerging and Re-Emerging Infectious Diseases 424
4.16.1 Historical Occurrences 432
4.16.2 Probable Locations 435
4.16.3 Extent, Severity, Magnitude 435
4.16.4 Probability of Future Occurrences/Events: Medium to High 435
4.16.5 Vulnerability Analysis and Potential Loss Estimates 436
4.16.6 Problem Statements 437
4.17 Trans-Boundary Animal Disease 438
4.17.1 Historical Occurrences 441
4.17.2 Probable Locations 443
4.17.3 Extent, Severity, Magnitude 446
4.17.4 Probability of Future Occurrence/Events: Low 447
4.17.5 Vulnerability Analysis and Potential Losses: Low (People Affected) 448
4.17.6 Problem Statements 450
4.17.7 Attachments 451
4.18 Mass Transportation Accidents 457
4.18.1 Historical Occurrences 462
4.18.2 Probable Locations 469
4.18.3 Extent, Severity, Magnitude 470
4.18.4 Probability of Future Occurrences: Low 471
4.18.5 Vulnerability Analysis and Potential Loss Estimates: Low 472
4.18.6 Problem Statements 475
4.18.7 Attachments 476

4.19 Hazardous Materials 479
4.19.1 Historical Occurrences 484
4.19.2 Probable Locations 485
4.19.3 Extent, Severity, Magnitude 491
4.19.4 Probability of Future Occurrences: High 493
4.19.5 Vulnerability Analysis and Potential Loss Estimates 493
4.19.6 Problem Statements 498
4.19.7 Attachments 499
4.20 Public Mass Shooting Incidents 523
4.20.1 Historical Occurrences 525
4.20.2 Probable Locations 526
4.20.3 Extent, Severity, Magnitude 532
4.20.4 Probability of Future Occurrence: High 533
4.20.5 Vulnerability Analysis and Potential Losses 534
4.20.6 Problem Statements 536
4.21 Civil Disorder 537
4.21.1 Historical Occurrences 539
4.21.2 Probable Locations 540
4.21.3 Extent, Severity, Magnitude 540
4.21.4 Probability of Future Occurrence: Low 540
4.21.5 Vulnerability Assessment and Potential Loss Estimates 540
4.21.6 Problem Statements 541
4.22 Cyber Disruption 542
4.22.1 Historical Occurrences 546
4.22.2 Probable Locations 549
4.22.3 Extent, Severity, Magnitude 549
4.22.4 Probability of Future Occurrences: High 551
4.22.5 Vulnerability Analysis and Potential Losses 552
4.22.6 Problem Statements 555
4.22.7 Attachments 556
4.23 Terrorism 569
4.23.1 Historical Occurrences 575
4.23.2 Probable Locations 578
4.23.3 Extent, Severity, Magnitude 580

4.23.4 Probability of Future Occurrence: Low 583
4.23.5 Vulnerability Analysis and Potential Loss Estimates 583
4.23.6 Problem Statements 589
4.23.7 Attachments 590
Section 5: Mitigation Strategy 614
5.1 Updates to the 2010 Plan Mitigation Goals and Actions 614
5.1.1 Changes to 2010 Mitigation Goals and Actions Database for 2015 Plan Update 615
5.1.2 Updates to School District/College/University 2010 Mitigation Goals and Actions 616
5.2 New Mitigation Goals and Actions for 2015 Plan 616
5.3 Implementation of the National Flood Insurance Program (NFIP) 618
5.3.1 Floodplain Management (from 2010 Plan) 618
5.3.2 Floodplain Identification and Mapping (from 2010 Plan) 619
5.3.3 Community Assistance and Monitoring Activities (from 2010 Plan) 619
5.4 Attachments 620
Section 6: Plan Implementation and Maintenance 637
6.1 Monitoring, Evaluating and Updating the Plan 637
6.2 Incorporation into Existing Planning Mechanisms 641
6.3 Continued Public Involvement 641
6.4 Attachments 643
Appendix A: Adoption Resolutions 651
Appendix B: Supporting Documents 652
I. County Authorizations 652
II. HMPC Meeting Information 652
III. MOA FY13 PDMC-EMK-2014-PC-0001 652
IV. Public Participation Information 652
Appendix C: Maps and References 653
I. Supplemental Hazard-Specific Information 653
Flood Analysis Maps (Flood Zones, Dams, Critical Infrastructure) by Jurisdiction 653
Flood Area Parcel Value Table by Jurisdiction 653
Critical Infrastructure Tables by Jurisdiction 653
100-Year Floodplain and Selected Critical Infrastructure Map and Table by Jurisdiction 653
Levee-Protected Areas and Selected Critical Infrastructure Map and Table by Jurisdiction 653
Dam Inundation Maps for Jackson County 653

II. Supplemental Jurisdiction-Specific Information 653
Land Use Acreage Tables by Jurisdiction 653
Population and Employment Forecast Table by Jurisdiction 653
Vulnerable Populations Table by Jurisdiction 653
Building Counts and Valuation Tables by Jurisdiction 653
Appendix D: Acronyms 655
I. Local 655
II. State and Regional 655
III. Federal and National 655
Appendix E: Glossary 658
Appendix F: Endnotes 660

List of Tables

Section 1: Introduction and Planning Process

Table 1.1: Summary of Planning Meetings 6
Table 1.2: Data Deficiency Corrective Actions 2010 10
Table 1.3: Review Process Summary 12
Table 1.4: Community Profile Tools 13
Table 1.5: MARC Community Engagement Event Advertisements 16

Section 2: Planning Area Profile

Table 2.1: Population, 2000-2014 26
Table 2.2: Persons in Poverty 42
Table 2.3: Improvement, Land and Total Property Value 55
Table 2.4: Existing Land Use by Major Type, in acres 59
Table 2.5: Building Counts by Major Land Use Type 60
Table 2.6: Value of Buildings by Major Land Use 62
Table 2.7: Planned Land Use by Major Type, in acres 63
Table 2.8: Population Forecast 67
Table 2.9: Employment Forecast by County 69
Table 2.10: Functional Class Miles 71
Table 2.11: Critical Facility Types 78

Section 3: Capabilities Assessment

Table 3.1: Local Plans and Regulations Used by Jurisdictions 99
Table 3.2: Record of Review - Cass, Clay, Jackson County 101
Table 3.3: Record of Review - Platte, Ray County 102
Table 3.4: Relevant Measures Incorporated into HMP (Plans/Regulations) 103
Table 3.5: Building Codes Adopted by Local Jurisdictions 106
Table 3.6: Codes Reviewed for HMP Update and Adequately Enforced 108

Table 3.7: Relevant Measures Incorporated into HMP (Building Codes) 110
Table 3.8: Ordinances and Policies Adopted by Local Jurisdictions 111
Table 3.9: Relevant Measures Incorporated into HMP (Ordinances/Policies) 112
Table 3.10: Local Administrative Resources by Jurisdiction 115
Table 3.11: Local Staffing Resources by Jurisdiction 116
Table 3.12: Local Technical Resources by Jurisdiction 117
Table 3.13: Relevant Measures Incorporated into HMP (Technical Resources) 118
Table 3.14: Types of Mitigation Activities Funded by Funding Source 120
Table 3.15: Access or Eligibility to Use Funding Resource by Jurisdiction 121
Table 3.16: Useful Outreach and Awareness Programs for Mitigation Activities by Jurisdiction 123
Table 3.17: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Cass, Clay, and Jackson County 126
Table 3.18: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Platte and Ray County 130
Table 3.19: Safe Growth Audit Summary for Cass County 133
Table 3.20: Safe Growth Audit Summary for Clay County 135
Table 3.21: Safe Growth Audit Summary for Jackson County 137
Table 3.22: Safe Growth Audit Summary for Platte County, Part 1 139
Table 3.23: Safe Growth Audit Summary for Platte County, Part 2 141
Table 3.24: Safe Growth Audit Summary for Ray County 143
Table 3.25: National Flood Program (NFIP) Participation 145
Table 3.26: NFIP Policy Statistics as of 2/28/2015 by Jurisdiction 146
Table 3.27: NFIP Loss Statistics as of 2/28/2015 by Jurisdiction 148
Table 3.28: Number of Repetitive Loss Properties by County and Type 150
Table 3.29: NFIP Regulatory Overview by Jurisdiction 151
Table 3.30: Status of Staffing Resources for Effective NFIP Administration 154
Table 3.31: Status of Participating Jurisdictions in the CRS Program 155
Table 3.32: School Plans and Policies Inventory (EVACUATION) 156
Table 3.33: School Plans and Policies Inventory (STORM SHELTER) 157
Table 3.34: School Plans and Policies Inventory (SHELTER-IN-PLACE) 158
Table 3.35: School Plans and Policies Inventory (INFECTIOUS DISEASE) 159
Table 3.36: School Plans and Policies Inventory (WATER CONSERVATION MEASURES) 160
Table 3.37: School Plans and Policies Inventory (SECURITY PLAN -Intruder, Lockdown) 161
Table 3.38: School Plans and Policies Inventory (OTHER PLANS) 162
Table 3.39: School Plans and Policies Inventory (SUPPLEMENTAL INFORMATION) 163

Section 4: Risk and Vulnerability Assessment

Table 4.1: Cascading Hazards Resulting From Disasters 264
Table 4.2: Jurisdictional Eliminated Hazards 266
Table 4.3: Overall Risk from Primary Natural Hazards 267
Table 4.4: Overall Risk to Secondary Natural, Technological and Human-Caused Hazards 270
Table 4.5: Other Identified Hazards 273
Table 4.6: Cass County Hazard Summary 274
Table 4.7: Clay County Hazard Summary 277
Table 4.8: Jackson County Hazard Summary 279

Table 4.9: Platte County Hazard Summary 282
Table 4.10: Ray County Hazard Summary 284
Table 4.11: Sample Maximum Loss Estimation 291
Table 4.12: Sample Minimum Loss Estimation 292

4.6 Tornadoes

Table 4.6.1: Enhanced Fujita Scale 295
Table 4.6.2: Kansas City Area Tornadoes By EF-Scale (1950–2014) 295
Table 4.6.3: Kansas City Area Tornadoes (2010-2014) 296
Table 4.6.4: Cass County Tornadoes (1950-2014) 301
Table 4.6.5: Clay County Tornadoes (1950-2014) 301
Table 4.6.6: Jackson County Tornadoes (1950-2014) 301
Table 4.6.7: Platte County Tornadoes (1950-2014) 302
Table 4.6.8: Ray County Tornadoes (1950-2014) 302
Table 4.6.9: Probable Future Tornado Severity By EF-Scale 302
Table 4.6.10: Estimated Categories of Impact 303
Table 4.6.11: Risk of Future Tornado Occurrence 303
Table 4.6.12: High Risk Locations during Tornadic Activity 307
Table 4.6.13: Maximum Loss Estimation, Tornadoes 308
Table 4.6.14: Minimum Loss Estimation, Tornadoes 308

4.7 Severe Thunderstorms (Wind, Hail, Lightning)

Table 4.7.1: Kansas City Region Thunderstorm Wind Events (1950-2014) (>57mph) 312
Table 4.7.2: Kansas City Regional Hail Events (1950-2014) (>1") 312
Table 4.7.3: Kansas City Area Lightning Events (1950 – 2014) 312
Table 4.7.4: Kansas City Region Thunderstorm Events with Damaging Winds (2009-2014) (>57mph) .. 313
Table 4.7.5: Kansas City Region Severe Thunderstorms with Damaging Hail (2009 - 2014) (>1 Inch) 314
Table 4.7.6: Kansas City Region High Wind, Heavy Rain, Lightning Events 2009-2014 314
Table 4.7.7: Cass County Thunderstorm Wind Events (1950-2014) (>57mph) 321
Table 4.7.8: Clay County Thunderstorm Wind Events (1950-2014) (>57mph) 321
Table 4.7.9: Jackson County Thunderstorm Wind Events (1950-2014) (>57mph) 321
Table 4.7.10: Platte County Thunderstorm Wind Events (1950-2014) (>57mph) 321
Table 4.7.11: Ray County Thunderstorm Wind Events (1950-2014) (>57mph) 321
Table 4.7.12: Cass County Hail Events (1950-2014) (>1") 321
Table 4.7.13: Clay County Hail Events (1950-2014) (>1") 322
Table 4.7.14: Jackson County Hail Events (1950-2014) (>1") 322
Table 4.7.15: Platte County Hail Events (1950-2014) (>1") 322
Table 4.7.16: Ray County Hail Events (1950-2014) (>1") 322
Table 4.7.17: Probable Future Severe Thunderstorm Severity 322
Table 4.7.18: Estimated Categories of Impact 323
Table 4.7.19: Risk of Future Severe Thunderstorm Occurrence 323
Table 4.7.20: Maximum Loss Estimation, Severe Thunderstorms 324
Table 4.7.21: Minimum Loss Estimation, Severe Thunderstorms 324

4.8 Severe Winter Weather

Table 4.8.1: Historical Occurrences, Severe Winter Weather (2009–2014) 328
Table 4.8.2: Maximum Loss Estimation, Severe Winter Weather 336

Table 4.8.3: Minimum Loss Estimation, Severe Winter Weather 337
4.9 Flooding
Table 4.9.1: Kansas City Area Flood Events by County (2010-2014) 340
Table 4.9.2: Critical Facilities in the Kansas City Area within the 100-Year Floodplain 344
4.10 Levee Failures
Table 4.10.1: USACE Levees in Cass, Clay, Jackson, Platte and Ray Counties 354
Table 4.10.2: Levee Accreditation Status in DFIRM Counties in the Kansas City Region 356
Table 4.10.3: Number of Failed or Overtopped Federal and Non-Federal Levees – 1993 Flood 358
Table 4.10.4: Jurisdiction Critical Facilities Protected by Levees 361
Table 4.10.5: Potential Loss Estimates for County/City Structures and Land Protected by Levees 362
4.11 Dam Failures
Table 4.11.1: Dams by Hazard Level, Owner Type and Height by County 365
Table 4.11.2: MDNR Regulated Dams by County (Class and Hazard Level) 366
Table 4.11.3: Missouri State-Regulated Dams in the Five County Planning Area 367
Table 4.11.4: Maximum Loss Estimation, Dam Failure 371
Table 4.11.5: Minimum Loss Estimation, Dam Failure 372
4.12 Drought
Table 4.12.1: Local Jurisdictions' Impact (Drought 2012) 379
Table 4.12.2: Drought Severity Classification 385
Table 4.12.3: Drought Impacts 2005-2009 389
Table 4.12.4: Drought Impacts January 2010 – April 2015 389
4.13 Heat Waves
Table 4.13.1: Heat Index degrees (degrees C°) 393
Table 4.13.2: Heat Index/Heat Disorders 394
Table 4.13.3: Heat Events (2009–2014) 395
Table 4.13.4: Maximum Loss Estimation, Heat Wave 400
Table 4.13.5: Minimum Loss Estimation, Heat Wave 400
4.14 Wildland Fires
Table 4.14.1: Wildfire Causes in the KC Metro Area (2002–2015) 401
Table 4.14.2: Wildfires in the Kansas City Metro Area by County (2002–2015) 402
Table 4.14.3: Maximum Loss Estimation, Wildland Fire 407
Table 4.14.4: Minimum Loss Estimation, Wildland Fire 409
Table 4.14.5: Fire Susceptible Buildings by Type and Jurisdiction 410
4.15 Earthquakes
Table 4.15.1: Earthquakes Occurring in the Central United States Affecting Missouri (1811–2012) 414
Table 4.15.2: HAZUS Earthquake Loss Estimation: Annualized Loss Scenario 420
Table 4.15.3: HAZUS-MH Earthquake Loss Estimation: 2% Probability of Exceedance in 50 Years Building Impacts by County, Ranked by Highest Building Losses 421
Table 4.15.4: Social Impact Estimates by County from the 2% Probability of Exceedance in 50 Years 422
Table 4.15.5: Social Impact Estimate Category Definitions 423
4.16 Emerging and Re-emerging Infectious Diseases
Table 4.16.1: Top Seven Causes of Death in Missouri 425
Table 4.16.2: Case Counts of Selected Communicable Diseases in Missouri (2010-2012) 425
Table 4.16.3: Contributing Factors to Increasing Occurrence of Emerging Diseases 426

Table 4.16.4: Preparedness and response framework for novel influenza A virus pandemics 428
Table 4.16.5: Cost Per Gross Attack Rate ($ millions) 436
Table 4.16.6: Potential Loss Estimation, Emerging Infectious Disease 437

4.17 Trans-Boundary Animal Disease

Table 4.17.1: Missouri's Rank among States, 2010 (National Agricultural Statistics Service) 439
Table 4.17.2: Impact of 45-Day Foot and Mouth Disease Outbreak in Missouri 439
Table 4.17.3: Cases and Animals Slaughtered During the 2001 FMD Epidemic in the UK 441
Table 4.17.4: Total Missouri Positive Rabies Results per Year 441
Table 4.17.5: Number of Farms by County (2012 Census) 443
Table 4.17.6: Number of Animal Types per County 444
Table 4.17.7: Number and Type of Household Pets by County 445
Table 4.17.8: Agricultural Land Areas 446
Table 4.17.9: Principal Operators by Primary Occupation 448
Table 4.17.10: Potential Loss Estimates, Trans-Boundary Animal Disease (Small Outbreak) 449
Table 4.17.11: Maximum Loss Estimation by County, Trans-Boundary Animal Disease 449
Table 4.17.12: Minimum Loss Estimation by County, Trans-Boundary Animal Disease 450
Table 4.17.13: Specific Jurisdictional Vulnerabilities, Trans-Boundary Animal Disease 450

4.18 Mass Transportation Accidents

Table 4.18.1: Air Transportation Accidents in the Kansas City Region 463
Table 4.18.2: Railroad Accidents in the Kansas City Region 464
Table 4.18.3: Fixed Route Public Transportation Accidents in the Kansas City region 464
Table 4.18.4: Bus and Motor Coach Accidents in the Kansas City region 465
Table 4.18.5: Missouri Traffic Crashes Ranked by County (2011–2013) 467
Table 4.18.6: Water Accidents in the Kansas City Region 468
Table 4.18.7: Number of Large Truck Accidents by County (2014) 468
Table 4.18.8: Total Economic Cost of 473
Table 4.18.9: Estimated Cost of a Small Mass Transportation Accident 473
Table 4.18.10: Estimated Cost of a Large Mass Transportation Accidents 473
Table 4.18.11: Maximum Loss Estimation 474
Table 4.18.12: Minimum Loss Estimation 474
Table 4.18.13: Specific Vulnerabilities by County 474

4.19 Hazardous Materials

Table 4.19.1: EPA NPL Sites for the Five-County Area 482
Table 4.19.2: RMP Information for the Five-County Area 483
Table 4.19.3: Kansas City Region Hazardous Materials Spills on Highways (Jan. 2009–Apr. 2015) 486
Table 4.19.4: Kansas City Region Pipeline Spills on Waterways 488
Table 4.19.5: Kansas City Region Aviation Spills Jan. 2009 – Apr. 2015 488
Table 4.19.6: Kansas City International Airport Flight Statistics 489
Table 4.19.7: Missouri Registry of Conformed or Uncontrolled Hazardous Waste Disposal Sites 491
Table 4.19.8: Cost of Hazardous Materials Response by County 496
Table 4.19.9: Cost Range of Hazardous Materials Spills by County 496
Table 4.19.10: Critical Facilities at Risk from Hazardous Materials Consequences 497
Table 4.19.11: Maximum Loss Estimation By County 497
Table 4.19.12: Minimum Loss Estimation By County 497

Table 4.19.13: Specific Vulnerabilities by County 498
4.20 Public Mass Shooting Incidents
Table 4.20.1: Local and Surrounding Area Mass Public Shootings (2006–2015) 525
Table 4.20.2: Average Mass Public Shooter Loss Estimation 536
Table 4.20.3: Specific Vulnerabilities by County 536
4.22 Cyber Disruption
Table 4.22.1: Botnet Usage by Type 544
Table 4.22.2: Potential Populations Affected by Cyber Disruptions** 552
Table 4.22.3: Potential Losses to Cyber Disruptions By County 554
Table 4.22.4: Maximum Loss Estimation, Cyber Disruption 554
Table 4.22.5: Minimum Loss Estimation, Cyber Disruption 555
Table 4.22.6: Specific Vulnerabilities by County 555
4.23 Terrorism
Table 4.23.1: Terrorist Related Incidents in the Greater Kansas City Area 576
Table 4.23.2: Hate and Extremist Groups in Missouri 579
Table 4.23.3: Large Venue Locations 581
Table 4.23.4: Estimated Effects of Terrorist Attack on Population 585
Table 4.23.5: Potential Economic Loss, Terrorism 587
Table 4.23.6: Maximum Loss Estimation By County 588
Table 4.23.7: Minimum Loss Estimation By County 588
Table 4.23.8: Specific Vulnerabilities by County 588

Section 6: Plan Implementation and Maintenance

Table 6.1: Data Deficiencies Identified 639

List of Figures

Section 2: Planning Area Profile

Figure 2.1: Kansas City 20
Figure 2.2: Land Cover by County 23
Figure 2.3: Planning Area Population 25
Figure 2.4: Area Population by Median Age, 2000 and 2013 28
Figure 2.5: Population Under 5 Years Old, 2010 and 2013 29
Figure 2.6: Change in Population Under 5, 2000-2013 29
Figure 2.7: Population 65 Years and Older, 2000 and 2013 31
Figure 2.8: Change in Population 65+, 2000-2013 32
Figure 2.9: Area Population by Race/Ethnicity, 2013 33
Figure 2.10: Change in Population by Race/Ethnicity, 2000-2013 33
Figure 2.11: Percent Change in Population by Race/Ethnicity, 2000-2013 34
Figure 2.12: White and Minority Population Shares, 2013 35
Figure 2.13: White and Minority Population Growth, 2000-2013 38
Figure 2.14: Growth in Output, Jobs and Wages 43
Figure 2.15: Employment Change, Pre-Recession Peak to Q3 2013 44

Figure 2.16: Kansas City's Trade Surplus as a Share of Total Economic Output 44
Figure 2.17: Regional Economic Competitiveness Trends by Sector 44
Figure 2.18: Greater Kansas City's Median Household Income, 1990-2012 45
Figure 2.19: Planning Area Employment, 2014 46
Figure 2.20: Total Employment for Planning Area and Jackson County, 2001-2014 47
Figure 2.21: Total Employment for Cass, Clay, Platte and Ray Counties, 2001-2014 47
Figure 2.22: Planning Area Distribution Of Employment by Industry 48
Figure 2.23: County and Planning Area Percent Distributions of Employment by Industry, 2014 49
Figure 2.24: Bachelor's Degree or Higher, 2000 and 2013 (%) 52
Figure 2.25: Real Median Household Income, 2013 dollars 53
Figure 2.26: Total Property Value by County 53
Figure 2.27: Planning Area Property Values 54
Figure 2.28: Improvement and Land Shares of Total Property Value 55
Figure 2.29: Population Pyramids, 1990 and 2010 57
Figure 2.30: Population Pyramid, 2030 57
Figure 2.31: Kansas City MSA Population Change by Broad Age Group, 1990-2010 and 2010-2030 58
Figure 2.32: Number of Buildings by Major Land Use Type 61
Figure 2.33: Building Value by Major Land Use Type 62
Figure 2.34: Comparison of Existing vs. Planned Land Use Acreages 64
Figure 2.35: Population Change, 2010-2040 67
Figure 2.36: Population Change, 2010-2040 (%) 67
Figure 2.37: Employment Change, 2010-2040 (%) 69
Figure 2.38: Employment Change, 2010-2040 69
Figure 2.39: Bicycle/Pedestrian Trails 73
Figure 2.40: Freight Movement in the Kansas City MSA, 2010 75
Figure 2.41: Average Transit Trips, 2010 75
Figure 2.42: Work Trip Travel Modes, 2006–2010 76
Figure 2.43: Roadway Congestion Index, 1982–2011 76

Section 4: Risk and Vulnerability Assessment

Figure 4.1: Overall Risk Algorithm 265
Figure 4.2: Example of County Hazard Summary 287

4.6 Tornadoes

Figure 4.6.1: Tornado Annual Cycle 304

4.7 Severe Thunderstorms (Wind, Hail, Lightning)

Figure 4.7.1: The Thunderstorm Life Cycle 310

4.8 Severe Winter Weather

Figure 4.8.1: 2001 NWS Wind Chill Index 334

4.10 Levee Failures

Figure 4.10.1: Overtopping of a Levee 353
Figure 4.10.2: Breaching of a Levee 353
Figure 4.10.3: Inundation Scenarios 353

4.16 Emerging and Re-emerging Infectious Diseases

Figure 4.16.1: 10 Leading Causes of Death in the World 424
Figure 4.16.2: Pandemic Severity Index by Epidemiologic Characteristics 429

Figure 4.16.3: Illness Rates Based on Projected Deaths in the U.S. 430
4.18 Mass Transportation Accidents
Figure 4.18.1: Roadway Classification Miles 457
Figure 4.18.2: Average Transit Trips, 2010 459
Figure 4.18.3: Charter Service Operations 460
Figure 4.18.4: Annual School Bus Involved Crashes 466
Figure 4.18.5: Deaths in Crashes Involving Large Trucks, 1975–2013 468
Figure 4.18.6: Passenger Fatalities per Passenger Mile by Transportation Mode 471
4.19 Hazardous Materials
Figure 4.19.1: TRI Data and Tools Program 480
Figure 4.19.2: Hazard Class Shipments 486
4.20 Public Mass Shooting Incidents
Figure 4.20.1: Active Shooter Targets 524
Figure 4.20.2: USA Today Mass Killings Locations, 2006 to Present 525
Figure 4.20.3: Potential Locations of Active Shooter Incidents 527
Figure 4.20.4: U.S. Active Shooter Incidents, 2000-2013 533
Figure 4.20.5: Timeline of U.S. Mass Killings, 2006-2015 533
Figure 4.20.6: Study of U.S. Active Shooter Incidents, 2000-2013 534
4.22 Cyber Disruption
Figure 4.22.1: Extreme Solar Storm, July, 2012 542
Figure 4.22.2: Probability of a data breach, minimum of 10,000 to 100,000 records 551
Figure 4.22.3: Probability of data breach by industry 551
Figure 4.22.4: Watering-Hole Attack 558
Figure 4.22.5: Ransomeware Screenshot 559
Figure 4.22.6: Browser Hijacker Homepage 559
4.23 Terrorism
Figure 4.23.1: Known Perpetrators 569
Figure 4.23.2: Terror Plots by Country of Origin 570
Figure 4.23.3: Types of Terrorist Weapons 571
Figure 4.23.4: Explosive Threat Distances 572
Figure 4.23.5: Weapons Used by Decade 572
Figure 4.23.6: How Terror Plots Ended 574
Figure 4.23.7: U.S. Terrorist Attacks by Location, 1970-2011 578
Figure 4.23.8: National Terrorism Advisory System 586
Section 5: Mitigation Strategy
Figure 5.1: Jurisdiction Sample, Incorporation of 2010 and 2015 Goals and Actions 617

List of Maps

Section 2: Planning Area Profile

Map 2.1: The Hazard Mitigation Planning Area 19
Map 2.2: Waterways and Topography in the Greater Kansas City Region 21
Map 2.3: Topographical Land Cover 24

Map 2.4: Planning Area Population Density, 2010 26
Map 2.5: Area Population Change, 2000-2010 27
Map 2.6: Population Below the Age of 5 (%) 30
Map 2.7: Population Age 65 or Over (%) 32
Map 2.8: Percent Minority, 2009-2013 35
Map 2.9: Hispanic Population (%) 36
Map 2.10: Population Speaking English Less than 'Very Well' (%) 37
Map 2.11: Change in White Non-Hispanic Population 2000-2010 38
Map 2.12: Change in Minority Population, 2000-2010 39
Map 2.13: Population Below Poverty (%) 40
Map 2.14: Housing Units 50 Years Old or Older (%) 41
Map 2.15: Change in Population Below Poverty, 2000-2010 41
Map 2.16: Area Businesses by Number of Employees 50
Map 2.17: Area Shopping Centers by Rentable Sq. Ft. 51
Map 2.18: Area Employment Density 52
Map 2.19: Parcel Improvement Value ($) 56
Map 2.20: Area Land Use 60
Map 2.21: Planned Land Use and 100-Year Floodplain 63
Map 2.22: Planning Area Activity Centers 65
Map 2.23: Forecast Future Land Use with 100-Year Floodplain 66
Map 2.24: 2010-2040 Forecast Population Change 68
Map 2.25: 2010-2040 Forecast Employment Change 70
Map 2.26: Planning Area Major Roads, Bridges and Rail Lines 72
Map 2.27: Airports, Heliports and Amtrak 74
Map 2.28: 20-Minute Travel Distance, 4–6 p.m., 2010 77
Map 2.29: Government Facilities 80
Map 2.30: Public Safety/Emergency Responders 81
Map 2.31: Tier II and RMP Facilities 82
Map 2.32: Chemical and Hazardous Materials 83
Map 2.33: Hospitals, Trauma Centers and Other Health Facilities 84
Map 2.34: Nursing Homes, Day Cares and Public Housing 85
Map 2.35: Schools and Colleges 86
Map 2.36: Hotels, Apartments and Trailer Parks 87
Map 2.37: Event Spaces and Historic Sites 88
Map 2.38: Agricultural and Food 89

Section 4: Risk and Vulnerability Assessment

4.6 Tornadoes

Map 4.6.1: Kansas City Metropolitan Area Tornadoes (1951-2014) 297
Map 4.6.2: Path and Magnitude of May 4, 2003, Tornado Outbreak 298
Map 4.6.3: Kansas City Region Tornadoes with Parcel Data 305
Map 4.6.4: Potential Impact of EF-5 Tornado on the Kansas City Region 306
Map 4.6.5: Hotels, Apartments, and Trailer Parks 307

4.10 Levee Failures

Map 4.10.2: Summer Flood Extents (Missouri) 359

Map 4.10.3: Location of Levees and Protected Areas, Kansas City Region 360
4.11 Dam Failures
Map 4.11.2: Sample Inundation Map (Meadow Lake Estates Dam) 371
4.12 Drought
Map 4.12.1: Missouri Drought Conditions (2010) 374
Map 4.12.2: Change in Drought Conditions (2009–2010) 375
Map 4.12.3: Missouri Drought Conditions (2011) 376
Map 4.12.4: Change in Drought Conditions (2010–2011) 377
Map 4.12.5: Missouri Drought Conditions (2012) 378
Map 4.12.6: Change in Drought Conditions (2011–2012) 379
Map 4.12.7: Missouri Drought Conditions (2013) 380
Map 4.12.8: Change in Drought Conditions (2012–2013) 381
Map 4.12.9: Missouri Drought Conditions (2014) 382
Map 4.12.10: Change in Drought Conditions (2013–2014) 383
Map 4.12.11: Missouri's Drought Susceptibility Regions 384
Map 4.12.12: Current Drought Conditions, April, 2015 387
Map 4.12.13: U.S. Seasonal Drought Outlook, 2015 388
4.13 Heat Waves
Map 4.13.1: Population Over age 65 in the Kansas City Metropolitan Area 396
Map 4.13.2: Population in Poverty in the Kansas City Metropolitan Area 397
Map 4.13.3: Population with a Disability in the Kansas City Metropolitan Area 398
4.14 Wildland Fires
Map 4.14.1: Wildland Fires in the Kansas City Metro Area, 2002–2015 (by Fire District) 403
Map 4.14.2: Building Damages from Wildland Fires in K.C. Metro Area, 2002–2015 (by Fire District) .. 404
Map 4.14.3: Buildings Susceptible to Wildland Fire in Wildland-Urban Interface Areas 405
4.15 Earthquakes
Map 4.15.1: Seismic Activity in Missouri from 1973 to 2015 415
Map 4.15.2: Projected Modified Mercalli Intensities from a 7.6 Magnitude Earthquake 418
4.17 Trans-Boundary Animal Disease
Map 4.17.1: Confirmed Animal Rabies in Missouri, 2014 442
Map 4.17.2: Hemorrhagic Disease Reports 442
Map 4.17.3: Kansas City Region Planned Land Use Map 443
4.18 Mass Transportation Accidents
Map 4.18.1: Airports, Heliports and Amtrak 458
Map 4.18.2: Regional Interstates and Highways 461
Map 4.18.3: Missouri Department of Public Safety Traffic Crashes Report, 2013 466
Map 4.18.4: Location of Large Truck Fatal Crashes 469
Map 4.18.5: Fatalities in Crashes Involving a Large Truck by County, 2013 469
4.19 Hazardous Materials
Map 4.19.1: Tier II Facilities 481
Map 4.19.2: RMP Facilities for the Kansas City Region (2015) 484
Map 4.19.3: Kansas City Region Rail Lines 487
Map 4.19.4: Tier II and RMP Facilities in Flood Prone Areas 490

Map 4.19.5: Population Density 494
Map 4.19.6: Employment Density 495
4.20 Public Mass Shooting Incidents
Map 4.20.1: Regional Schools and Colleges 528
Map 4.20.2: Regional Shopping Centers 529
Map 4.20.3: Regional Businesses 530
Map 4.20.4: Regional Government Facilities 531
4.22 Cyber Disruption
Map 4.22.1: Regional Businesses 553

List of Attachments

Section 2: Planning Area Profile

Attachment Table 2.1: Population by Age 90
Attachment Table 2.2: Population by Race/Ethnicity 90

Attachment Map 2.1: Unemployment (%) 91
Attachment Map 2.2: Population with High School Education or Less (%) 92
Attachment Map 2.3: Zero-Vehicle Households (%) 93
Attachment Map 2.4: Uninsured Population (%) 94
Attachment Map 2.5: Disabled Population (%) 95
Attachment Map 2.6: Veteran Population (%) 96

Section 3: Capabilities Assessment

Attachment 3.1: Community and School Profile Survey Instruments 166
Attachment 3.2: Jurisdiction Supplemental Information to Community Profile Survey Responses 192

Section 4: Risk and Vulnerability Assessment

4.17 Trans-Boundary Animal Disease

Attachment 4.17.1: OiE Reportable Diseases, Infections and Infestations in Force 2015 451
Attachment 4.17.2: Missouri Department of Agriculture Reportable Agricultural Diseases 454
Attachment 4.17.3: Recent Kansas City Planning Region Trans-Boundary Animal Disease Incidents 455
Attachment 4.17.4: County Regulations, Keeping Livestock or Poultry Urban Areas 456

4.18 Mass Transportation Accidents

Attachment 4.18.1: Missouri Traffic Statistics 1988 through 2012 476
Attachment 4.18.2: County Crash Statistics 2011 through 2013 477

4.19 Hazardous Materials

Attachment 4.19.1: Jackson County, MO Toxic Release Inventory (Updated 11/24/2014) 499
Attachment 4.19.2: Clay County, MO Toxic Release Inventory (Updated 11/24/2014) 500
Attachment 4.19.3: Cass County, MO Toxic Release Inventory (Updated 11/24/2014) 501
Attachment 4.19.4: Platte County, MO Toxic Release Inventory (Updated 11/24/2014) 502
Attachment 4.19.5: Ray County, MO Toxic Release Inventory (Updated 11/24/2014) 503
Attachment 4.19.6: TIER II Information by County and City (Data from Kansas City Area LEPC 2014) 504
Attachment 4.19.7: National Priority Site Information, Armour Road 506

Attachment 4.19.8: National Priority Site Information, Conservation Chemical Co. 507
Attachment 4.19.9: National Priority Site Information, Lee Chemical 508
Attachment 4.19.10: National Priority Site Information, Lake City Army Ammunition Plant 509
Attachment 4.19.11: Cass County Hazardous Materials Spill Incidents (January 2009-March 2015) 510
Attachment 4.19.12: Clay County Hazardous Materials Spill Incidents (January 2009-March 2015) 510
Attachment 4.19.13: Jackson County Hazardous Materials Spill Incidents (January 2009-March 2015) 511
Attachment 4.19.14: Platte County Hazardous Materials Spill Incidents (January 2009-March 2015) .. 512
Attachment 4.19.15: Ray County Hazardous Materials Spill Incidents (January 2009-March 2015) 512
4.22 Cyber Disruption
Attachment 4.22.1: Computer Virus List 556
Attachment 4.22.2: Major Viruses and Worms in the History of the Internet 560
Attachment 4.22.3: Large Historical Virus Infections and Data Breaches 564
4.23 Terrorism
Attachment 4.23.1: Foreign Terrorist Organizations Designated by the Secretary of State (11/2014) .. 590
Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015* 592
Attachment 4.23.3: Foreign Companies in the Planning Region 611
Section 5: Mitigation Strategy
Attachment 5.1: 2010 Goals and Actions 620
Attachment 5.2: Jurisdiction Mitigation Strategies 634
Attachment 5.3: School Mitigation Strategies 635
Section 6: Plan Implementation and Maintenance
Attachment 6.1: Hazard Mitigation Planning Committee (HMPC) Members Roles and Responsibilities 643
Attachment 6.2: 2015 Participating Jurisdictions' Designated Responsible Parties 647

This page intentionally left blank.

Section 1: Introduction and Planning Process

Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
2) *An opportunity for neighboring jurisdictions, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and,*
3) *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

1.1 Purpose

Cass, Clay, Jackson, Platte and Ray counties (the Missouri counties of the MARC region), along with 39 other jurisdictions, 19 school districts and four fire/ambulance districts, updated this *Regional Multi-Hazard Mitigation Plan* in order to sustain actions designed to reduce or eliminate long-term risk to people and property from natural and other hazards. The planning process is as important as the plan itself and creates a framework, both locally and regionally, for the development and implementation of public policy designed to protect citizens, critical infrastructure, public and private property, and the environment from the impact of hazards. This updated plan ensures the continuity of mitigation project grant funding through 2020.

1.2 Background and Scope

Hazard mitigation is defined by FEMA as any action taken to eliminate or reduce the long-term risk to human life and property from natural, man-made and technological hazards. In 2005, the National Institute of Building Science's Multi-Hazard Mitigation Council, in response to a congressional mandate, conducted an independent study on savings generated through mitigation activities. The study concluded that mitigation grant funded projects have an overall societal benefit/cost ratio of 4.0 (i.e., for every dollar spent on mitigation activities, four dollars are saved through loss avoidance).

Since the last plan was approved in August 2010, two events occurred which resulted in federal major disaster declarations and federal emergency declarations: a severe winter storm affected the region between January 31 and February 5, 2011 and a flood event impacted the area between June 1 and August 1, 2011. For the severe winter storm event, Cass, Platte and Ray counties were included in the major disaster declaration (DR-1961). All five counties in the planning area were included in the emergency declaration, which included a wider geographic region. For the flood event, Platte and Ray were included in the major disaster declaration, although Platte qualified for a greater level of assistance. Clay, Jackson, Platte and Ray were included in the emergency declaration for this event. Sixty separate events related to hazardous weather have caused property damage and/or loss of life throughout the region from 2009-2014. The consequences of these events have impacted the citizens of

the region economically, socially and emotionally. As such, mitigation planning ranks among the most important initiatives the region can undertake to protect its residents and minimize property damage.

Through mitigation planning, each participating jurisdiction has identified areas throughout the region vulnerable to potential hazards and developed strategies to reduce such vulnerability. This updated hazard mitigation plan documents the progress made on established mitigation actions and proposes new actions designed to reduce the impacts of hazards and increase resilience. The updated plan is the result of a collaborative effort by the following participating jurisdictions:

Cass County*
Belton*
Harrisonville*
Lake Winnebago*
Peculiar*
Pleasant Hill*
Raymore*
Archie R-V School District*
Harrisonville School District*[1]
Pleasant Hill R-III School District*
Raymore-Peculiar School District

Clay County*
Excelsior Springs
Gladstone*
Kearney*
Liberty*
Mosby*
North Kansas City*
Smithville*
Fishing River Fire Protection District
North Kansas City School District
Smithville R-1 School District*

Jackson County*
Blue Springs*
Grandview*
Independence*
Kansas City, Mo.*
Lee's Summit
Oak Grove*
Raytown*
Sni Valley Fire Protection District*
Blue Springs School District*
Fort Osage R-1 School District*
Independence School District
Kansas City School District
Lee's Summit School District

Oak Grove R-VI School District*[1]
Metropolitan Community Colleges*
Kansas City University of Medicine & Biosciences[1]

Platte County*
Edgerton
Farley
Ferrelview
Houston Lake*
Lake Waukomis
Northmoor*
Parkville*
Platte City*
Platte Woods
Riverside*
Tracy*[1]
Weatherby Lake*
Weston*
Northland Regional Ambulance District
West Platte Fire Protection District
North Platte R-1 School District*
Park Hill School District*
Platte County R-3 School District
West Platte R-II School District*
Park University

Ray County*
Richmond

*Denotes 2010 Participants

[1]Denotes participation requirements not fully met, completion in progress

The updated *Regional Multi-Hazard Mitigation Plan* was prepared pursuant to the requirements of Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5165, as amended by Section 104 of the Disaster Mitigation Act of 2000, P.L. 106-390 (DMA 2000) and regulations set forth in 44 CFR §201.6, *Local Mitigation Plans*. With an approved updated hazard mitigation plan, Cass, Clay, Jackson, Platte and Ray counties and certain cities, school districts, colleges and universities will remain eligible for grants under the following federal hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)

1.3 Planning Process

Requirement §201.6(c)(1): *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

1.3.1 Background

The plan update process was set in motion on June 12, 2014, with MARC staff informing the Metropolitan Emergency Managers Committee (MEMC) that the five-year update to the Kansas City region's hazard mitigation plan was due August 31, 2015. Communities, both new and past plan participants, were invited to take part in this planning process. They were encouraged to review the current Regional Hazard Mitigation Plan available on the MARC website at http://www.marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan and to review their current mitigation strategies. In July MARC reached out to each of the five counties and between July and August secured written agreements from each participating counties to participate in the planning process and to confirm MARC as the facilitator and primary author.

A Regional Hazard Mitigation Planning Committee (HMPC) was formed to guide and coordinate the planning process and to review the plan materials as they were developed. The HMPC consisted of selected representatives from the Missouri counties in the MARC region, as well as the cities of Kansas City and Independence, Mo. For a complete listing of HMPC members and their roles and responsibilities see Attachment 6.1 in *Section 6.4*. For the June 12, 2014 MEMC meeting summary, see *Appendix B: Supporting Documents*.

Before the Planning Committee formally convened, a consultant and MARC staff reviewed the 2010 Regional Hazard Mitigation Plan, the 2013 Missouri State Hazard Mitigation Plan, the Kansas City region's Threat Hazard Identification Risk Assessment (THIRA), FEMA's Local Mitigation Planning Handbook, FEMA's Mitigation Plan Review Guide, and multiple Hazard Mitigation plans from communities all across the country. The consultant and MARC staff outlined a proposal for the process and timeline for completing the HMP update. The proposal was presented to the HMPC at their first meeting for their approval.

1.3.2 Planning Team Kickoff

The 2015 update planning process began in earnest at the September 29, 2014, kick-off meeting, where HMPC members were provided with background information, changes to FEMA guidance, required updates and a nominal timeline for the plan update process. As its first order of business, the HMPC adopted the Combination Model (FEMA 386-8, 12) as a means to fulfill the requirements of multi-jurisdictional plan development, similar to the process used for the 2010 update. Through this Combination Model, MARC was designated the Plan Author (authorized to act on behalf of the participating jurisdictions in development of the plan); and the HMPC was designated the Planning Team. The Planning Team consists of representatives from four of the five participating Missouri counties (Cass, Clay, Jackson and Platte) plus representatives from the city of Kansas City, Missouri, the city of Independence, and the North Kansas City School District.

After the model for the Plan update was confirmed, the HMPC identified which threats and hazards would be considered in the update. To assist this determination, the HMPC reviewed hazards identified in the State of Missouri's 2013 Hazard Mitigation Plan the hazards addressed in the region's 2010 Plan (and recommendations for improvements), and hazards identified through the THIRA process. The

HMPC decided that the 2015 Plan update needs to continue to address all of the natural and man-made hazards included in the 2010 Plan as well as the following new hazards: levee failures, cyber disruption, transboundary animal disease, and terrorism. Tornadoes and severe thunderstorms were also separated stand-alone hazard profiles. These hazards were added to mirror the State's hazards and reflect changing risk landscapes in the Kansas City region.

Additional business at the kick-off meeting included determination of satisfactory participation requirements for jurisdictions and beginning initial outreach and information collection efforts. Participation requirements were identified for local jurisdictions to complete in order to obtain the information necessary to inform the update process. For jurisdictions, nine participation requirements were outlined:

1. Attend county hosted meetings or separate work sessions with either a planning team representative or a MARC staff member.
2. Submit an inventory of existing plans relevant to hazard mitigation.
3. Submit list of hazards that affect the jurisdiction.
4. Submit description of what is at risk (including local critical facilities, if different than regional profile).
5. Develop goals for the community.
6. Develop mitigation actions with an analysis/explanation of why those actions were selected.
7. Prioritize actions emphasizing relative cost-effectiveness.
8. Review and comment on draft plan
9. Host opportunities for public involvement (e.g. link local Internet presence to a plan website).

For school districts, eight requirements were outlined:

1. Attend county hosted meetings or separate work sessions with either a planning team representative or a MARC staff member.
2. Submit an inventory of existing plans relevant to hazard mitigation.
3. Submit list of hazards that affect the jurisdiction.
4. Develop goals.
5. Develop mitigation actions with an analysis/explanation of why those actions were selected.
6. Prioritize actions emphasizing relative cost-effectiveness.
7. Review and comment on draft plan
8. Host opportunities for public involvement (e.g. link local Internet presence to a plan website).

In order to achieve six of the requirements (#2-7/#2-6), the HMPC agreed to a proposal that participating organizations would be asked to provide information for the update through a series of surveys or tools including a Community/ School Profile, a 2010 Hazard Mitigation Goals and Actions Status Update Tool for those communities that participated in the last plan, and a 2015 Hazard Mitigation Goals and Actions Tool for all current participating organizations to complete. Each county in the planning area would host kick off meetings for local jurisdictions, school districts/universities/colleges, and fire/ambulance districts to learn about the hazard mitigation plan update process, the requirements for participation and the various tools for information collection.

County emergency managers and MARC staff would have separate work sessions with jurisdictions or organizations who did not attend their county's kick off meeting. After information had been collected from participants about the hazards most likely to affect their community, their capabilities, and the strategies they selected to address the hazards, preparations were made to share the information with the public through county hosted meetings which MARC helped to facilitate. Participating organizations were encouraged to attend the county community engagement events. Any organization not able to have representation at the county hosted meetings would be required to host their own event or plan another way to communicate the information to the public and invite community input. All information, including meeting notices, summaries, etc., about the update process was made available in accordance with Missouri Sunshine Law provisions. As such, neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties were provided the opportunity to be involved in the planning process. Additional information regarding Missouri's Sunshine Law can be found on the Web site of Missouri's Attorney General at http://ago.mo.gov/sunshinelaw/. Further, informational updates and participation opportunities were reported at the monthly meetings of the Metropolitan Emergency Managers Committee (MEMC), which are open to the public and other interested parties.

Table 1.1 summarizes the meetings conducted throughout the planning timeline by date held, agenda and attendees (noted by title, agency, organization or jurisdiction). Meeting agendas, summaries and sign-in sheets can be found in Appendix B: Supporting Documents.

Table 1.1: Summary of Planning Meetings

Meeting	Date	Purpose of Meeting	Attendees
HMP Review	8/2014-9/2014	Discuss revisions and plan reformatting, Adding hazards, mitigation actions, schedule for future meetings.	Planning Team, MARC
Kick-off	9/30/14	Background, Planning Team formation, Initial planning, participation requirements.	Planning Team, MARC
Jurisdiction Specific Intro and Information	10/21/14	Provide introduction, background, information and requirements regarding the planning process to a representative from Richmond.	Richmond (Fire)
County Kick-Off	11/03/14	Provide introduction, background, information and requirements regarding the planning process to representatives of Cass County jurisdictions.	Cass County (EM, Health), Belton, Garden City, Harrisonville, Lake Winnebago, Raymore, Archie School District, Harrisonville School District, Pleasant Hill School District, South Metro Fire District, MARC

Table 1.1: Summary of Planning Meetings			
Meeting	**Date**	**Purpose of Meeting**	**Attendees**
County Kick-Off	11/14/14 & 11/17/14	Provide introduction, background, information and requirements regarding the planning process to representatives of Platte County jurisdictions.	Platte County (EM), Camden Point, Edgerton, Houston Lake, Kansas City, Lake Waukomis, Northmoor, Parkville, Riverside, Platte City, Platte Woods, Tracy, Weatherby Lake, Weston, Central Platte Fire, Northland Regional Ambulance District (ORAD), West Platte Fire, West Platte School District MARC
County Kick-Off	11/17/14	Provide introduction, background, information and requirements regarding the planning process to representatives of Clay County jurisdictions.	Clay County (EM, Health, Parks, P&Z), Excelsior Springs, Kearney, N. Kansas City, Liberty, Smithville, Fishing River Fire District, MARC
County Kick-Off	11/18/14	Provide introduction, background, information and requirements regarding the planning process to representatives of Jackson County jurisdictions.	Jackson County (Emergency Prep., Public Health, Public Works, Planning), Blue Springs, Independence, Grandview, Lee's Summit, Lone Jack, Oak Grove/Sni Valley FPD, Central Jackson County Fire District, Kansas City Public Schools, MARC
Jurisdiction specific work sessions	11/24-12/11	Inter-department work sessions between KCMO EM and other departments within the city government.	KCMO (Aviation, Health Dept., Planning & Development, Parks, FD, Water, EM, IT), MARC
Intro and Information	12/1/14	Provide introduction, background, information and requirements regarding the planning process to the Ray County Commissioners.	Ray County (Commissioners), MARC
Jurisdiction Work Session	12/11/14	Provide introduction, background, information and requirements regarding the planning process to staff at the City of Independence. Provide assistance to complete the Community Profile.	Independence (Emergency Management, Environmental, Water, Community Development, Fire, Health, Floodplain Admin, Parks), MARC
County Kick-Off	12/19/14	Provide introduction, background, information and requirements regarding the planning process to representatives of Ray County.	Ray County (Commissioners, P&Z, 911), MARC

Table 1.1: Summary of Planning Meetings			
Meeting	**Date**	**Purpose of Meeting**	**Attendees**
School District/University/College Kick-Off	1/6/15	Provide introduction, background, information and requirements regarding the planning process to representatives of Ray County.	Fort Osage School District, Lee's Summit School District, North Kansas City School District, Kansas City University of Medicine and BioSciences, Jackson County EM, Clay County EM.
Hazard Mitigation Planning Committee Meeting	1/27/15	Review progress of data collection through Community Profiles and Mitigation Strategy tools. Plan for Community Engagement events.	Regional Hazard Mitigation Planning Committee
Community Engagement	3/3/015	Community engagement event held in conjunction with Storm Spotter trainings to provide residents an opportunity to offer feedback on the mitigation strategies considered by jurisdictions in Jackson County.	Jackson County (Emergency Prep), Independence, Oak Grove, Grandview, Raytown, Blue Springs, Lee's Summit
Community Engagement	3/4/15	Community engagement event held in conjunction with Storm Spotter trainings to provide residents an opportunity to offer feedback on the mitigation strategies considered by jurisdictions in Cass County.	Cass County (EM), Peculiar, Raymore, Loch Lloyd, Pleasant Hill, Strasburg, Belton, Garden City
Community Engagement	3/5/15	Community engagement event held in conjunction with Storm Spotter trainings to provide residents an opportunity to offer feedback on the mitigation strategies considered by jurisdictions in Platte County..	Platte County (EM, Sheriff, Commissioner), Riverside, Houston Lake, Tracy, Parkville, Platte City, Weatherby Lake, Northmoor, Weston
Jurisdiction Specific Work Session	3/11/15	Development of Ray County's 2015 Goals and Actions and planning for the Ray County Community Engagement event.	Ray County (Commissioners), MARC
Hazard Mitigation Planning Committee Meeting	3/12/15	Review of participant status and completion of data collection tools. Consideration of request for an extension	Regional Hazard Mitigation Planning Committee
Community Engagement	3/24/15	Community engagement event held in conjunction with Storm Spotter trainings to provide residents an opportunity to offer feedback on the mitigation strategies considered by jurisdictions in Clay County.	Clay County (Emergency Management) North Kansas City, Liberty, Smithville, Pleasant Valley, Kearney, Gladstone
Community Engagement	4/15/15	West Platte R-II School Board meeting which provide the public an opportunity to offer feedback on the mitigation strategies considered by West Platte R-II School District	West Platte R-II School Board

Table 1.1: Summary of Planning Meetings			
Meeting	**Date**	**Purpose of Meeting**	**Attendees**
Hazard Mitigation Planning Committee Meeting	4/30/15	Review participant status and challenges experienced with the data collected.	Regional Hazard Mitigation Planning Committee
Community Engagement	5/12/15	Community engagement event to provide residents an opportunity to offer feedback on the mitigation strategies considered by the Ray County.	Ray County Commissioners, EM Coordinator
Community Engagement	5/5/15	Sherwood Cass R-VIII School Board meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Sherwood Cass R-VIII School District.	Sherwood Cass R-VIII School Board, School Safety Coordinator
Community Engagement	5/5/15	Village of Farley Board of Trustees meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Village of Farley.	Village of Farley Board of Trustees
Community Engagement	5/11/15	Houston Lake City Council meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Houston Lake.	Houston Lake City Council
Community Engagement	5/13/15	Fort Osage R-1 School Board meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Fort Osage R-1 School District.	Fort Osage R-1 School District
Community Engagement	5/13/15	Metropolitan Community College posted information on-line about the Hazard Mitigation Plan, a link to their goals and actions, and provided a link for people to provide comment starting on this date.	Metropolitan Community College On-line Newsletter
Community Engagement	4/27/15	Presentation to the Pleasant Hill City Council regarding the Hazard Mitigation Plan and Pleasant Hill's goals and actions.	Pleasant Hill City Council, City Manager
Community Engagement	5/14/15	Pleasant Hill posted information about the Hazard Mitigation Plan on their website with a link to the city's goals and actions. Citizens were invited to provide comments back to City Hall.	Pleasant Hill City webpage
Community Engagement	5/17/15	Blue Springs R-IV Council PTA meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Blue Springs R-IV School District.	Blue Springs R-IV School District PTA
Community Engagement	5/18/15	Archie R-V School Board meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Archie R-V School District.	Archie R-V School District Board of Education
Community Engagement	5/18/15	Peculiar Board of Alderman meeting and public hearing to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Peculiar.	Peculiar Board of Alderman

Table 1.1: Summary of Planning Meetings			
Meeting	**Date**	**Purpose of Meeting**	**Attendees**
Community Engagement	5/19/15	Pleasant Hill R-III School Board meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Pleasant Hill R-III School District.	Pleasant Hill School District Board of Education
Community Engagement	5/20/15	North Platte R-1 Board of Education meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the North Platte R-1 School District.	North Platte R-1 School District
Community Engagement	5/20/15	Smithville R-II Board of Education meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Smithville R-II School District.	Smithville R-II School District
Community Engagement	5/26/15	Independence School Board meeting to provide the public an opportunity to offer feedback on the mitigation strategies considered by the Independence School District.	Independence School District
Community Engagement	5/26/15	Platte City posted an online description of the Hazard Mitigation Plan with a link to their goals and actions. They invited comments from the public on this effort.	Platte City City Webpage
HMP Draft Review	5/18/15-5/29/15	Review and approval for submission of HMP first draft.	Planning Team, MARC

1.3.3 Plan Section Review and Update Methodology

To minimize the burden of the update, the HMPC determined to revise only those sections where information had changed, new or better data was available, or to address FEMA recommendations for improvements from the 2010 Plan. As discussed in *Background Section 1.3.1* above, MARC staff evaluated the plan in its entirety, determining which sections required revision in accordance with FEMA's *Local Mitigation Plan Review Guide* (October 1, 2014) and *Multi-Jurisdictional Mitigation Planning,* 2006 and presented the HMPC with recommendations. Table 1.2 describes the data deficiencies that were present during the 2010 plan update process and the status of those data deficiencies for the current plan update process. Where data sets are now available they have been utilized in the analysis.

Table 1.2: Data Deficiency Corrective Actions 2010			
Data Deficiency	**Action Required**	**Status**	**Responsible Party**
1. Limited critical facility information available for Cass and Ray counties.	Continue to work with local jurisdictions to locate and map critical facilities	Critical infrastructure mapping has improved with data available for all counties	Cass/Ray Planning Team representatives

Table 1.2: Data Deficiency Corrective Actions 2010			
Data Deficiency	**Action Required**	**Status**	**Responsible Party**
2. Dam inundation pathways largely unavailable	Continue to work the MDNR and local dam owners to document dam failure inundation pathways as part of EAP update/completion process	Inundation pathways for all high hazard dams have been distributed to dam owners but not all county officials have received copies. It is expected these will be available by the end of 2015. As local officials receive the maps, they will be incorporated into the Hazard Mitigation Plan.	Planning Team
3. Levee failure analysis information largely unavailable	Continue to work with USACE and other entities to obtain levee failure analysis information as it becomes available		Planning Team
4. Existing/Planned land use data unavailable for Ray County	As GIS mapping abilities become available, work with MARC to collect and input land use data	Existing land use data is now available for Ray County. Future land use scenarios have not been developed for the communities in Ray County yet.	Ray County Planning Team representative, MARC
5. Various data collection/interpretation deficiencies were noted for winter weather, heat wave, drought, HazMat and infectious disease due to certain inherent limitations	Continue to reassess hazards and data collection methods for next update. As new collection methods and interpretation techniques become available, incorporate into plan update	Data collection and interpretation has improved for most of the hazards with specific improvements mentioned within each hazard section.	Planning Team, MARC
6. Building count data for Loch Lloyd unavailable	Incorporate building count data as it becomes available	Building data information is available for Loch Lloyd. Loch Lloyd is not a participant in this plan.	Cass Planning Team Representative

Table 1.2: Data Deficiency Corrective Actions 2010			
Data Deficiency	**Action Required**	**Status**	**Responsible Party**
7. Individual jurisdiction loss estimates made using assumed standard values	Continue to collect and refine property valuation data from individual jurisdictions as it becomes available	Improvements to HAZUS mapping and property valuations mapping have eliminated the need to use an assumed standard value. Where applicable, property loss estimates are now tied to actual property valuations within the identified impacted jurisdiction.	Planning Team, Participating Jurisdictions, MARC

Table 1.3 illustrates the results of the plan review and recommendations for revisions, which were subsequently approved by the HMPC. In addition, Table 1.3 identifies any format changes that have been made where applicable. MARC staff conducted research, collected information, developed maps and authored the plan update. As changes, updates and recommendations were drafted into the plan, the HMPC provided MARC with comments and feedback during planning meetings and via e-mail. As plan sections were drafted they were made available to the HMPC members for view and comment. The final draft of the plan was approved for submission by the HMPC May 29, 2015.

Table 1.3: Review Process Summary				
Section	**Reviewed (Yes/No)**	**Revisions Made (Yes/No)**	**Basis for Revisions**	**Summary of Revisions**
Prerequisites	Yes	Deleted	Plan consolidation	Combined prerequisites with introduction and planning section.
Introduction & Planning Process	Yes	Yes	Plan reformatting	Combined Prerequisites and Planning Process into new section called Introduction and Planning Process; updated review methodology and participation requirements.
Planning Area Profile	Yes	Yes	Plan reorganization Updated demographics	Updated with current information and added relevant maps.

Table 1.3: Review Process Summary				
Section	**Reviewed (Yes/No)**	**Revisions Made (Yes/No)**	**Basis for Revisions**	**Summary of Revisions**
Regional and Local Capabilities	Yes	Yes	Plan organization New survey tools	Created new section to highlight results of community and school survey tools consistent with FEMA capabilities worksheets
Risk Assessment & Vulnerability	Yes	Yes	Plan reorganization Updated and new hazard profile Expanded vulnerability analysis	Identified four additional man-made/technological hazards. Updated historical hazard data. Consolidated risk assessment and vulnerability analysis by hazard.
Mitigation Strategy	Yes	Yes	Re-evaluation of mitigation actions	Each jurisdiction evaluated and re-prioritized mitigation actions from previous plan. Changes made to reflect jurisdiction-specific actions.
Plan Maintenance	Yes	Yes	Changes in review process and timeline	Revised the review process and timeline to allow sufficient time for data collection and community input process to ensure jurisdictions make connections among capabilities, hazards and mitigation strategy.

1.3.4 Review and Incorporation of Existing Plans

Existing plans, codes, ordinances, programs, resources and staffing were reviewed and integrated in the planning process. The Community Profile tool collected information about the different tools available to communities related to administration, financial planning, education and outreach, and planning and regulation. Table 1.4 lists the different tools that were included in the Community Profile for communities to report on[i]:

Table 1.4: Community Profile Tools	
Administrative & Technical	**Financial**
Administrative Resources: *Planning and Zoning Commission	*Capital Improvement Project Funding *Authority to levy taxes for specific purpose

Table 1.4: Community Profile Tools	
*Mitigation Planning Committee *Maintenance Program to reduce risk *Mutual aid agreement **Staffing Resources:** *Chief Building Official *Floodplain Administrator *Emergency Manager *Community Planner *Civil Engineer *Public Health Official *IT Support *GIS Coordinator **Technical Resources:** *Warning System/Services *Hazard data and information *Critical Facilities Map/APRS *HAZUS Analysis *Existing Land Use Maps *Future Land Use Maps *State Hazard Mitigation Plan *Grant Writing	*Fees for water, sewer, gas or electric services *Impact fees for new development *Stormwater utility fee *Incur debt through general and/or special tax bonds *Incur debt through private activities *Community Development Block Grant *Flood Mitigation Assistance Program *Pre-Disaster Mitigation Program *Hazard Mitigation Grant Program
Education & Outreach	**Planning & Regulatory**
Existing Warning Systems: *Storm Sirens *Mass Notification Systems *CMAS *MEMC Project Community Alert *National Weather Service *Kansas City Scout **Community Partnerships:** *Regional Homeland Security Coordinating Committee *Metropolitan Emergency Managers Committee *Mid-America Local Emergency Planning Committee *Metropolitan Official Health Agencies of the Kansas City Area *Regional 9-1-1 System *SAVE Coalition *Kansas City Organization Active in Disaster *Community Emergency Response Team *Medical Reserve Corps of Greater Kansas City *Successful Small Cities: A Technical Tool Kit *Water Natural Resources Protection (NRI, WRP3) *Storm Shelter Model Ordinance * Ongoing public education *Natural disaster or safety related school program *StormReady certification	**Plans:** *Comprehensive Master Plan *Capital Improvement Plan *Economic Development Plan *Local Emergency Operations Plan *Continuity of Operations Plan *Public Health Emergency Preparedness Plan *Transportation Plan *Stormwater Management Plan *Community Wildlife Protection Plan *Brownfields Redevelopment *Climate Change Adaptation **Codes:** *Building Code *Fire Code *Mechanical Code *Plumbing Code *Dangerous Building Code **Land Use Planning Policies:** *Stream setback ordinances *Floodplain management ordinances *Soil and erosion ordinances *Burn ordinance

Table 1.4: Community Profile Tools	
*Firewise Communities certification *Public-private partnership initiatives (disaster related) *Media coverage and Public Awareness	*Storm water runoff ordinances *Water conservation measures *Open space acquisition/dedication *Flood buyout *Site plan review requirements.

For each tool, one of the questions asked was if the jurisdiction had reviewed that tool during the Hazard Mitigation Plan update. Where applicable, the Community Profile requested jurisdictions describe how these documents and measures were integrated in the planning process. School districts, universities and colleges were polled on a different set of tools including;

Evacuation plans
Storm Sheltering Plan
Shelter-In-Place Plan
Infectious Disease Plan
Water Conservation Measures
Security Plan
District Building Codes

Section 3 Capabilities Assessment includes a summary of all the tools included in the Community Profile and the School Profile. Two other tools were used for the review process to capture information about mitigation strategies that communities/organizations are considering for the next five years. The first tool was a Web-based data warehouse of the hazard mitigation goals and actions that were listed in the 2004 and 2010 Hazard Mitigation plans. Jurisdictions were asked to provide a status report on these goals and actions. The other tool allowed jurisdictions and organizations the ability to create new goals and hazards that they wished to work on during the next five years. For both of these tools, jurisdictions were asked to include how their actions are being/will be implemented into other planning mechanisms.

1.3.5 Public Involvement

Hazard mitigation planning is best accomplished when those with a stake in the plan are actively involved. Because hazards can affect everyone, these stakeholders are not just local government officials, but also private industry, nonprofit organizations and most importantly private citizens. Seeking public feedback on the mitigation strategies considered by each jurisdiction ensures that the concerns of the community are adequately addressed and provides insight as to where scarce resources might best be used.

In order to make best use of limited time and resources during the planning process, one Community Engagement event was held at a central location in each county. For Cass, Clay, Jackson and Platte Counties, the Community Engagement events were scheduled in conjunction with Storm Spotter trainings hosted by the National Weather Service. These trainings tend to be well attended by citizens who are interested in learning more about hazard. In Ray County, no Storm Spotter training was held. A separate time reserved for Community Engagement was held in the Courthouse atrium on a day when court was in session and when visitors were known to be coming. MARC staff organized the mitigation strategies provided by participating jurisdictions and organizations. Handouts outlining the strategies for each type of hazard were created to accompany posters explaining each hazard and why the region may be vulnerable to the hazards. The meetings were an “open-house” format. Nineteen hazard posters with

the handouts were placed on easels in the hallways or common areas of the locations where the Storm Spotter trainings were being held. Citizens were invited to walk around and comment on their city's or county's chosen mitigation actions. Representatives from each participating jurisdiction or organization were present at the meetings and encouraged the public to ask questions. Following the meetings, MARC staff collected the public comments and provided them to the appropriate jurisdiction for review and incorporation into their mitigation strategy as desired.

To get the word out about the Community Engagement events to as many residents as possible, MARC staff advertised the events through multiple venues. Table 1.5 shows the advertisements that were placed in several local newspapers and were run on the following dates:

Table 1.5: MARC Community Engagement Event Advertisements

Event date	Location	County	Newspaper(s)	Insertion date
Tues., March 3	Crown Point Church 5950 NE Lakewood Way Lee's Summit, MO 64064	Jackson	Lee's Summit Journal	Wed., Feb. 25
Wed., March 4	Eagle Glen Intermediate School 100 S. Foxridge Dr. Raymore, MO 64080	Cass	Cass County Democrat Missourian	Fri., Feb. 27
Thurs., March 5	Congress Middle School 8150 North Congress Ave. Kansas City, MO 64152	Platte	The Landmark of Platte County	Wed., Feb. 25
			Platte County Citizen	Wed., Feb. 25
Tues., March 24	Pleasant Valley Baptist Church 1600 N. 291 Highway Liberty, MO 64068	Clay	NPG Newspapers (Liberty Tribune, Kearney Courier, Smithville Herald, Gladstone Dispatch)	Wed., March 18 & Thurs., March 19
Tues., May 12	Ray County Courthouse 100 W Main St. Richmond, MO 64085	Ray	Richmond News	Mon., May 11
			Excelsior Springs Standard	Fri., May 8
Multiple events			KC Hispanic News	Thurs., Feb. 26
Multiple events			Kansas City Globe	Thurs., Feb. 26
Multiple events			The Call	Fri., Feb. 27

Posts were created on social networking sites such as Twitter and Facebook. A homepage story was created on the MARC Web site. E-mail invitations were sent through MARC listservs, requesting regional partners and committees forward to their constituents. Jurisdictions were provided with fliers advertising the events for distribution around their community. Additionally, jurisdictions were asked to

link notices for the public meetings to their cities' Web sites and community calendars, where applicable. Jurisdictions were also asked to use any other available outlets to advertise the events, such as local government access TV channels, e-newsletters and posting information to their own social networking accounts. Meeting dates and participants for each public meeting are listed in Table 1.1.

The final plan, prior to submission to SEMA and FEMA, was provided to all participating jurisdictions. The plan was placed in its entirety on MARC's website and an online feedback mechanism was created to provide a concluding opportunity for the public to comment on the plan. MARC staff issued press releases, sent email notifications through local listservs and distributed fliers detailing instructions on where to access the plan and how to provide feedback. Jurisdictions were again asked to link these items to their Websites as well as utilize other available outlets to spread the word regarding the final review period.

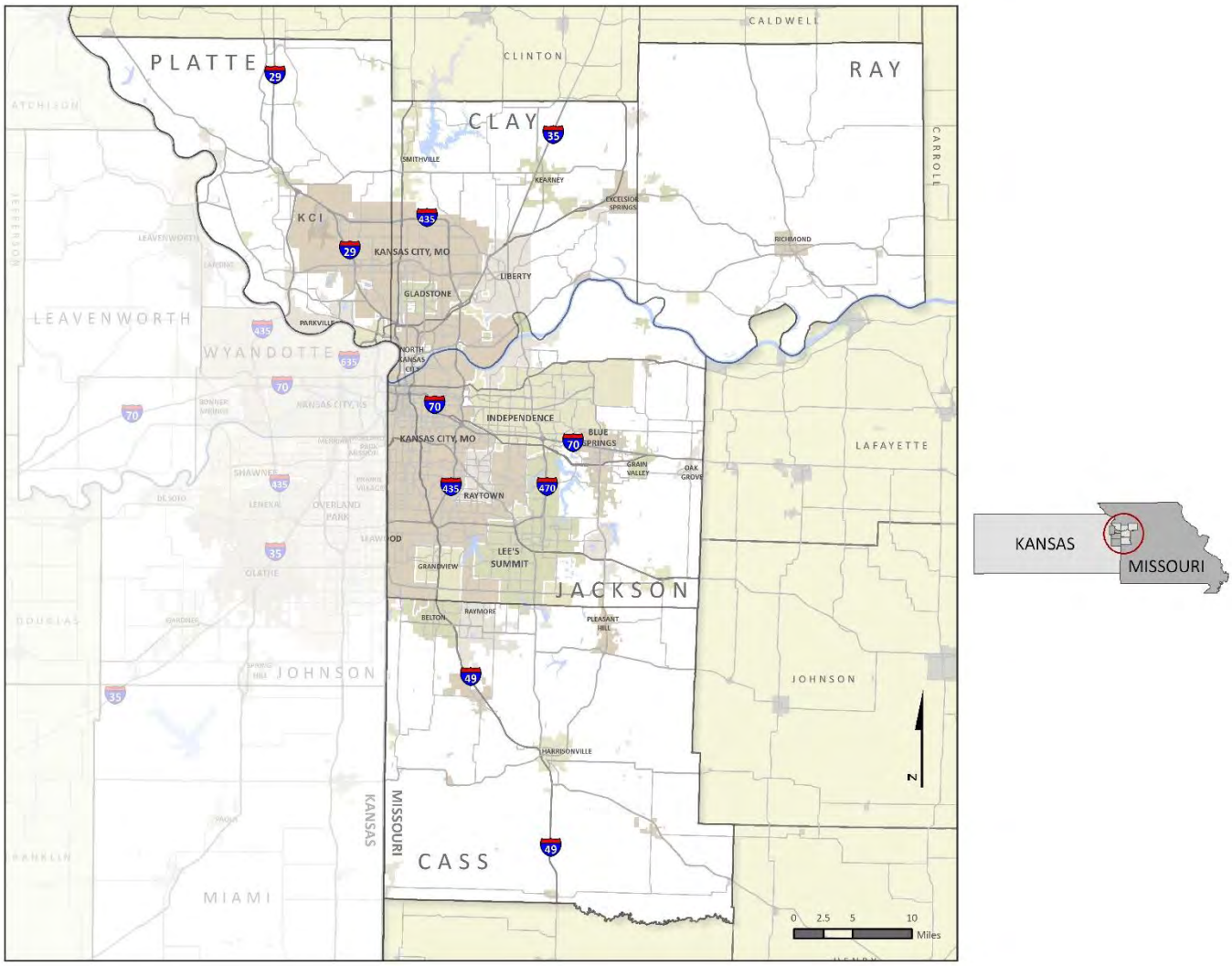
Following FEMA's approval of the plan "pending adoption" and prior to formal adoption of the plan, jurisdictions were encouraged to hold public meetings to discuss the plan's adoption.

Copies of meeting notices, fliers, advertisements, press releases, etc. are provided in *Appendix B: Supporting Documents*.

This page intentionally left blank.

Section 2: Planning Area Profile

This chapter discusses the people, jobs, property and infrastructure that, together, comprise the region's assets and capabilities at risk from hazards, should they occur. It updates *Section 2: Regional Profile and Capabilities* from the 2010 Hazard Mitigation Plan, with the exception of the following sections that are incorporated by reference: *Section 2.1 Geography and Topography* (*Waterways* has been updated, however, and *Land Cover* was added), *Section 2.4, History of Development and Government*.



Source MARC

Map 2.1: The Hazard Mitigation Planning Area

2.1 Planning Area Description

The planning area for this regional hazard mitigation plan is the five counties on the Missouri side of the Kansas City region – Cass, Clay, Jackson, Platte and Ray (Map 2.1). Because of the integrated nature of this region, some trends, assets and capacities are best understood if initially described from the point of view of the entire region before describing the jurisdictions in the planning area in more detail, and some important contextual data is only available for the 9-county MARC region or for the entire 14-

county Kansas City metropolitan area. The focus of this chapter remains on the five Missouri counties in the planning area, however.

2.2 Planning Area Geography and Environment



Figure 2.1: Kansas City

Located at the confluence of the Missouri and Kansas rivers, Kansas City began in the mid-1800s as a trading post and jumping-off point for pioneers heading west on the Santa Fe, California and Oregon trails.

2.2.1 Geography

The five Missouri counties that make up the Regional Hazard Mitigation Planning Area—Cass, Clay, Jackson, Platte and Ray— have a combined area of over 2,700 square miles. The region is located in the west-central and northwest parts of Missouri. It falls within the Central Dissected Till Plains and Osage Plains sections of the Central Lowlands, as defined by the U.S. Geological Survey and the Missouri Ecological Classification System.

Elevations in the region range from a low of 656 feet above sea level in Ray County to a high of 1,181 feet above sea level in Platte County, with most of the area falling between 700 and 1,000 foot elevations. Soils are mostly fertile and well drained, and are formed of loess, residuum and alluvium. The region's underlying bedrock consists of shale, limestone and sandstone.

Topography in the region is heavily influenced by the Missouri and Kansas rivers and their tributaries (Figure 2.1). Much of the land is level to sloping, especially in floodplains and bottomlands, with uplands ranging from moderate slope to occasional steep bluffs and hills.

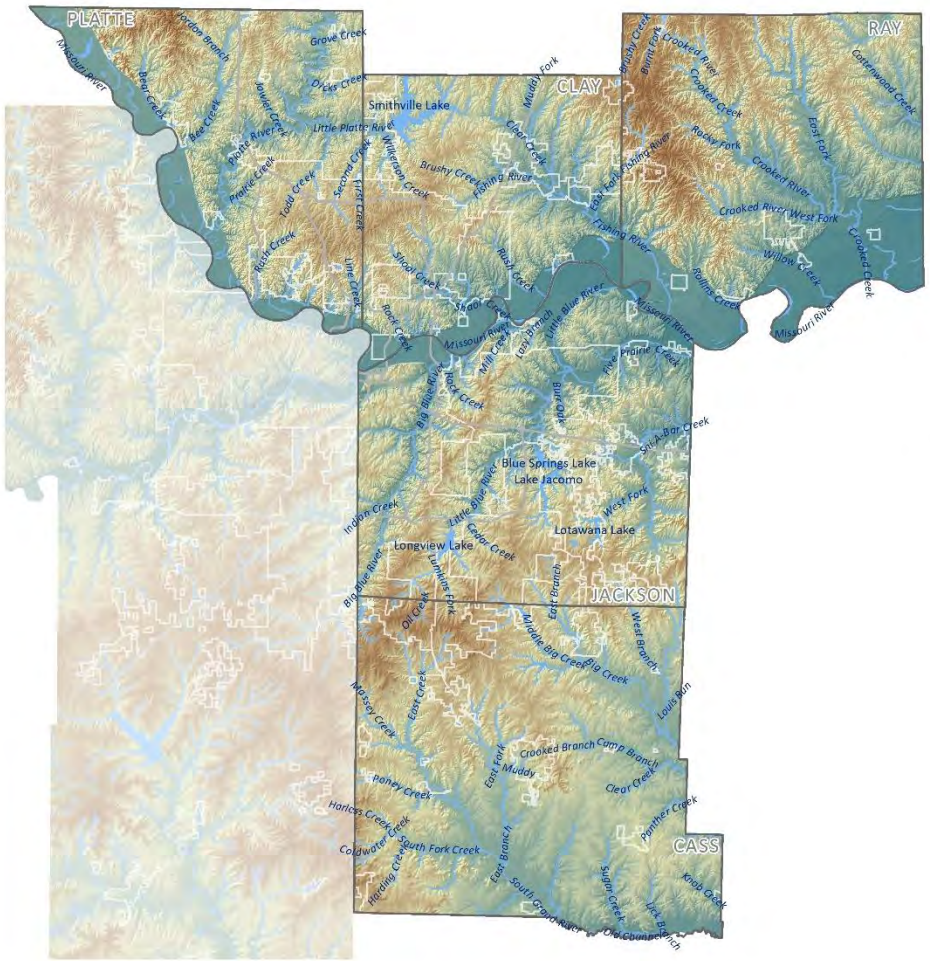
2.2.2 Waterways and Water Resources

Water, particularly surface water, is a great natural resource in the Kansas City area. The region is drained by three river basins: the Lower Missouri-Grand-Chariton River Basin, the Lower Missouri- Blackwater-Lamine River Basin and the Osage River Basin (See Map 2.2). The vast majority of the region's watersheds drain into the Missouri River, which is one of Missouri's (and the nation's) major rivers. In Cass County, however, watersheds drain into the Osage River Basin.

Much of the region's water supply comes from the Missouri River, and in recent years degradation of the riverbed has become a concern. The U.S. Army Corps of Engineers is conducting a multiyear study to assess riverbed degradation between Rulo, Neb., and St.Louis, Mo., focusing on the stretch of river in the Kansas City area where degradation is the most severe. The study will determine the causes of degradation, explore how future degradation can be prevented, and recommend ways public infrastructure can be protected.

According to the U.S. Army Corps of Engineers, the average flow of the region's major rivers and streams range from a high of 35,070 million gallons per day in the Missouri River to a low of less than 13 million gallons per day in some of the region's small streams.

Some of the region's rivers, such as the Missouri River, are subject to minimum flow requirements in order to maintain water quality standards. The minimum flow requirement for the Missouri River is



Source: MARC

Map 2.2: Waterways and Topography in the Greater Kansas City Region

2,620 million gallons per day. This requirement is maintained by the Corps' regulation of upstream reservoirs and their respective dams in Montana, North and South Dakota and Nebraska — Fort Peck, Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. There are no designated wild and scenic rivers under the National Wild & Scenic Rivers System.

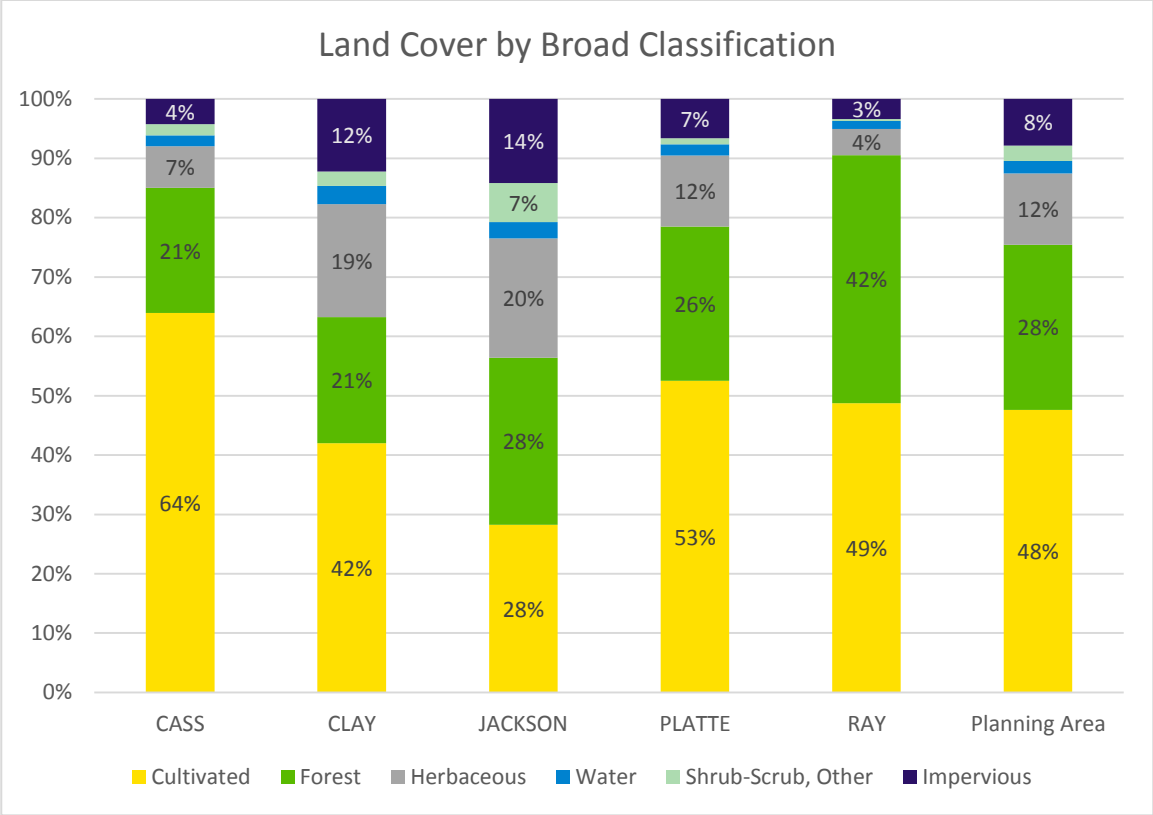
In the Kansas City area, significant quantities of ground water are found only in alluvial deposits along the Missouri River. These alluvial deposits can be more than 100 feet deep in the Missouri river valley (with an average depth of 80 to 90 feet). Saturated water- bearing materials range in depth from 30 to 60 feet, although they are generally found near a depth of 40 feet. Water wells in these alluvial deposits can yield from 1,500 to 2,000 gallons per minute, with an average yield between 500 and 1,000 gallons per minute.

In the region's tributary valleys, the availability of ground water is limited. The alluvial deposits in these areas range in thickness from 20 to 70 feet in the lower reaches to less than 10 feet in the upper reaches. In addition, the large amounts of shale in these tributary valleys results in mainly clay fill sediments in the alluvial aquifer. Because this material has a low water transmissibility, water well yields in these areas can be as low as one to 10 gallons per minute. Tributaries in areas comprised mainly of sandstone, however, may produce wells with higher yields, since these areas have sediments with greater water transmissibility.

Aquifers in the region's uplands are found in materials of glacial origin or from weathered materials above bedrock. Neither of these areas produces substantial yields of ground water. Although some ground water yields in areas of glacial deposits can exceed 100 gallons per minute, the varying thickness of glacial deposits results in highly variable yields of ground water. Ground water from areas with deposits of material over bedrock provide yields that are generally less than 10 gallons per minute, although some isolated yields can be greater. In addition, water from bedrock tends to be mineralized and contains hardness and iron that exceed national drinking water standards.

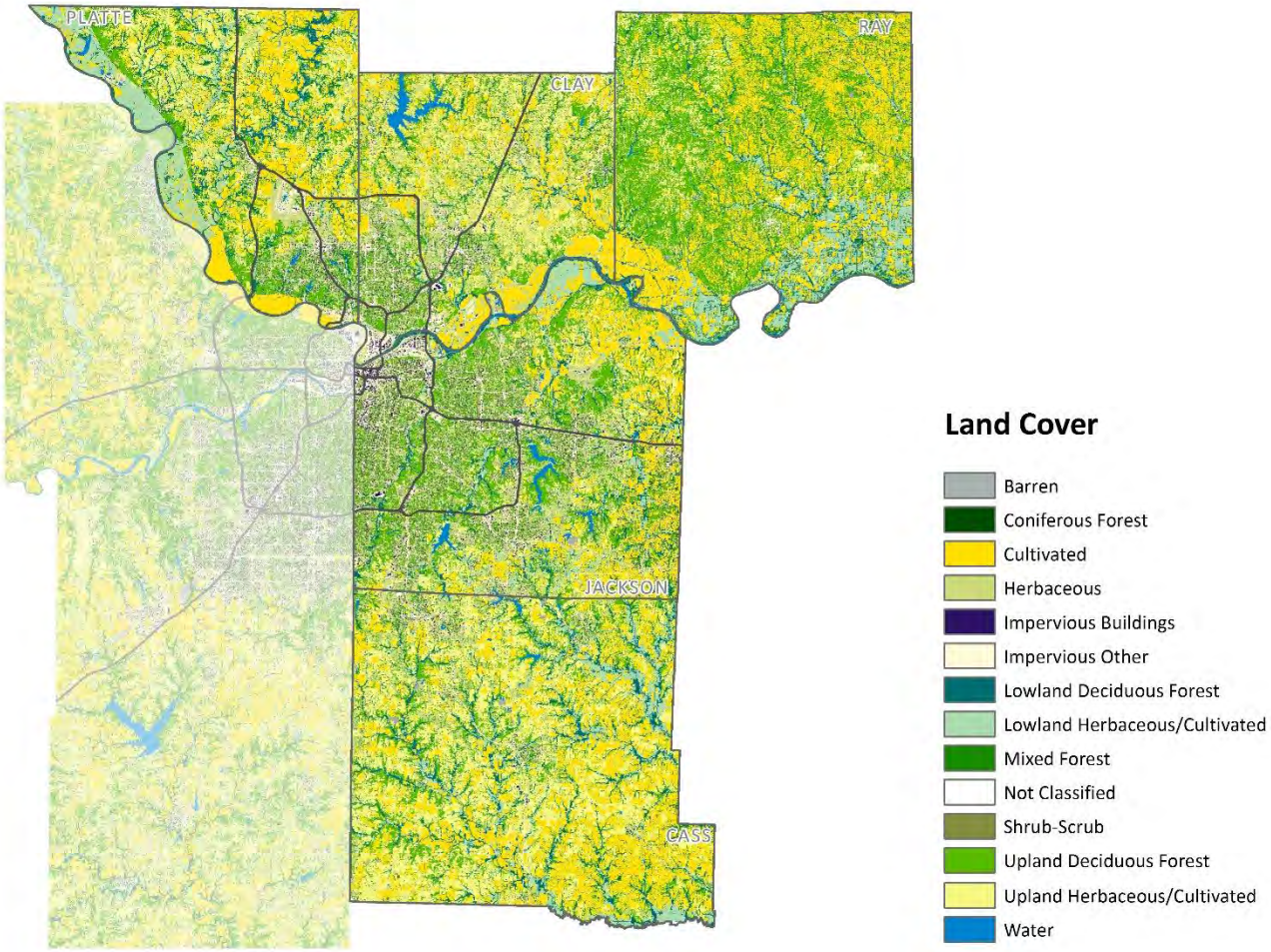
2.2.3 Land Cover

As Figure 2.2 and Map 2.3 show, the planning area's primary land cover is cultivated, at 23 percent, followed by upland deciduous forest at 19 percent and upland herbaceous/cultivated at 18 percent. Jackson, Clay, and Platte Counties are the Planning Area's most urbanized counties with 14 percent, 12 percent and 7 percent impervious surface land cover, respectively. Interestingly, Jackson and Clay Counties also have the highest percentages of water in the planning area, at 3 percent each. Ray County is planning area's most rural county, with 49 percent of its land cultivated, another 42 percent in forests and only 3 percent as impervious surface. The next most forested counties are Jackson and Platte, with 28 percent and 26 percent forest land cover, respectively. Nearly two-thirds of the land in Cass is cultivated, as is a majority of the land in Platte County.



Source: MARC Natural Resource Inventory

Figure 2.2: Land Cover by County



Source: MARC Natural Resource Inventory

Map 2.3: Topographical Land Cover

2.3 Demographics

The population of the planning area in 2014 was an estimated 1,135,499. As the graph in Figure 2.3 shows, six in 10 people living in the planning reside in Jackson County, making it the most populous participating county. Clay County follows, with about two in 10 area residents living there. A little less than one in ten people live in Cass and Platte Counties, with the remainder in Ray County.

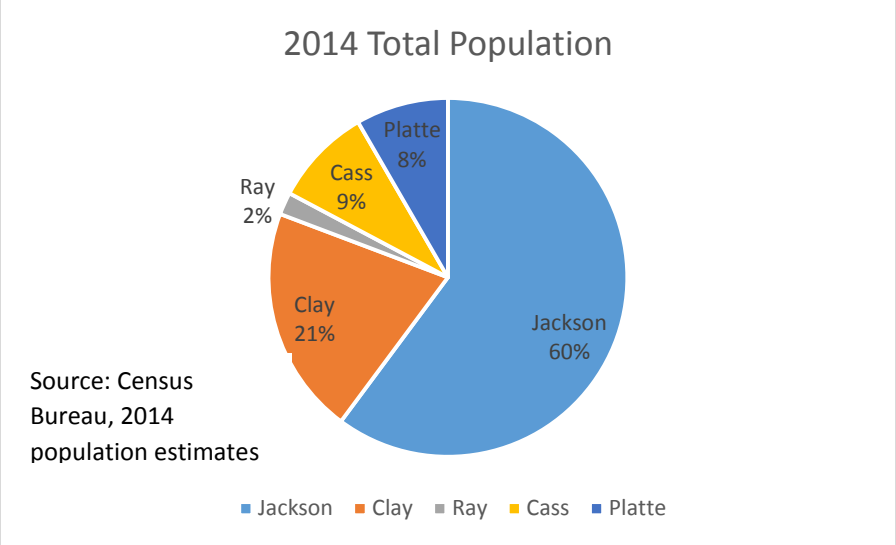
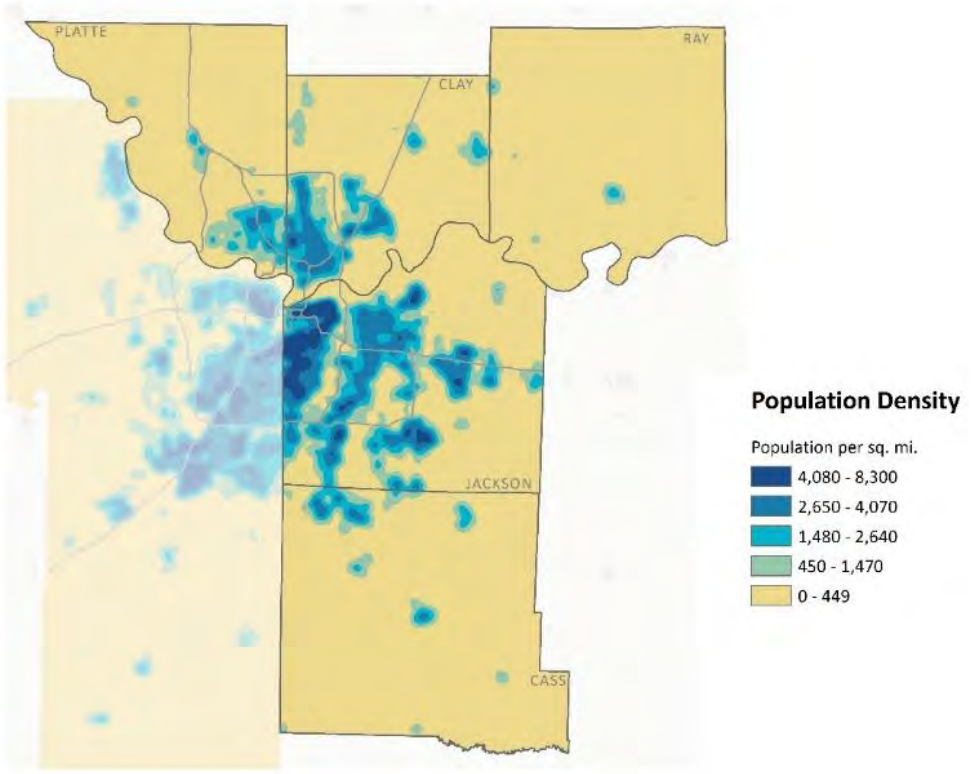


Figure 2.3: Planning Area Population

2.3.1 Population Density

Population is densest in Jackson County, especially in Kansas City inside the I-435 loop, where a combination of smaller lot sizes and larger quantities of multifamily housing create an average population density of 15.7 persons per residential acre but reach more than twice that, at 32.3 persons per residential acre, in the core of Kansas City from the Missouri River to the Country Club Plaza. Suburban cities such as Independence, Grandview, Lee's Summit, Blue Springs, Gladstone and Liberty have lower average densities, ranging from 6.4 persons per residential acre in Independence to 9.1 persons per residential acre in Blue Springs. Map 2.4 shows the area's 2010 population densities.



Source MARC

Map 2.4: Planning Area Population Density, 2010

2.3.2 Population Trends – Total Population

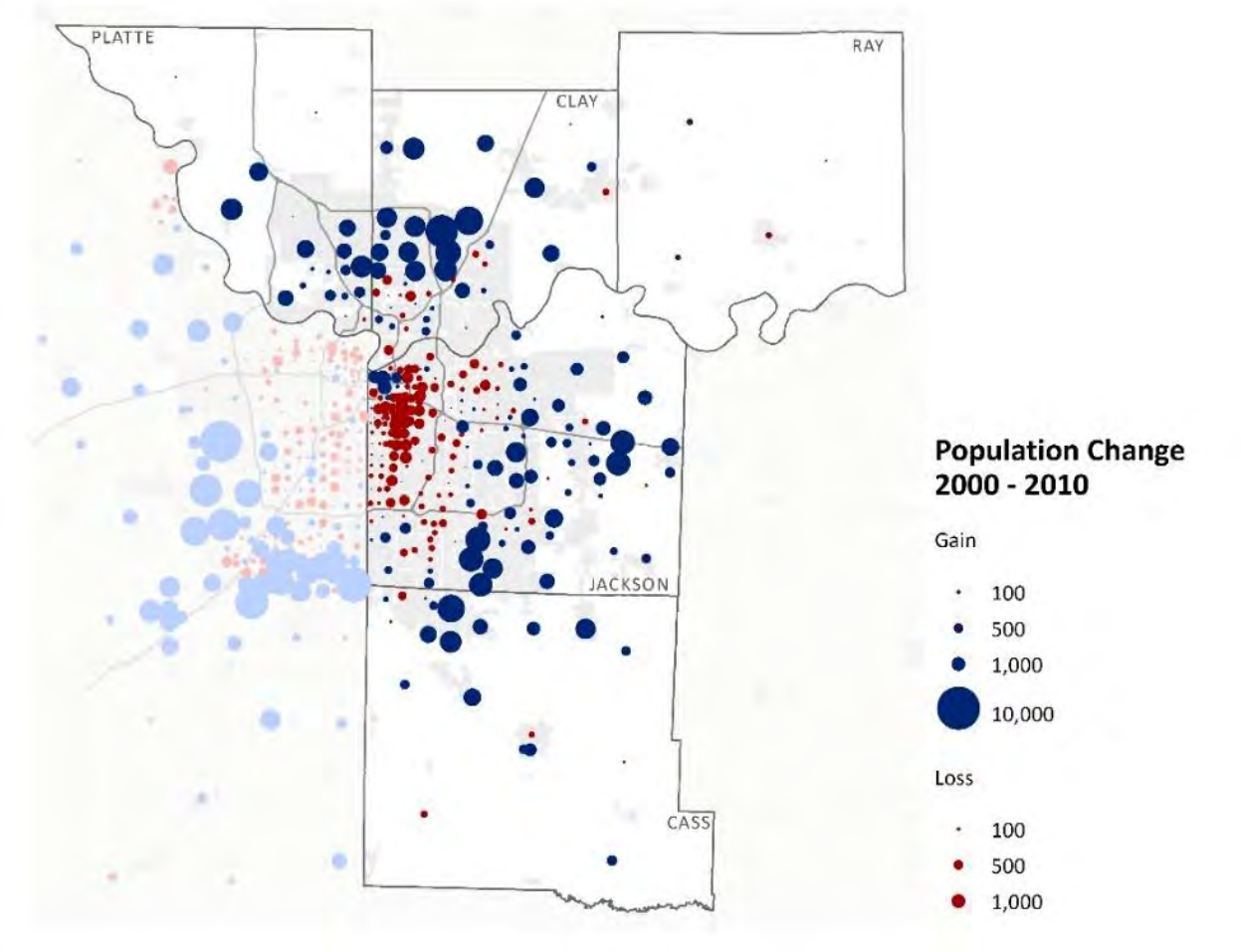
The population of the nine-county MARC region grew by nearly 260,000, or 15 percent, from 2000 to 2014, from 1,724,694 to 1,983,026 (See Table 2.1). The planning area accounted for 45 percent of this growth, or 117,000, an increase of 12 percent. As a result, the planning area is growing about three-quarters as fast as the MARC region as a whole.

Table 2.1: Population, 2000-2014

County	2000	2010	2014	2000-2014 Change	2000-2014 % Change
Cass	82,123	99,478	100,889	18,766	23%
Clay	183,941	221,939	233,682	49,741	27%
Jackson	654,941	674,158	683,191	28,250	4%
Platte	73,826	89,322	94,788	20,962	28%
Ray	23,374	23,494	22,949	-425	-2%
Planning Area	**1,018,205**	**1,108,391**	**1,135,499**	**117,294**	**12%**
MARC Region	1,724,694	1,919,089	1,983,026	258,332	*15%*
Planning area share	59%	58%	57%	45%	77%
Kansas City	442,369	460,639	470,800	28,431	6%

Source: Census Bureau, 2000 and 2010 decennial censuses, plus 2014 population estimates.

The more suburban counties of Cass, Clay and Platte, however, all grew by 23 percent or more between 2000 and 2014, significantly faster than the regional average. Clay County gained the most residents – nearly 50,000 residents over the period. Cass and Platte grew by roughly equivalent amounts between 2000 and 2014, with Cass adding 19,000 residents while Platte added 21,000 during the 14-year period. Cass's population growth has slowed significantly in the aftermath of the Great Recession, however, as can be seen by its adding only 1,400 residents since 2010 (See Map 2.5). Ray County, the region's most rural county, remained essentially stable over the period, losing 425 residents.



Source: Census Bureau, 2000 and 2010 decennial censuses

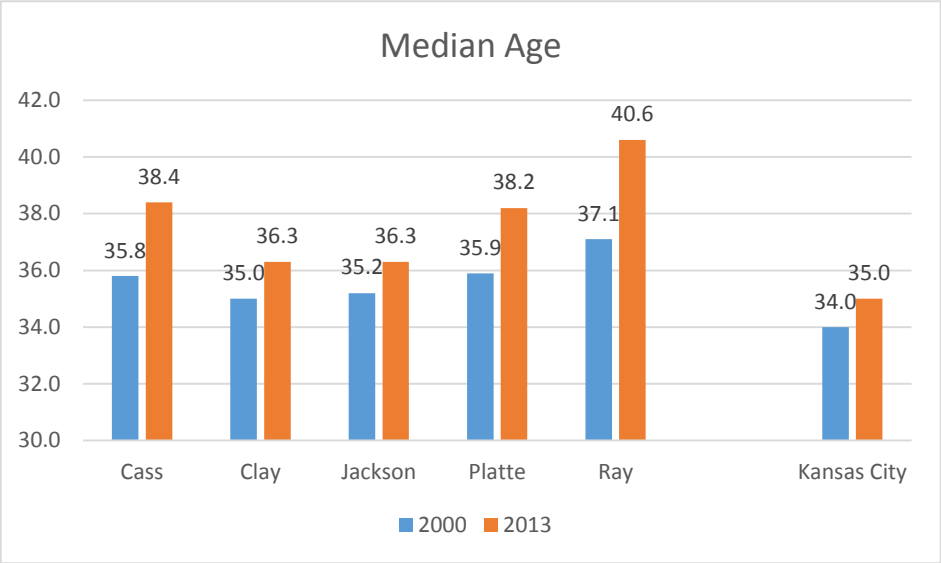
Map 2.5: Area Population Change, 2000-2010

While most of the growth in recent decades has been concentrated in suburban counties, more urban counties have many portions that are declining as well as many that are growing. As a result, Jackson County's overall rate of growth lags well behind the region's, at 4 percent over the period. Still as the region's largest county, even this low rate of growth translates into adding over 28,000 people during this time, the second highest level among participating counties.

The portions of the planning area experiencing population decline are concentrated in the city of Kansas City, Missouri, south of the Missouri River. However, Kansas City is benefiting from the substantial reinvestment and redevelopment in and around its downtown, which resulted in an increase in the population there for the first time in decades. In addition, Kansas City also includes most of the high-growth areas north of the Missouri River in Clay and Platte Counties. For the city as a whole, the growing areas outweigh the declining areas, producing an increase of nearly 25,000 residents between 2000 and 2013, a 6 percent increase (2014 data is not yet available).

2.3.3 Population by Age

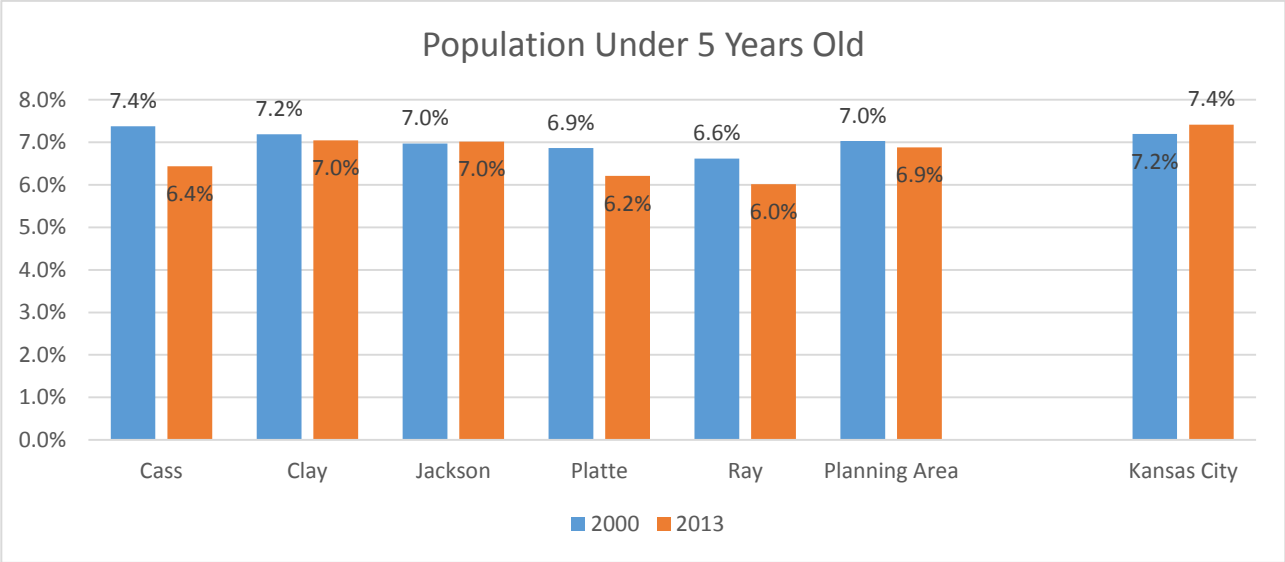
The aging of the population is part of a long-term, national trend, caused by improvements in life expectancy as well as the aging of the post-World War II baby boom. This is reflected locally by the median age increasing in all counties (Figure 2.4). Jackson and Clay Counties are the youngest counties, each with a median age of 36.3 years. They also experienced more modest increases in median age over the 2000 to 2013 period of 1.1 and 1.3 years, respectively. On the other hand, Ray County's population is the oldest, with a median age of 40.6 years, having increased 3.5 years over the 13-year period. Ray is followed by Cass and Platte Counties both in terms of current age and increase in age, as they also experienced above average increases in their median age—2.6 years for Cass and 2.3 years for Platte. Meanwhile, Kansas City is the youngest major jurisdiction, with a median age of 35 years. The median age of Kansas City's population also increased the least, rising only one year between 2000 and 2013.



Source: Census Bureau, 2000 Census and 2013 American Community Survey, 5-year data

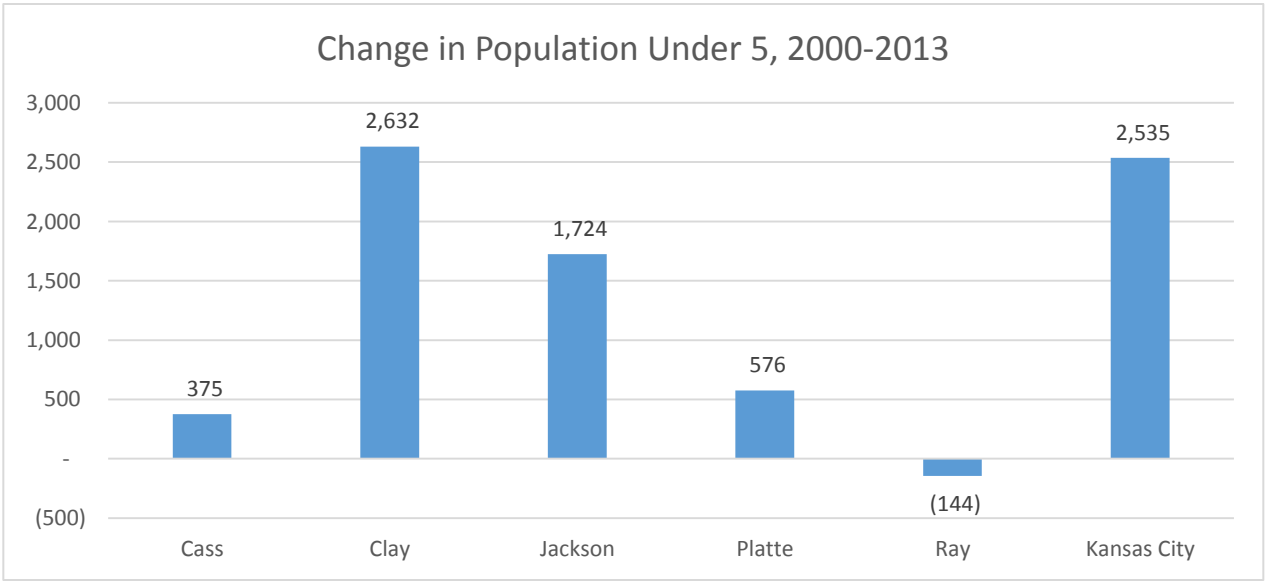
Figure 2.4: Area Population by Median Age, 2000 and 2013

Young children and the elderly are among the region's most vulnerable populations. As might be expected from its median age, Kansas City has the highest proportion of children under the age of five, at 7.4 percent (See Figure 2.5 below). It was also the only large jurisdiction to see an increase in its share of young children during the 2000-2013 period. Cass, Platte and Ray counties saw significant declines in the proportion of young children comprising their populations.



Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.5: Population Under 5 Years Old, 2010 and 2013

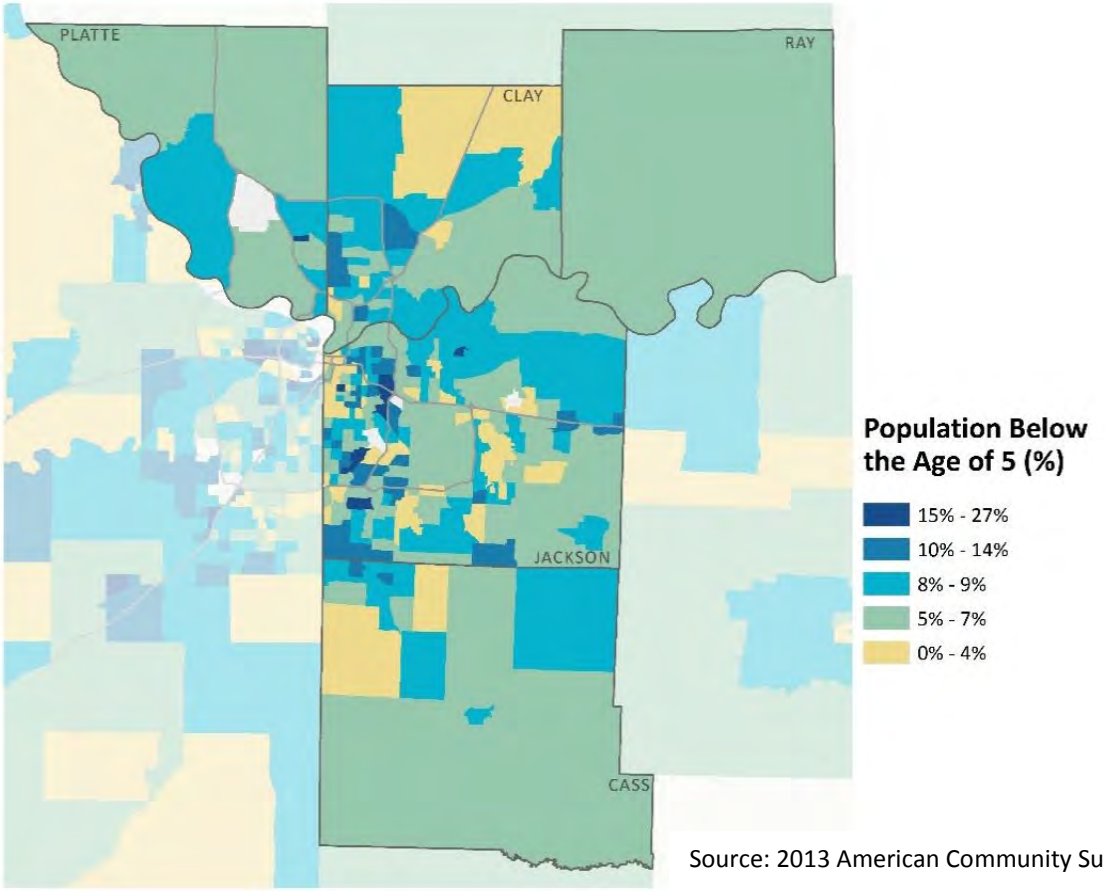


Source: Census Bureau, 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.6: Change in Population Under 5, 2000-2013

Though the proportions went down in Cass and Platte, the substantial level of overall population growth in those counties during the 2000 to 2013 period means that the number of young children still increased, albeit modestly, by about 400 and 600 respectively. Clay County added the most young children, about 2,600, as might be expected, given its strong overall growth performance. What is surprising though is that Kansas City nearly matched that performance, adding 2,500 children under the age of five, despite its total population growing one-quarter as fast as Clay County (See Figure 2.6).

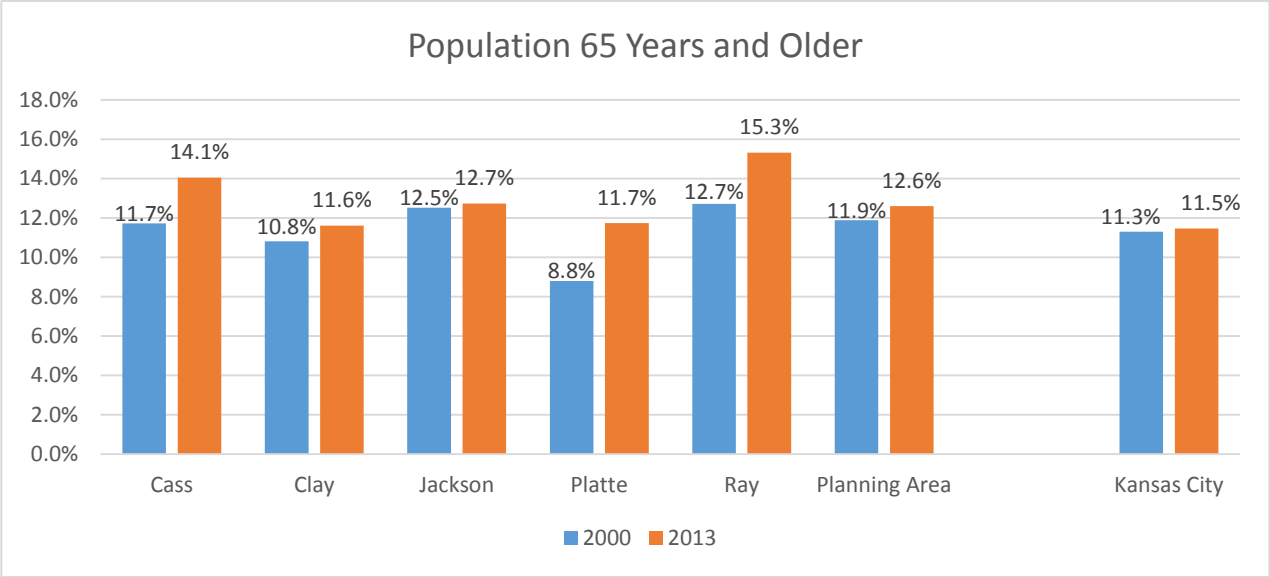
The



Source: 2013 American Community Survey, 5-year data

Map 2.6: Population Below the Age of 5 (%)

largest concentration of young children appears to be in eastern and southeastern Kansas City in Jackson County, though Kansas City also has some substantial concentrations of population under five years in Clay County as well. Suburban Jackson and Clay also have concentrations of young children above average for the planning area. (See Map 2.6)

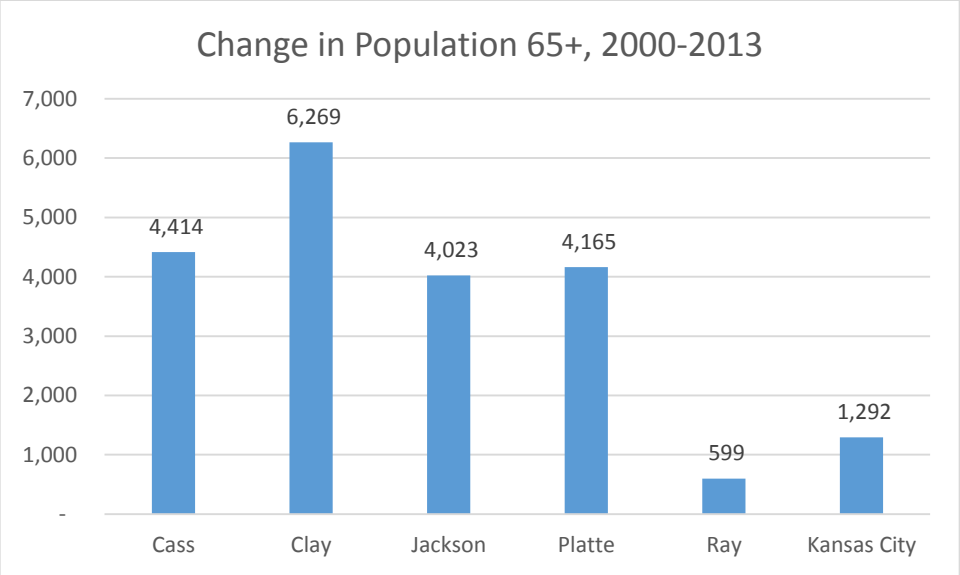


Source: 2013 American Community Survey, 5-year data

Figure 2.7: Population 65 Years and Older, 2000 and 2013

While the more urban counties have the highest proportion of the young, it is the more rural counties of Cass and Ray have the highest proportion of older adults, with about one in seven residents being 65 years or over. Platte County, however, saw the sharpest increase in its proportion of seniors. In 2000, only 8.8 percent of its residents were 65 years of age or more, significantly lower than the other counties in the planning area. Platte County experienced nearly a 3 percentage points by 2013, however, resulting a proportion of its population that is older to levels slightly higher than Clay County and Kansas City, Missouri. (See Figure 2.7) Refer also to Attachment Table 2.1 for a side-by-side comparison of the region's population by age.

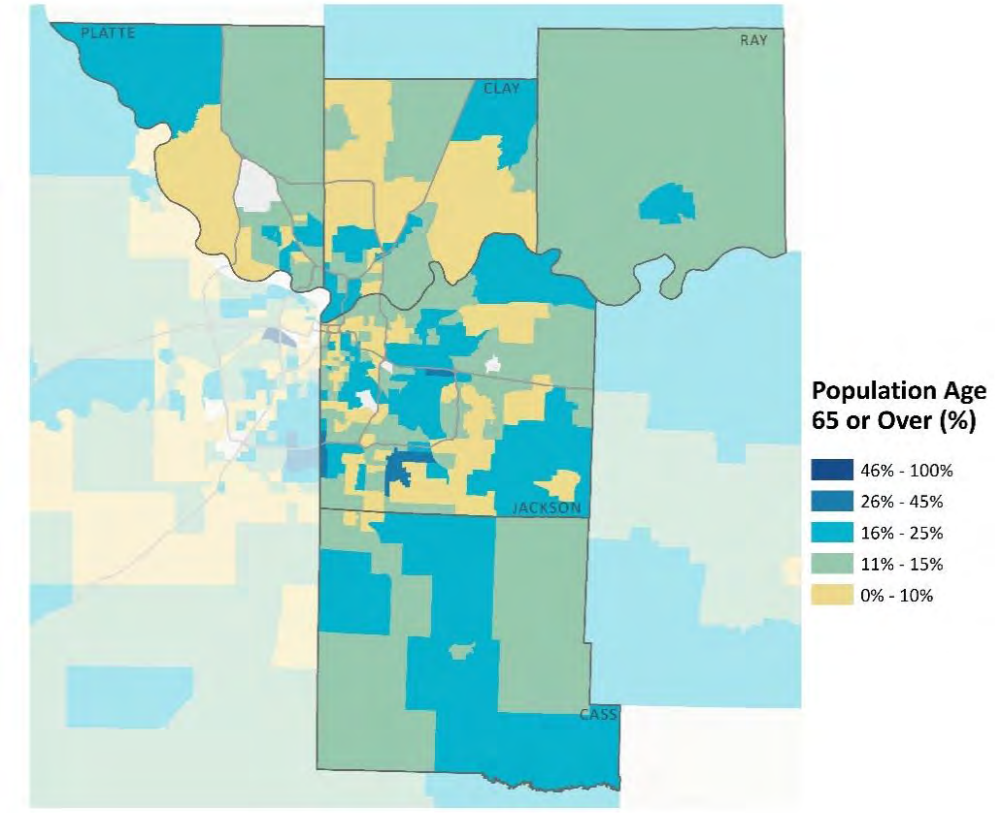
In absolute numbers, it was Clay County that experienced the greatest increase in its senior population, adding over 6,000 older adults between 2000 and 2013. This was substantially more than the roughly 4,000 seniors added in each of Cass, Jackson and Platte Counties. (See Figure 2.8)



Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.8: Change in Population 65+, 2000-2013

Unlike young children, geographic concentrations of older adults are more scattered (See Map 2.7). There are pockets of older adults concentrated in eastern Kansas City in Jackson County as well as western Independence and southeastern Jackson County. There are also concentrations of older adults in North Kansas City and near Gladstone in Clay County, northern and central Cass County, as well as some parts of southern Platte County.



Source: 2013 American Community Survey, 5-year data

Map 2.7: Population Age 65 or Over (%)

2.3.4 Population by Race and Ethnicity

The population of the Planning Area is mostly white, non-Hispanic, accounting for 802,000 out of the 1.1 million residents, or 72 percent of the total, up from 776,000 in 2000. Blacks make up the next largest racial segment, at 16 percent of the Planning Area's population. Hispanics or Latinos, which may be of any race, comprise 7 percent of the population in the area, with Asians, multi-racial individuals, and other races comprising the remaining 5 percent. (Figure 2.10)

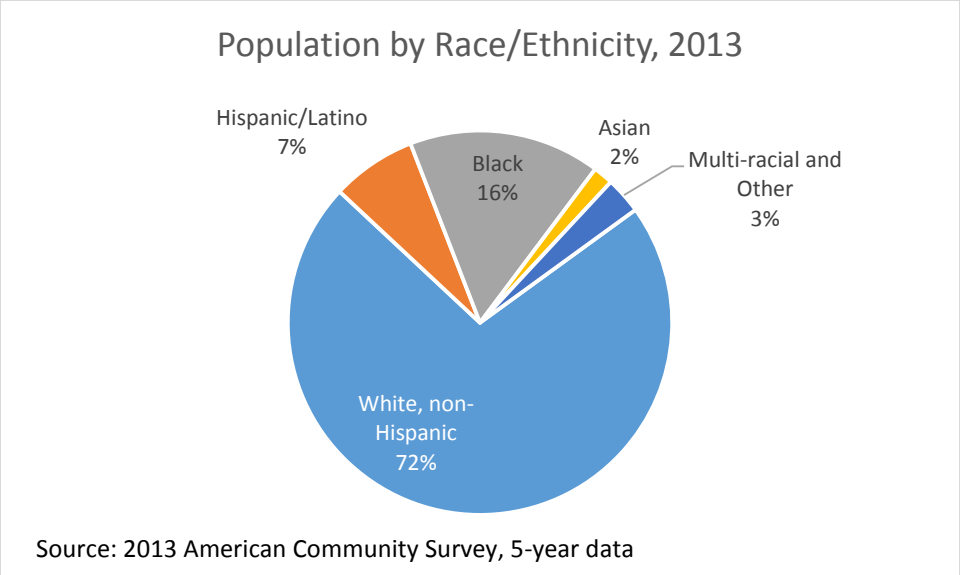


Figure 2.9: Area Population by Race/Ethnicity, 2013

The Hispanic population grew the most of any racial or ethnic groups between 2000 and 2013 in the Planning Area, adding 34,000 people over the period. Whites grew by 26,000 people, while Blacks grew by 22,000. (Figure 2.10)

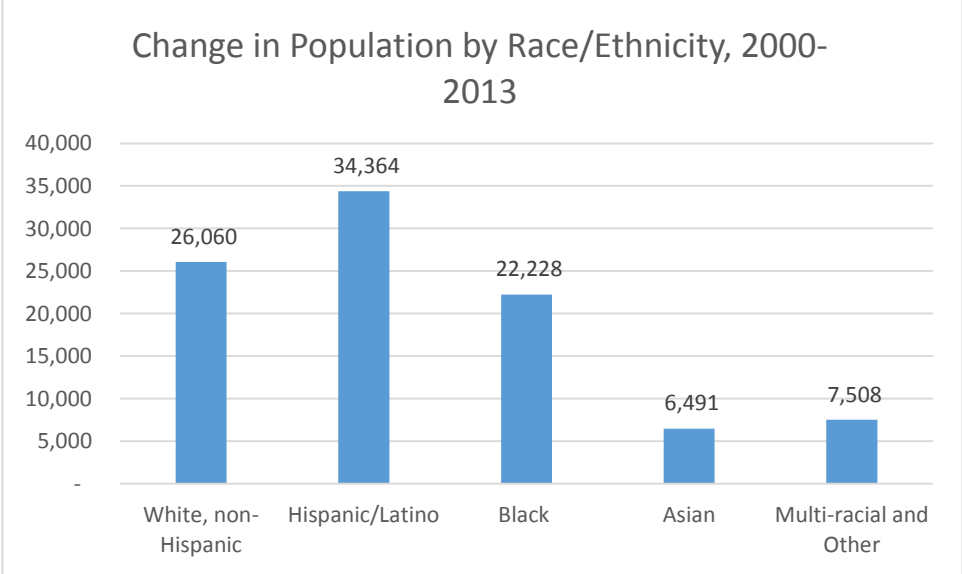
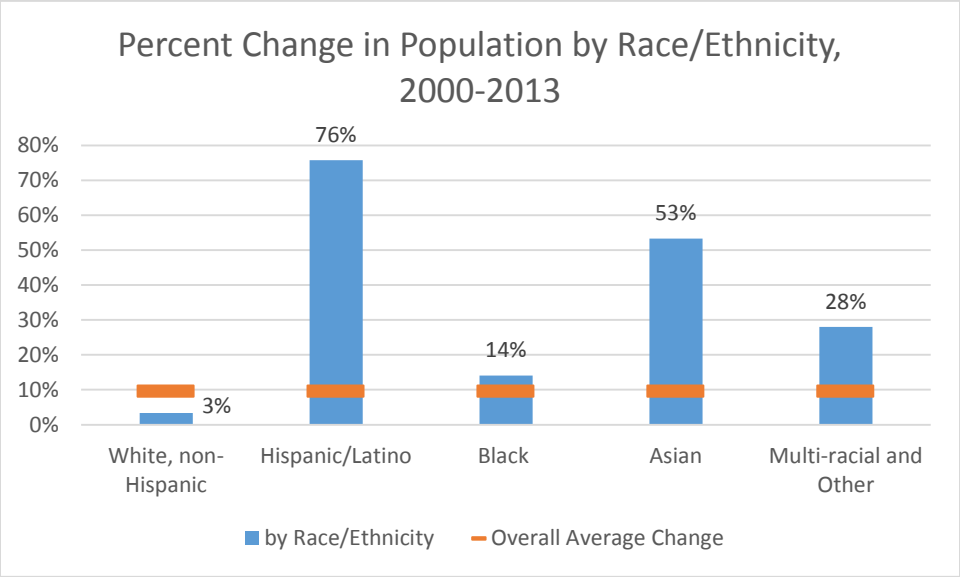


Figure 2.10: Change in Population by Race/Ethnicity, 2000-2013

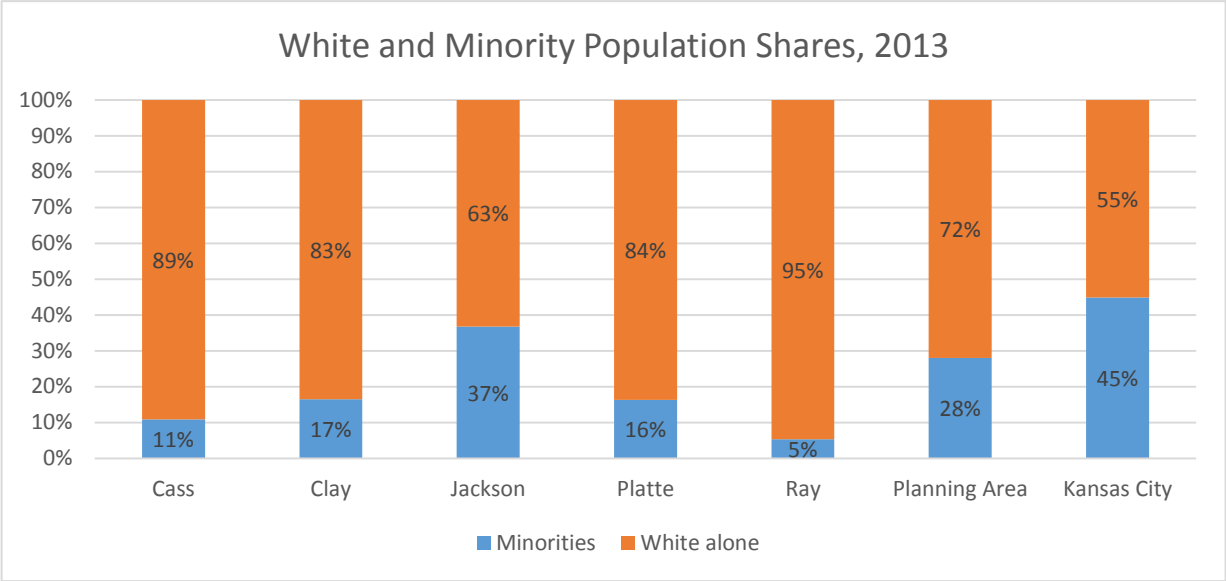
Overall, the planning area's population grew 9 percent during the 13-year period. The white population grew much slower than this. Compared to its sizable base, the 26,000 additional white residents amounted to only a 3 percent increase over the period, despite adding significant numbers in absolute terms. Conversely, while the Asian population's absolute growth was relatively small, the 6,500 additional Asian individuals added to the region since 2000 represented a 52 percent increase over its base of 12,000. However, this is still only the second-fastest rate of growth in the Planning Area. Hispanics or Latinos grew an astounding 76 percent over the period. (Figure 2.11) For additional comparison of the region's population by race/ethnicity, refer to Attachment Table 2.1 and Attachment Table 2.2.



Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.11: Percent Change in Population by Race/Ethnicity, 2000-2013

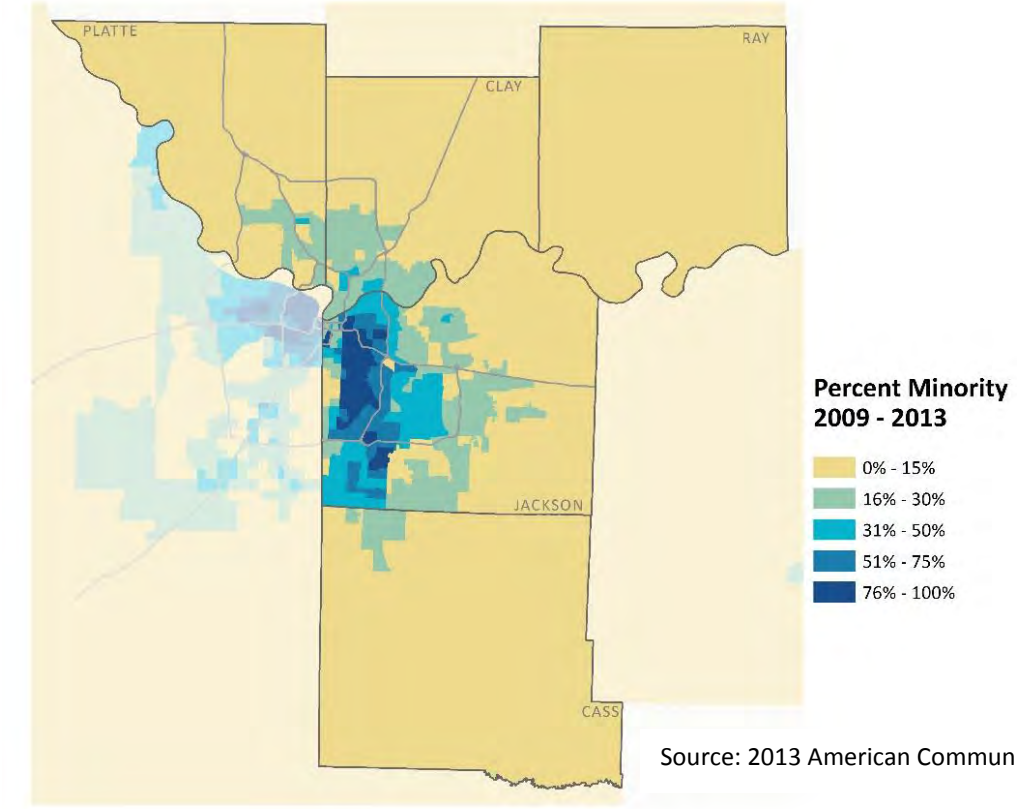
If minorities continue to grow faster than whites, then at some point the Planning Area will become majority minority. This is closest to occurring in Kansas City, where minorities make up 45 percent of the population compared to 55 percent for whites. The area's more rural counties are its least racially and ethnically diverse, with Ray County 95 percent non-Hispanic white and Cass County 89 percent. (Figure 2.12)



Source: 2013 American Community Survey, 5-year data

Figure 2.12: White and Minority Population Shares, 2013

While Kansas City has the largest concentration of minorities, they are not spread uniformly throughout the city. Instead, as Map 2.8 shows, sharp racial divisions can be seen, especially along Troost Avenue,

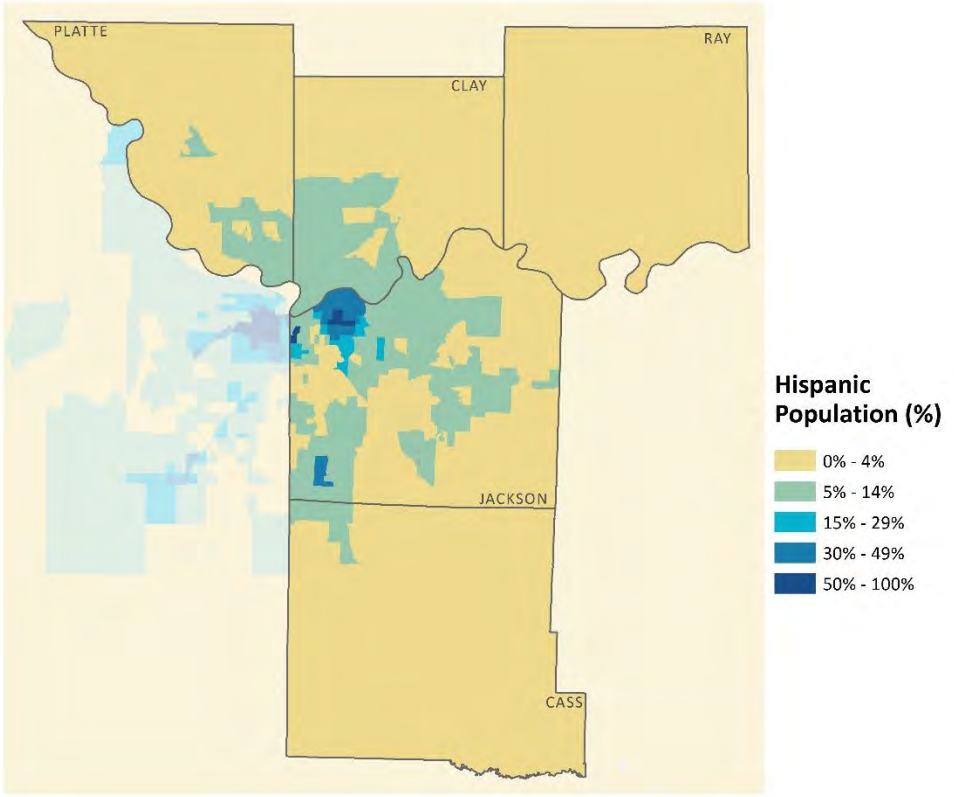


Source: 2013 American Community Survey, 5-year data

Map 2.8: Percent Minority, 2009-2013

the historic dividing line between black and white communities legally sanctioned before the Civil Rights era. As a result, there remains to this day a strong line running north to south with blacks and other minorities concentrated to the east of it in the portion of Kansas City that is in Jackson County.

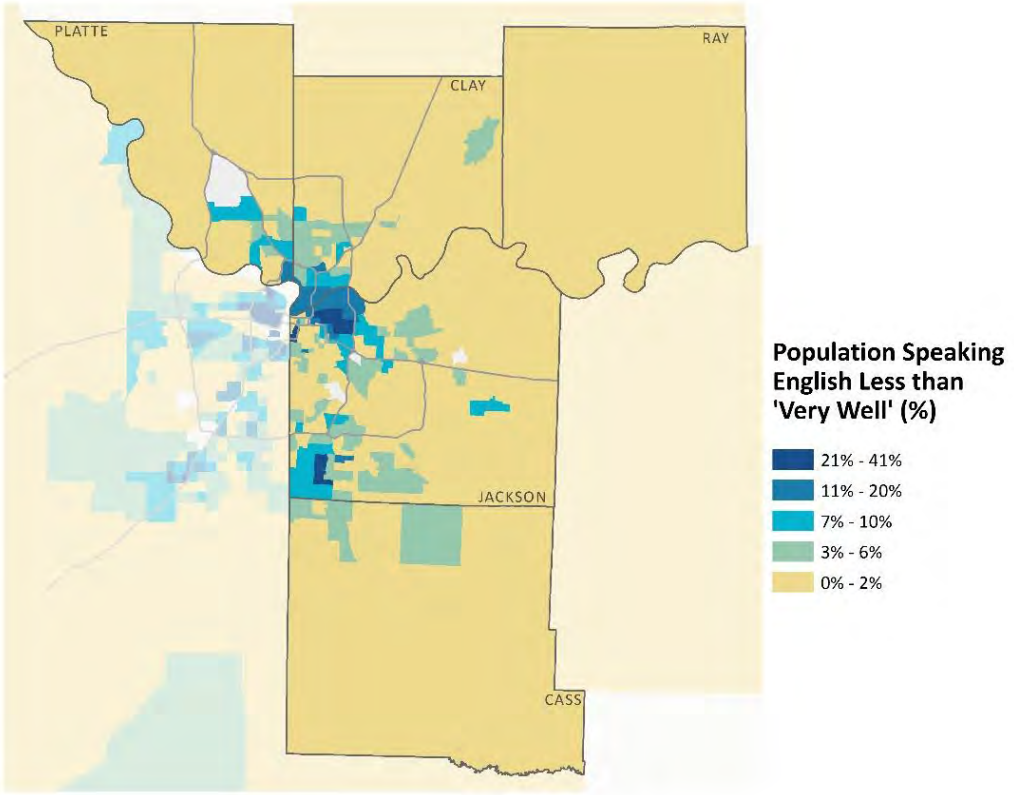
Not all minorities are distributed similarly, however. While the central portion where minorities are most concentrated is largely African American, Hispanics dominate in the northeast and, to a lesser extent, to the south in Grandview. (See Map 2.9)



Source: 2013 American Community Survey, 5-year data

Map 2.9: Hispanic Population (%)

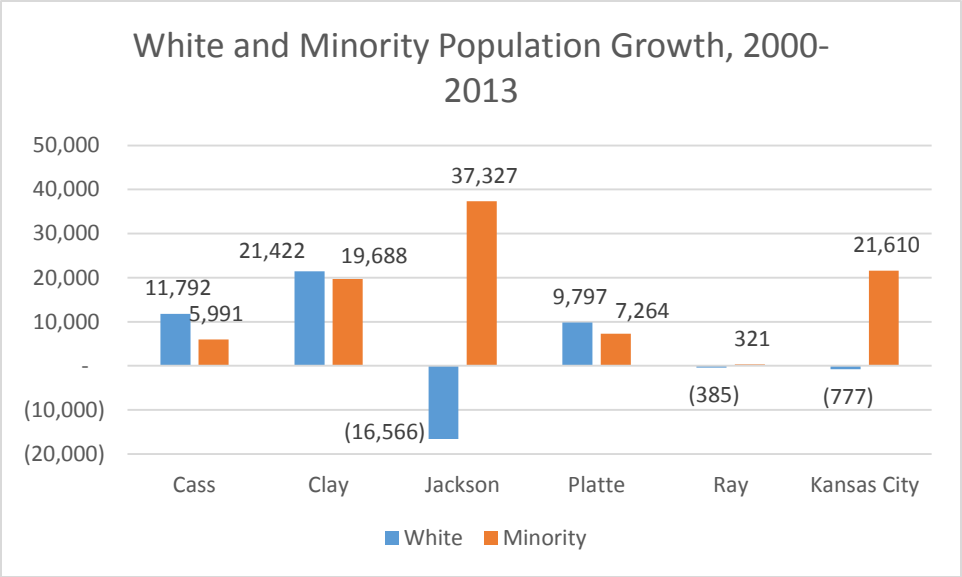
The concentration of Hispanics mirrors closely the distribution of those who are not proficient speaking English as can be seen in Map 2.10. This is not surprising given that the most prevalent alternative language being Spanish in the Planning Area.



Source: 2013 American Community Survey, 5-year data

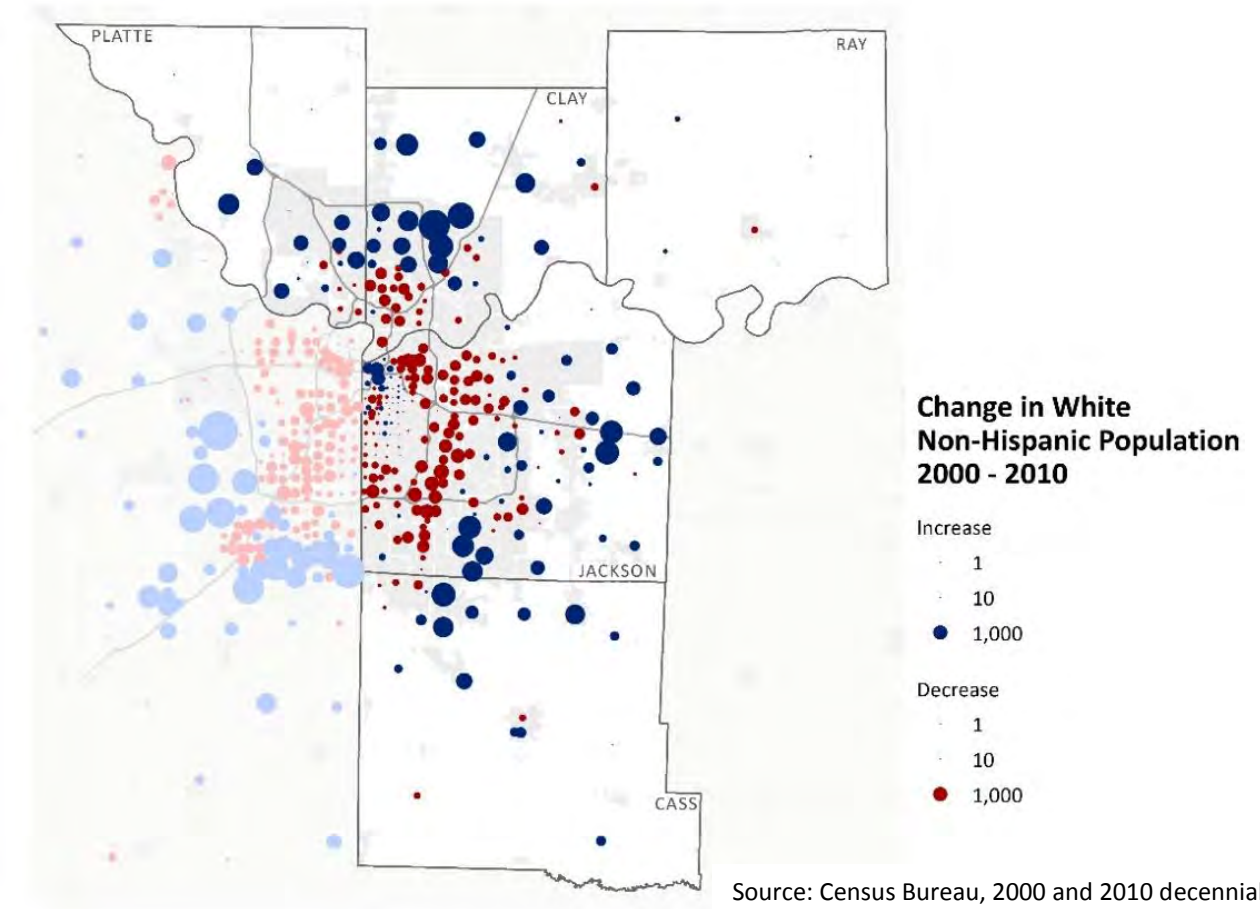
Map 2.10: Population Speaking English Less than 'Very Well' (%)

Overall, the number of whites declined in Jackson County between 2000 and 2013, and held



Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.13: White and Minority Population Growth, 2000-2013

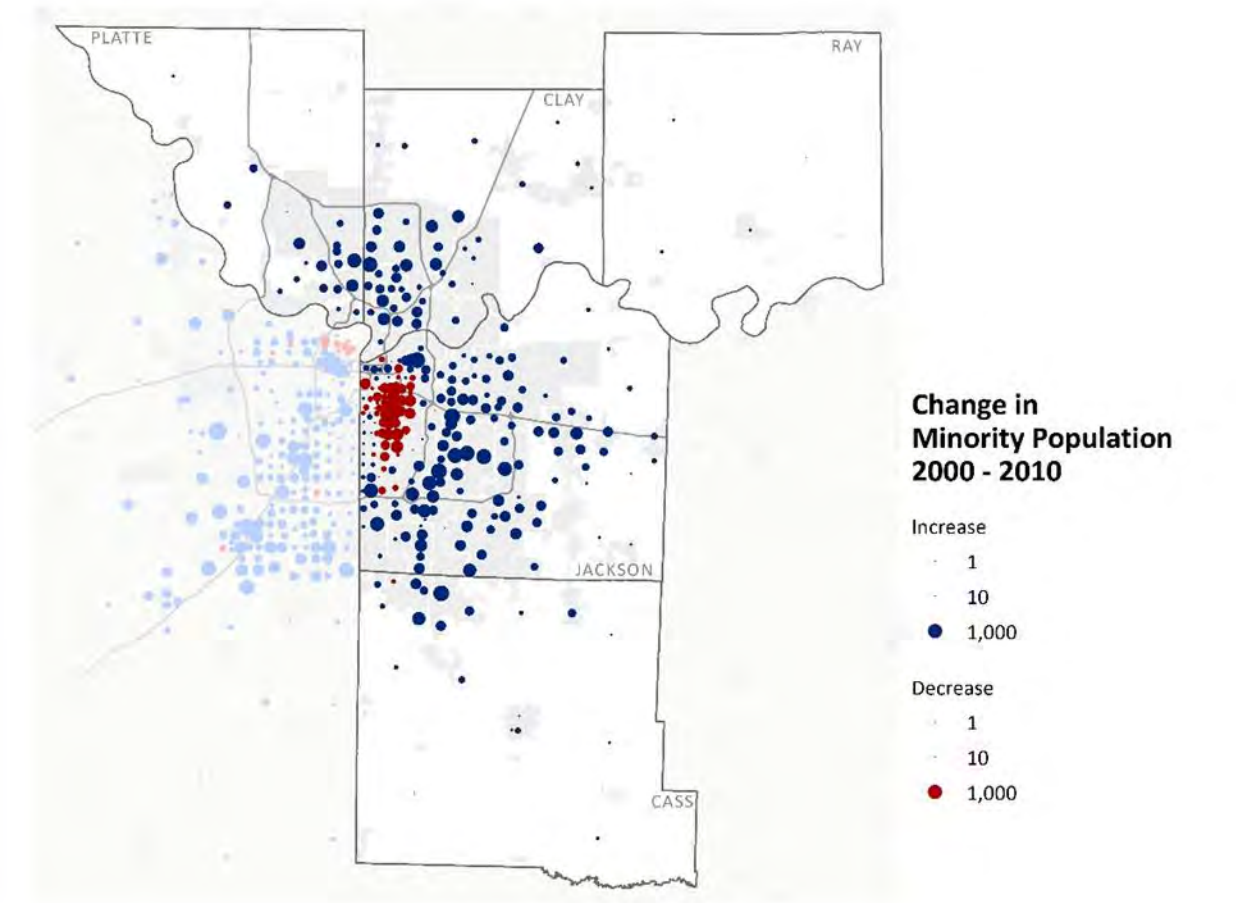


Source: Census Bureau, 2000 and 2010 decennial censuses

Map 2.11: Change in White Non-Hispanic Population 2000-2010

approximately steady in Ray County and Kansas City (Figure 2.13). As a result, minorities accounted for all the population growth in these jurisdictions. Minorities also accounted for much of the population growth in the suburban counties, ranging from about one-third in Cass County to nearly half in Clay County.

The jurisdiction totals mask the underlying dynamics of population shifts in the Planning Area, however. The area where minorities are most concentrated is also the area of Kansas City experiencing population loss. Similar to whites in previous generations, minorities are also moving outward in search of better opportunities for jobs, safer neighborhoods and better schools. As a result, suburbs have experienced increasing racial and ethnic diversity (See Map 2.12).



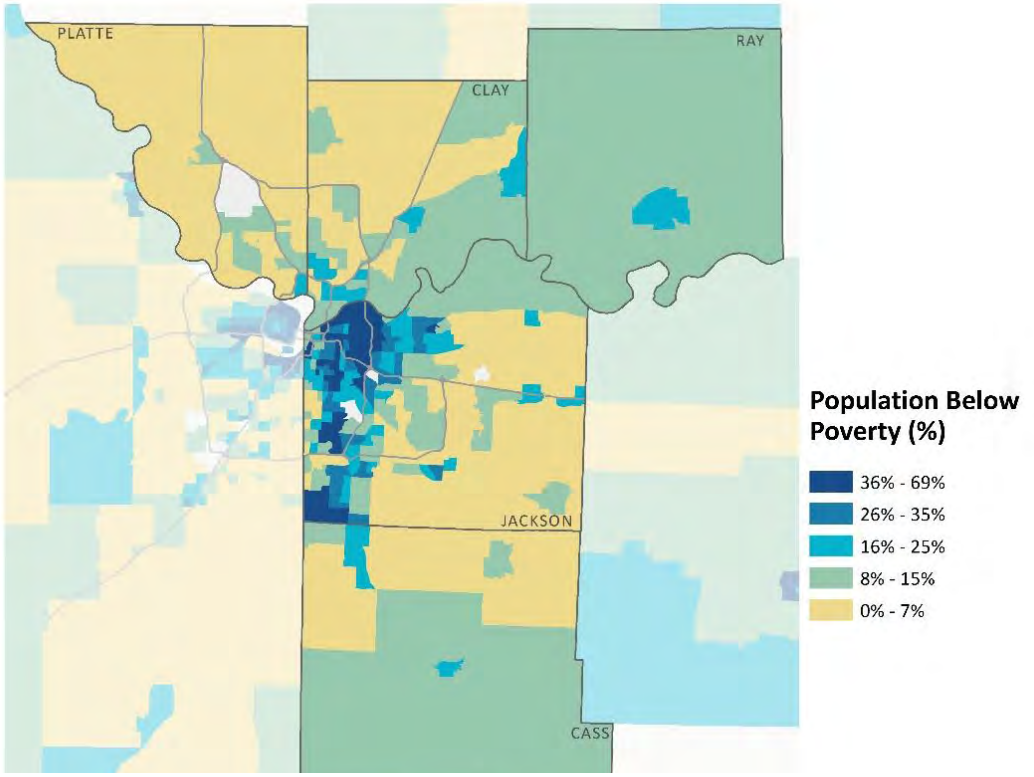
Source: Census Bureau, 2000 and 2010 decennial censuses

Map 2.12: Change in Minority Population, 2000-2010

Yet, in many cases, as minorities have moved outward, whites have moved out even farther. The exception to this is the redeveloping area around Downtown and the Crossroads, which has seen an increase in white population living there. Thus, while Kansas City's overall white population has remained stable, it is the result of significant increases in its white population in Clay and Platte Counties offsetting losses in Jackson County (See Map 2.11 above).

2.3.5 Poverty

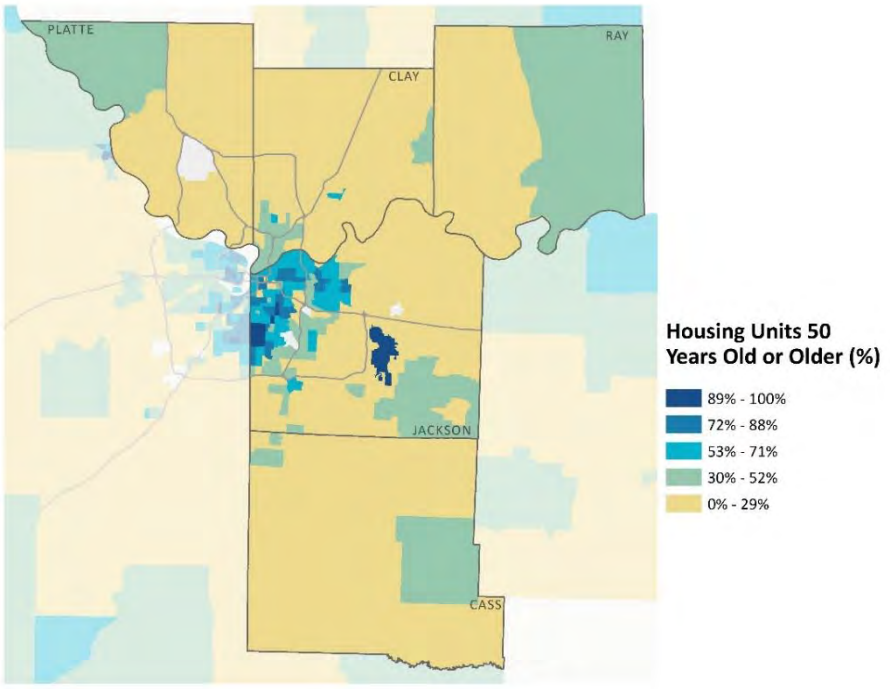
Unfortunately, there is a strong correlation between concentrations of minorities and concentrations of poverty (Map 2.13). Population loss has led to declining property values and underinvestment that, in turn, have created areas of low economic opportunity.



Source: 2013 American Community Survey, 5-year data

Map 2.13: Population Below Poverty (%)

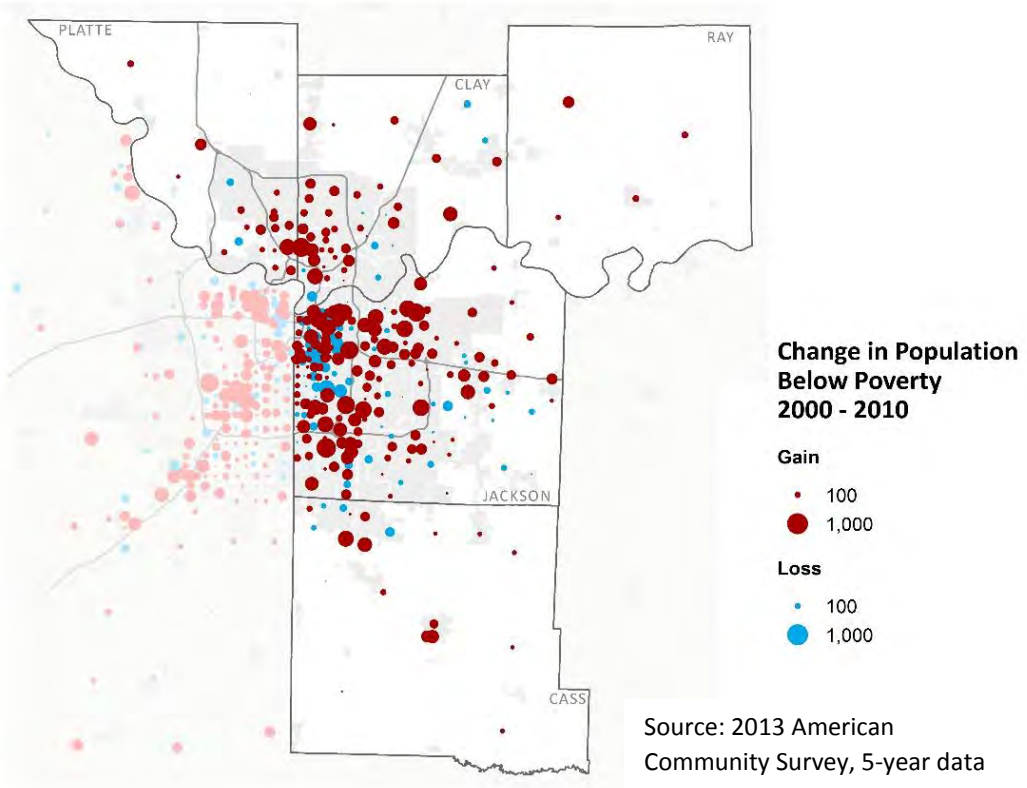
In part, the concentration of poor individuals stems from the fact that they must live in inexpensive housing. While the Planning Area boasts many large, historic older homes in attractive neighborhoods west of Troost that continue to be valued highly, the intersection of age of structure with disinvestment tends to concentrate the poor in older areas experiencing population loss (Map 2.14). Such older, low-value homes also pose additional risk factors related to health due to particulate and lead exposures, as well as being most likely to have poorly functioning heating and cooling and so vulnerable to extreme weather events.



Source: 2013 American Community Survey, 5-year data

Map 2.14: Housing Units 50 Years Old or Older (%)

While poverty remains the most concentrated in the Jackson County portion of Kansas City, most of the growth in poverty has occurred in the rest of the Planning Area. In fact, such suburban locations accounted for two-thirds of the overall increase in poverty during the 2000 to 2010 period (Map 2.15). As a result,



Source: 2013 American Community Survey, 5-year data

Map 2.15: Change in Population Below Poverty, 2000-2010

almost many poor people live in the suburbs as in the core of the Planning Area. However, because the suburbs contain more than 2 ½ time as many people as the Jackson County portion of Kansas City, suburban poverty rates there are less than half those in the core (See Table 2.2).

Table 2.2: Persons in Poverty

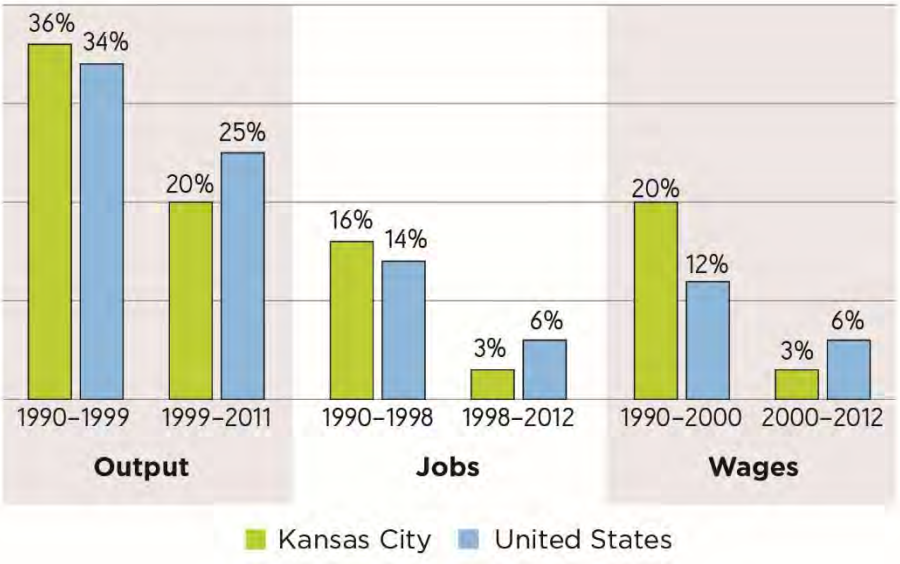
	2000			2010			Change		
County/Area	Population Below Poverty	Total Population	Poverty Rate	Population Below Poverty	Total Population	Poverty Rate	Population Below Poverty	Total Population	Poverty Rate
Cass	4,664	80,900	5.8%	6,940	96,563	7.2%	2,276	15,663	1.4%
Clay	9,898	181,335	5.5%	16,585	211,853	7.8%	6,687	30,518	2.4%
Jackson	76,808	643,918	11.9%	103,423	657,567	15.7%	26,615	13,649	3.8%
Platte	3,477	72,821	4.8%	6,055	85,939	7.0%	2,578	13,118	2.3%
Ray	1,557	22,956	6.8%	2,196	23,405	9.4%	639	449	2.6%
Planning Area	96,404	1,001,930	9.6%	135,199	1,075,327	12.6%	38,795	73,397	3.0%
Kansas City	61,273	417,110	14.7%	80,072	433,743	18.5%	18,799	16,633	3.8%
in Jackson County	55,847	313,471	17.8%	68,953	298,113	23.1%	13,106	(15,358)	5.3%
in Clay and Platte Counties	5,426	103,639	5.2%	11,119	135,630	8.2%	5,693	31,991	3.0%
Suburban	40,557	688,459	5.9%	66,246	777,214	8.5%	25,689	88,755	2.6%
Suburban Share	42%	69%	n/a	49%	72%	n/a	66%	121%	n/a
Kansas City in Jackson Share	58%	31%	n/a	51%	28%	n/a	34%	-21%	n/a

Source: 2000 Census and 2010 ACS, 5-year data. Universe is persons for whom poverty data is available.

Many aspects of population vulnerability are highly correlated with poverty, including unemployment, low levels of education, living in households where no one owns a car, and not having health insurance. Other vulnerable populations are more spread throughout the Planning Area, including the disabled and veterans. Attachment Maps 2.1-2.6, showing the location of these additional vulnerable populations, are included in the attachments to this section, *2.7 Attachments*. See also *Appendix C: Maps and References* for detailed information on vulnerable populations by jurisdiction.

2.4 Kansas City Regional Economy

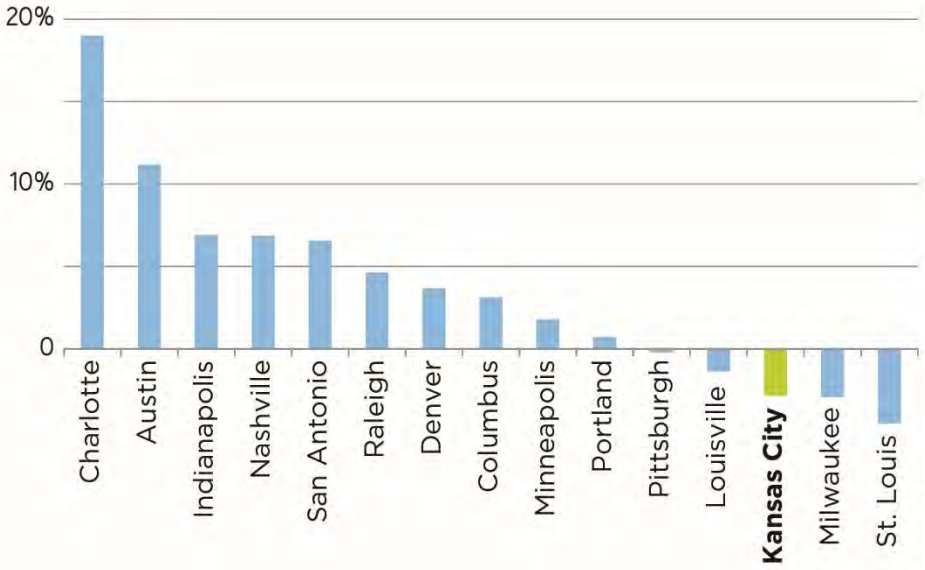
The Kansas City regional economy has been underperforming the U.S. in recent years, in contrast to its historical economic performance. In the 1990's, for example, the region generally grew faster than the nation in output, jobs, and wages (Figure 2.14). However, since approximately 2000, the region has fallen behind the nation in all three of these measures.



Source: Prosperity at a Crossroads, Brookings Institution and MARC, 2014.

Figure 2.14: Growth in Output, Jobs and Wages

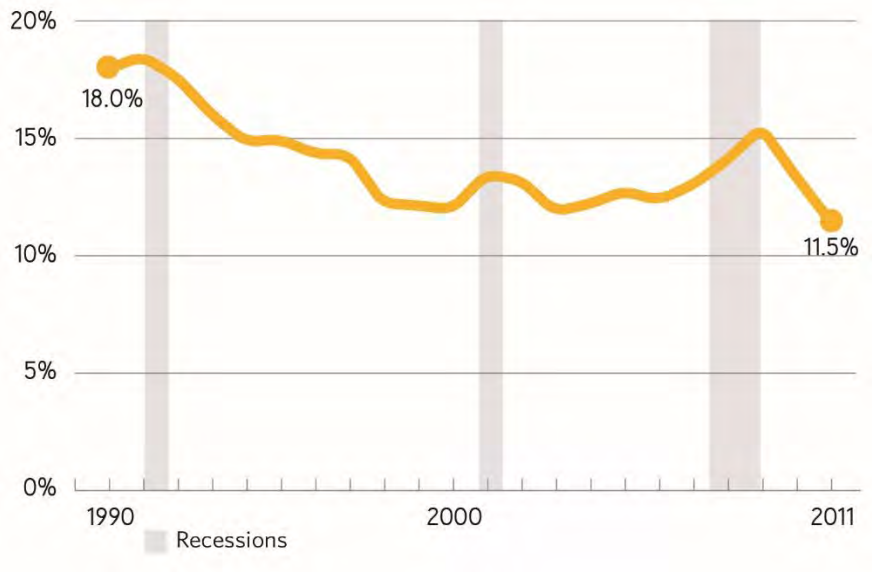
Not only has the Kansas City region's economic performance dropped off when compared with the national average, but also when compared with peer metro areas (See Figure 2.15). In particular, Kansas City is still struggling to recover all the jobs lost during the 2007-2009 Great Recession.



Source: Prosperity at a Crossroads, Brookings Institution and MARC, 2014.

Figure 2.15: Employment Change, Pre-Recession Peak to Q3 2013

One reason for the region's recently sagging economic performance relative to peers and the rest of the U.S. has been its lackluster exports. Regional economies thrive when they produce goods and services of value for the rest of the world outside their borders. However, metropolitan Kansas City's net exports – i.e., the value of what it exports minus the cost of what it imports – has been declining as a share of the region's overall economic output (See Figure 2.17), as measured by its contribution to Gross Domestic Product (GDP). This drop has been particularly rapid since the end of the Great Recession.



Source: Prosperity at a Crossroads, Brookings Institution and MARC, 2014.

Figure 2.16: Kansas City's Trade Surplus as a Share of Total Economic Output

Six economic sectors account for 80 percent of the region's exports – Manufacturing, Information, Wholesale Trade, Transportation and Warehousing, Finance and Insurance, and Professional Services. Of these, only Professional Services is outperforming the same industry nationally in all key metrics. It is growing faster in terms of jobs, output, wages and productivity, allowing the region to capture a larger share of the national market (See Figure 2.17).

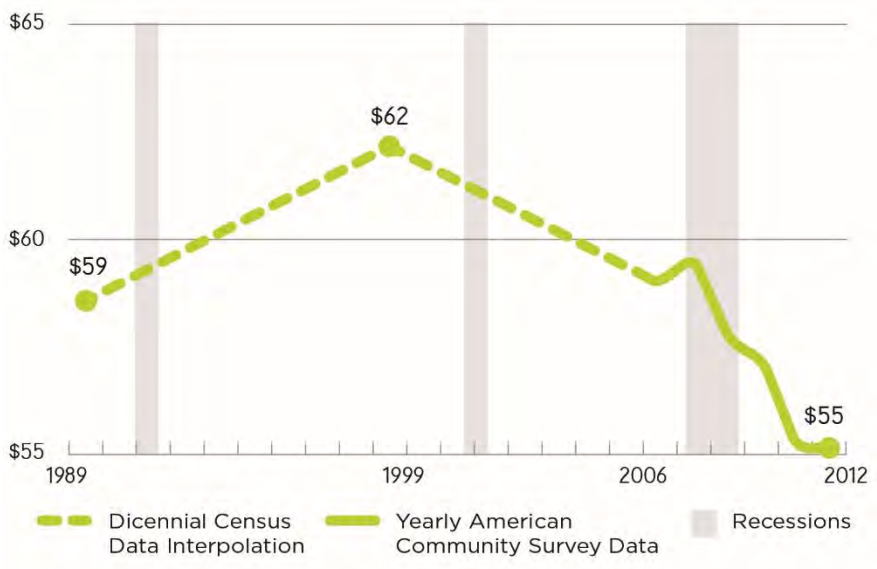
Traded Sector	Growth		Market Share		Productivity	Prosperity
	Output	Employment	Output	Employment	Relative Output/Job	Relative Compensation
Finance & Insurance	▲	▲	▼	◆	▼	▼
Manufacturing	▲	▼	▲	▲	▼	▼
Professional Services	▲	▲	▲	▲	▲	▲
Wholesale Trade	▲	◆	▼	▼	▼	▼
Information	▲	▼	▼	▼	▲	▲
Transportation & Warehousing	▲	▲	▼	▼	▲	▼

▲ Growing ▼ Declining ◆ Steady

Source: Prosperity at a Crossroads, Brookings Institution and MARC, 2014

Figure 2.17: Regional Economic Competitiveness Trends by Sector

Two recessions during the 2000s, followed by relatively weak recoveries, produced declining real incomes nationwide. However, as a result of the region's economic challenges, real incomes are declining faster here than elsewhere, and median household income is now below its level in 1989. See Figure 2.18 for the region's median household income in 1,000s of inflation adjusted 2012 dollars.

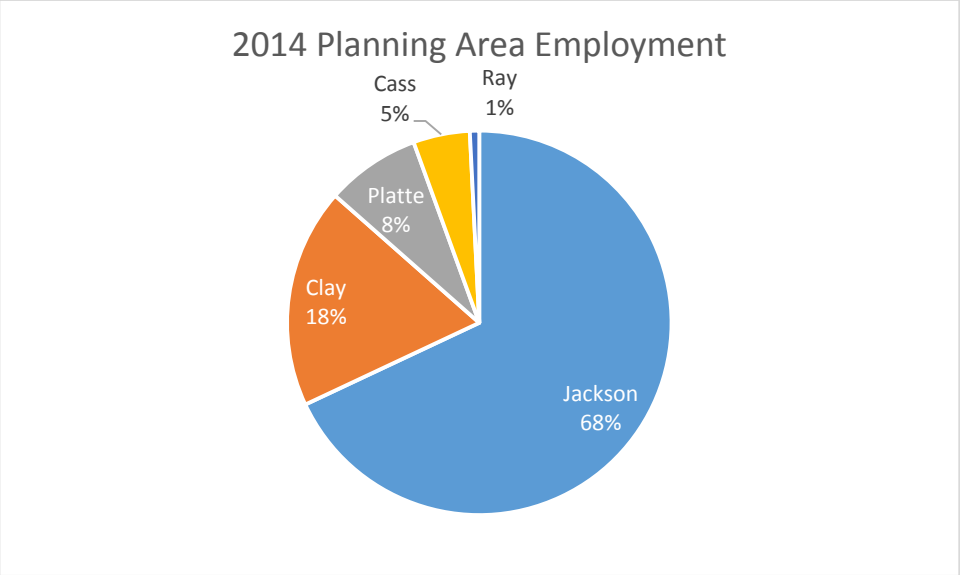


Source: *Prosperity at a Crossroads,* Brookings Institution and MARC, 2014

Figure 2.18: Greater Kansas City's Median Household Income, 1990-2012

2.4.1 Planning Area Economy

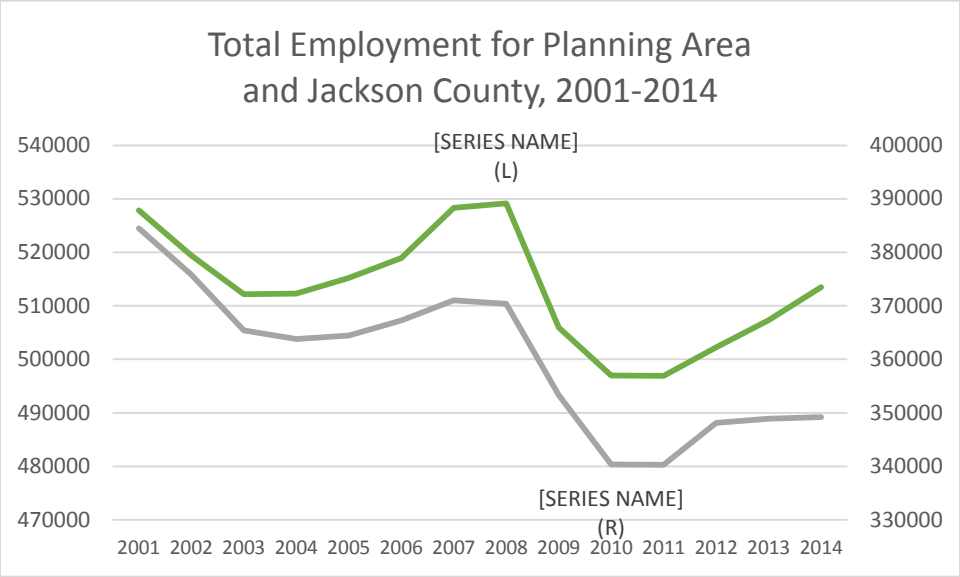
Jackson County comprises two-thirds the Planning Area economy, with nearly 350,000 jobs of its total job count of just over one-half million. Clay and Platte counties form the next largest portion of the Planning Area economy with about one-quarter of its jobs, combined. Clay County's 95,000 jobs account for 18 percent of the area job total, while Platte County's 41,000 jobs contribute another 8 percent. The remaining 6 percent of the Planning Area's jobs are mostly in Cass County, with Ray County contributing less than one percent. (Figure 2.19)



Source: BLS, Quarterly Census of Employment and Wages (QCEW), September 2014 data.

Figure 2.19: Planning Area Employment, 2014

Like the metropolitan area of which it is a part, the Planning Area is also struggling to regain the jobs lost as a result of the Great Recession. Employment declined by some 32,000 jobs between 2008 and 2011, only about half of which have been regained since then. More than 90 percent of the job loss occurred

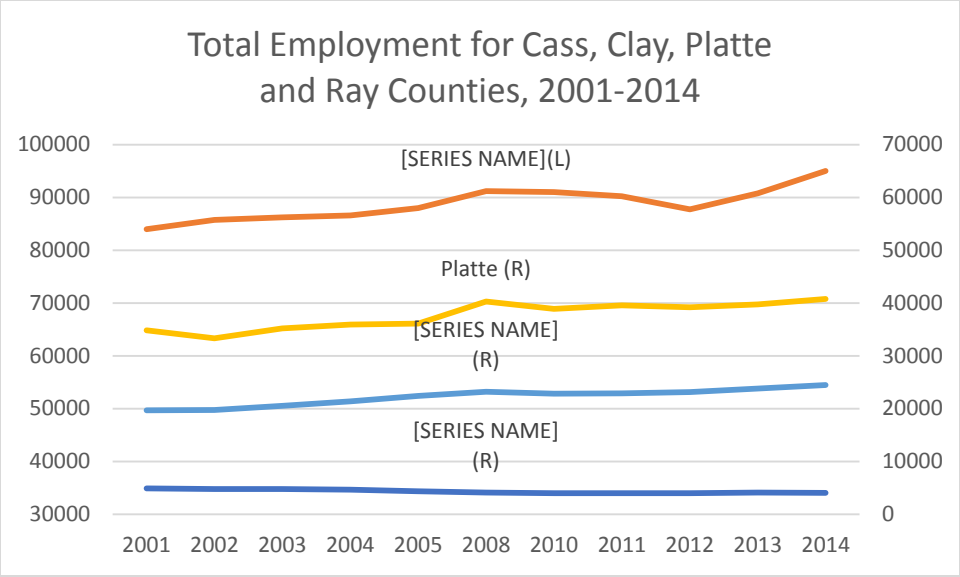


Source: BLS, Quarterly Census of Employment and Wages (QCEW), September 2014 data.

Figure 2.20: Total Employment for Planning Area and Jackson County, 2001-2014

in Jackson County, which saw an employment decline of 30,000 during the 2008-2011 period and has regained less than a third since then (Figure 2.20). In large part, this is because Jackson County's management and administrative industries, as well as government employment, have continued to decline even as they rebound elsewhere.

Except for Ray County, employment in all of the other counties in the Planning area has fully recovered from the Great Recession (Figure 2.21).



Source: BLS, Quarterly Census of Employment and Wages (QCEW), September 2014 data.

Figure 2.21: Total Employment for Cass, Clay, Platte and Ray Counties, 2001-2014

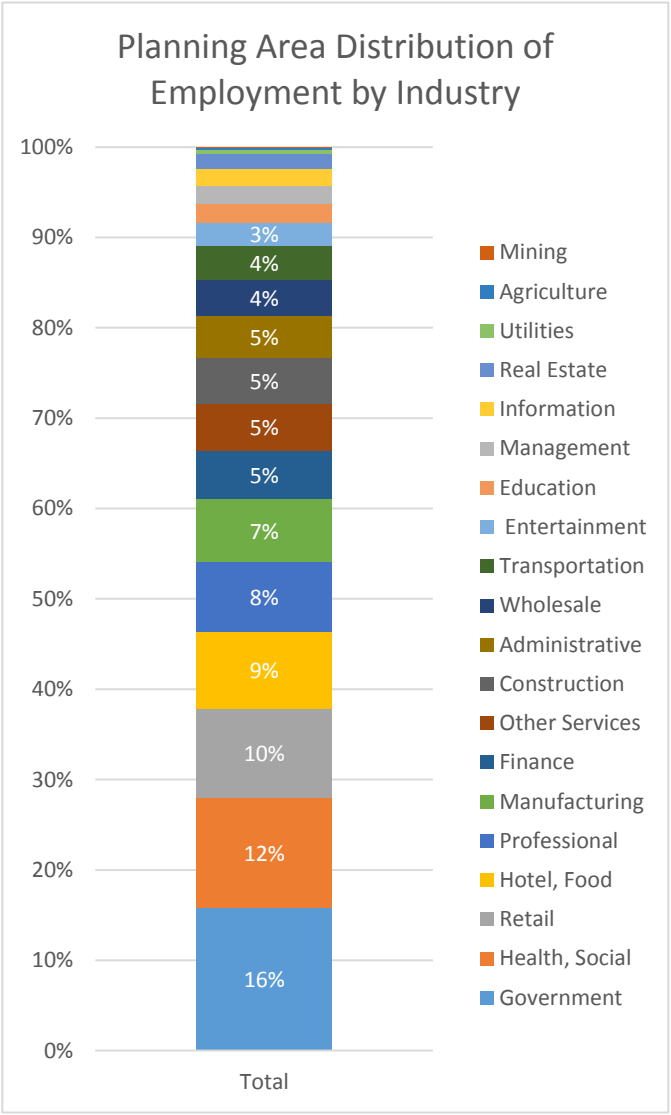
2.4.2 Employment by Industry

Government is the largest industry in the Planning Area, with 16 percent of its total employment. The vast majority of government is local government, and within that sub-sector, public schools make up the largest component.

The next largest industry is health and social services, with 12 percent of the area's employment, followed by retail and the accommodation and food services industry, with 10 percent and 9 percent of the planning area's overall employment.

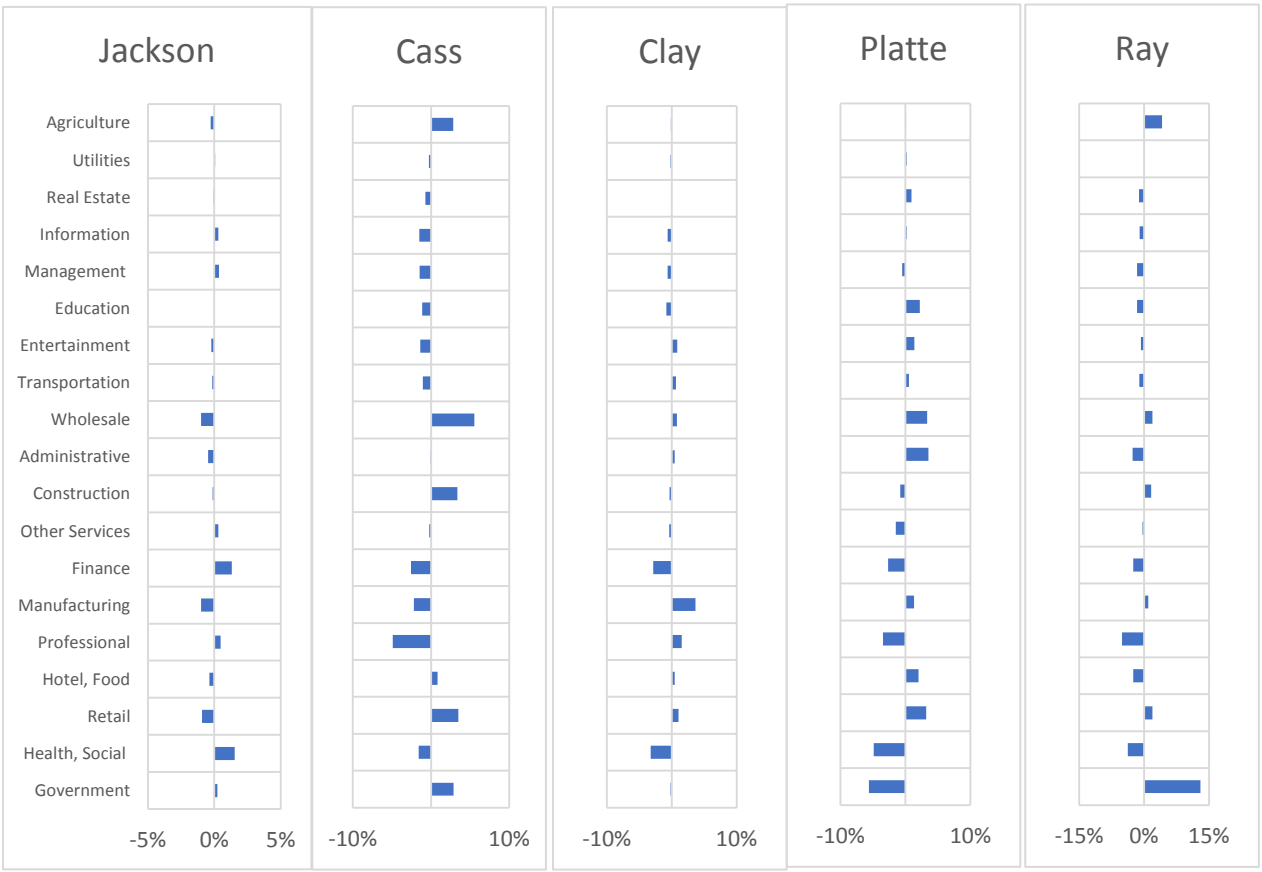
Retail, hotel and food workers tend to have wages that are lower than average. The next three largest industries, however—professional services, manufacturing and finance and insurance—employ people making above average wages. Professional services accounts for about 8 percent of the jobs in the planning area, manufacturing accounts for 7 percent while finance and insurance accounts for 5 percent. (Figure 2.22)

Different counties specialize in different industries, however, so it is useful to compare their distribution of employment with the Planning Area overall. See Figure 2.23 below for county comparisons.



Source: Economic Modeling Specialists International

Figure 2.22: Planning Area Distribution Of Employment by Industry



Source: Economic Modeling Specialists International (EMSI), 2014.

Figure 2.23: County and Planning Area Percent Distributions of Employment by Industry, 2014

Because Jackson County's comprises two-thirds of the Planning Area economy, the Planning Area distribution of employment by industry closely mirrors that of Jackson County. As result, its industry deviations from the area average are less than in other counties. Still, Jackson County does specialize in Finance and Health when compared to the other counties, and Professional Services to a lesser extent.

Cass, being more rural, specializes in agriculture compared the area average. It also has a higher concentration of government, wholesale and retail trade employment.

Clay County specializes in manufacturing, in part due to the presence of Ford, as well as professional services, largely due to the presence of Cerner's headquarters.

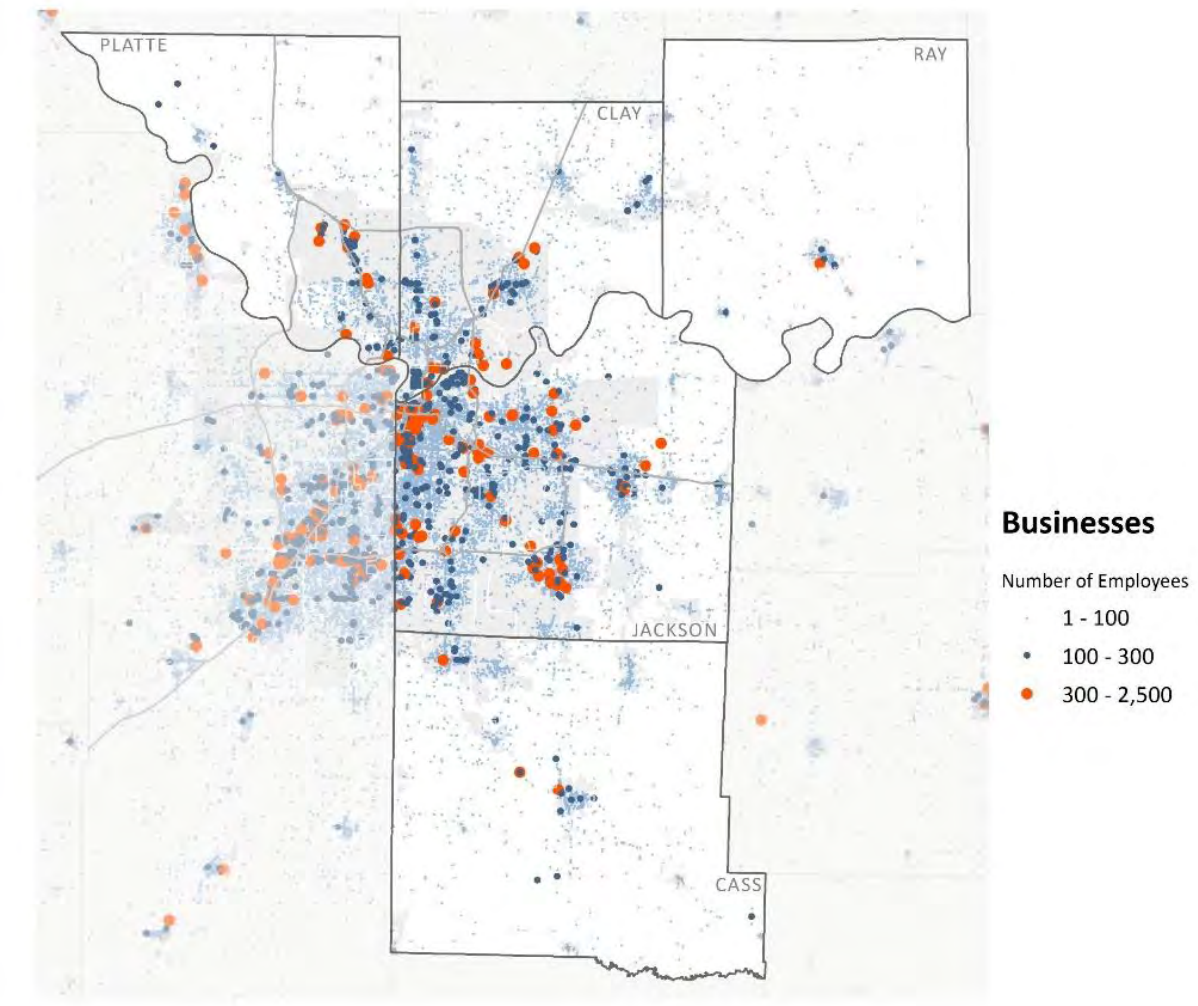
Platte County has a more diverse set of specialties. Related to the presence of KCI airport is a concentration of hotel and food employment and wholesale trade. Much of the office space near the airport is being used as satellite campuses for post-secondary institutions, resulting in a concentration of education and administrative support employment as well. It has also become a center for retail trade. Finally, some manufacturers have found the airport location to be advantageous, creating a specialization in that sector. All this comes at the expense of the government sector, of which Platte

County has a significantly lower percentage than average for the Planning Area. The same is true for the Health and Professional service sectors in Platte.

Ray County is the Planning Area's most rural. As a result, it specializes in Agriculture, as might be expected. However, its largest concentration of employment is found in the government sector.

2.4.3 Employment Location

Businesses tend to locate where there is a combination of high demand in terms of population and income, good access to a talented workforce, and high levels of accessibility to both (Map 2.16). As a result, businesses tend to cluster along major roadway facilities in areas with significant population density. The only exceptions are industrial and warehouse facilities, where access to large tracts of land with good rail access is more important than access to population.

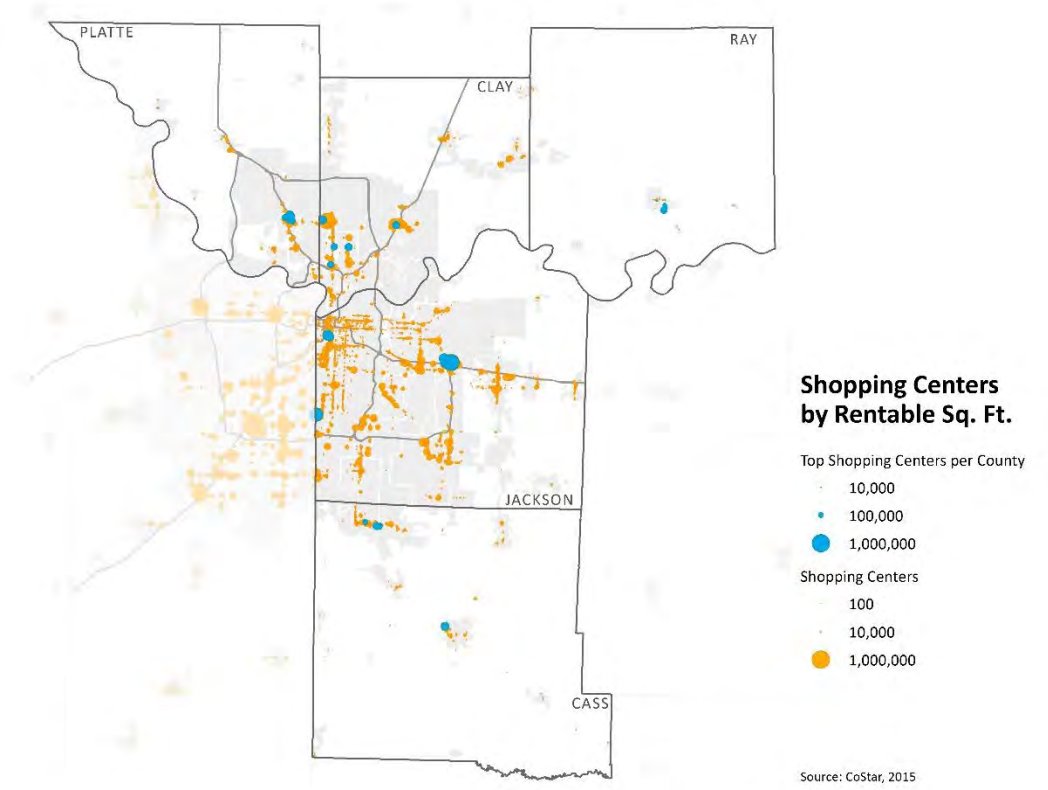


Source: Infogroup, 2010

Map 2.16: Area Businesses by Number of Employees

Shopping centers, in particular, locate near major arterials and highway interchanges to maximize their access to the biggest possible consumer market. This is especially apparent when examining some of the

Planning area's largest shopping areas (See Map 2.17). For example, Independence Center, with 1.4 million square feet of space, is located at the intersection of I-70 and U.S. 291. Zona Rosa, Tiffany Springs MarketCenter, and Boardwalk Square all sit at in different quadrants of the I-29/M-152 Interchange while Barry Towne is near the intersection of U.S. 169 and M-152 in Clay County, and Summit Fair and Summit Woods Crossing in Lee's Summit are located at the intersection of I-470 and U.S. 50.



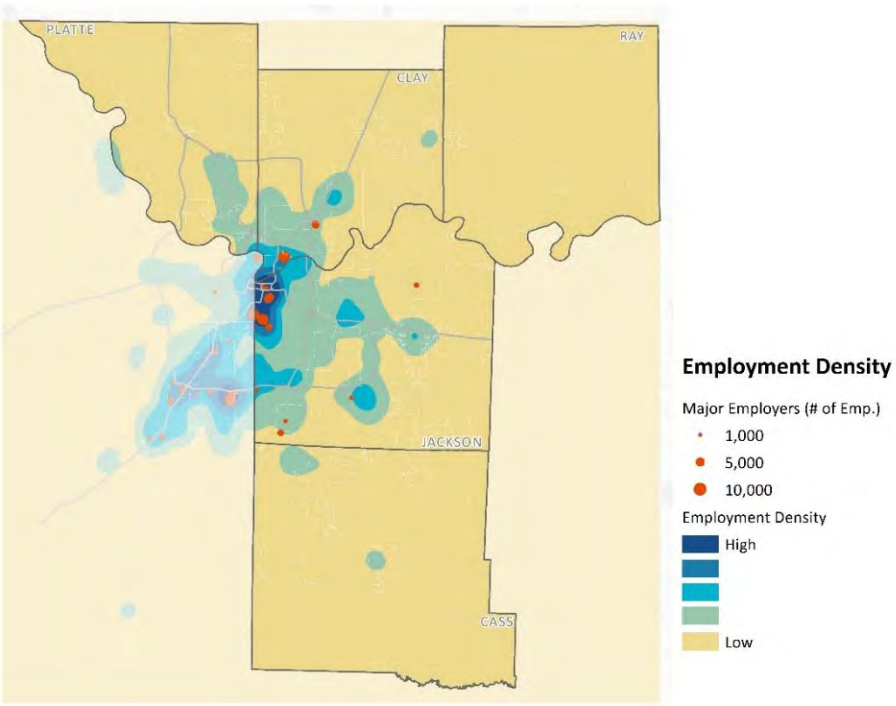
Source: CoStar

Map 2.17: Area Shopping Centers by Rentable Sq. Ft.

The nation's oldest shopping center, and still one of the region's most successful, the Country Club Plaza, is located along Ward Parkway near Broadway and Main, all principal arterials. It anchors the south end of the region's densest cluster of employment, which stretches from the River Market area, through Downtown, the Crossroads and Crown Center to the Plaza.

Downtown has seen a remarkable economic turnaround, with the opening of the Sprint Center and Power and Light District, along with considerable conversions of older buildings to loft spaces and some new multifamily construction especially along the street car line that will open in early 2016. A new 800-room convention hotel was also recently announced.

Major employers located principally or headquartered in the Planning Area include Cerner, Ford and North Kansas City Hospital in Clay County; HCA Midwest Health System, Saint Luke's and Children's Mercy Hospitals, Hallmark Cards, DST, Truman Medical Centers, Honeywell, Burns & McDonnell, and Commerce and UMB Banks in Jackson County; and Farmland, Citi Cards and Harley Davidson in Platte County. (Map 2.18)

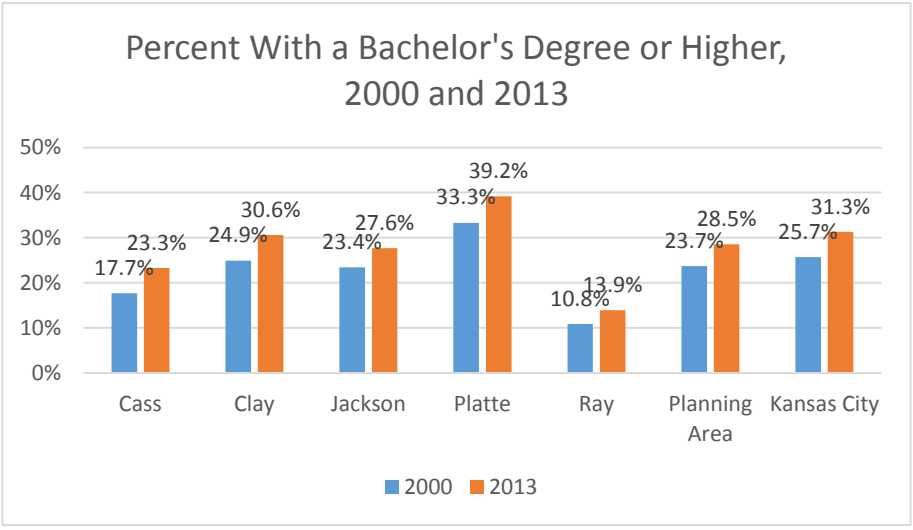


Source: Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES), 2011

Map 2.18: Area Employment Density

2.4.4 Education and Income

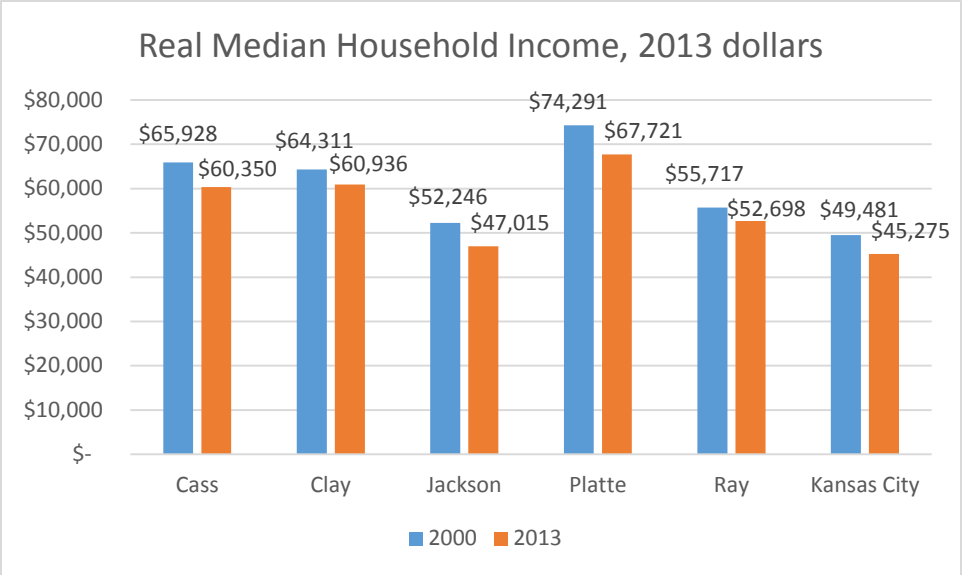
In recent years, all counties in the Planning Area have seen significant increases in their educational attainment, as measured by the percentage of their residents 25 years and older who have earned a bachelor's degree or higher. The Planning Area as a whole saw an increase of nearly 5 percentage points between 2000 and 2013, to 28.5 percent. It was led by Platte County, whose residents' attainment of a bachelor's degree increased nearly 6 points over the period, to 39.2 percent. Clay County also has a higher than average level of educational attainment in the Planning area, with 30.6 percent of its residents earning at least a bachelor's degree. Conversely, Ray County residents have the lowest percentage earning a bachelor's degree or higher in the Planning Area, at 13.9 percent in 2013, though this is up about 3 percentage points since 2000. (Figure 2.24)



Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.24: Bachelor's Degree or Higher, 2000 and 2013 (%)

Despite the increases in educational attainment between 2000 and 2013 in every county in the Planning Area, real median household incomes declined in every county. Real incomes are those after adjusting for inflation and so measure the purchasing power of those incomes. Because prices increased 33 percent in the Kansas City metropolitan area over this period, nominal incomes would have needed to increase 33 percent simply to keep up. Unfortunately, they did not in any Planning Area county. As seen earlier, the two recessions in the 2000s created a substantial increase in the number of households in poverty in both urban and suburban locations. The decline in real household incomes is consistent with this trend.



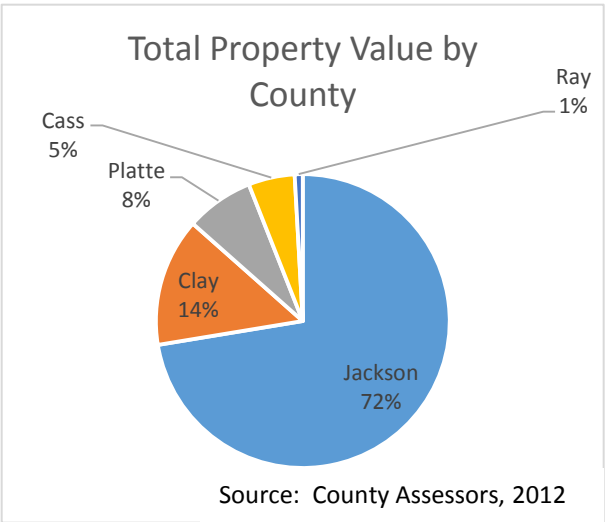
Source: 2000 Census and 2013 American Community Survey, 5-year data

Figure 2.25: Real Median Household Income, 2013 dollars

The households in Platte County remain the Planning Area's wealthiest, with median incomes of $67,700 in 2013. Households residing in Clay and Cass Counties have the next highest incomes, with their median households earning between $60,000 and $61,000. Jackson County has the lowest median household income of any county in the Planning Area, at $47,000. This is largely due to the concentrated poverty in Kansas City, which itself has a median household income of $45,300. (Figure 2.26)

2.4.5 Property Value

Despite having the lowest household incomes among the counties in the Planning Area, Jackson County contains the vast majority of its real estate value due to its relative size and its function as an employment center. Whereas Jackson County is home to 60 percent of the Planning Area's population, it contains 72 percent of its property value, approximately the same as its percentage of the Planning Area employment. Clay County contains 14 percent of the real estate property value in the Planning Area and Platte County contains 8 percent, both of which are also about the same as their share of the area's employment. (Figure 2.26)

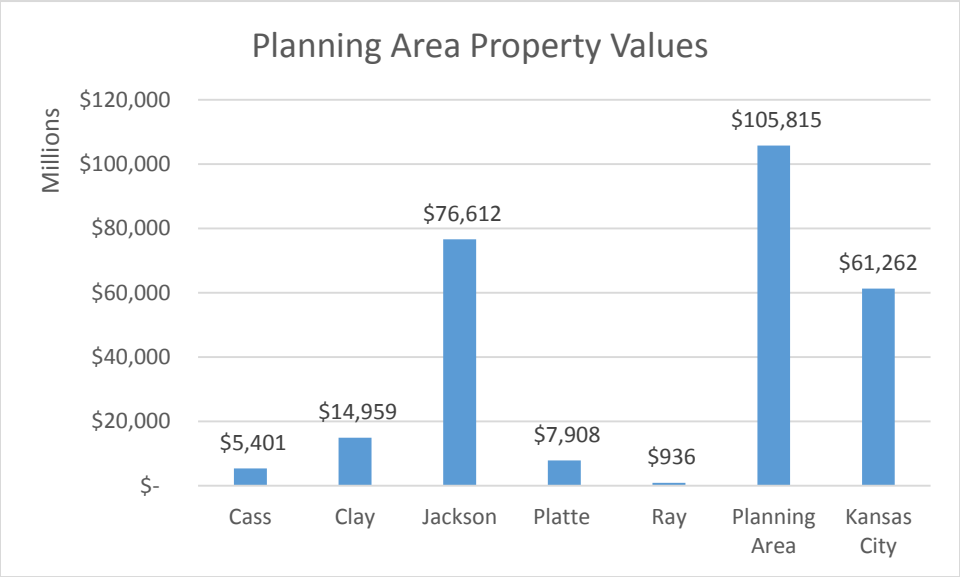


Source: County Assessors, 2012

Figure 2.26: Total Property Value by County

The total value of real estate property in the Planning Area

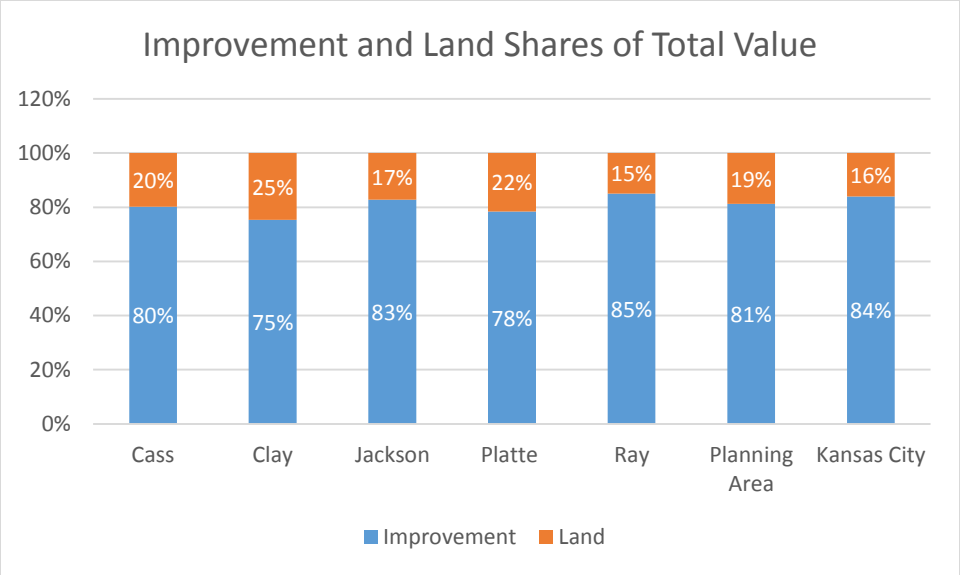
in 2012 was approximately $105.8 billion dollars. Jackson County accounted for $76.6 billion of that, followed by Clay with $15.0 billion, Platte with $7.9 billion, Cass with $5.4 billion and Ray with $0.9 billion. Kansas City alone accounted for over half (57 percent) of the property value in the Planning Area with $61.3 billion. (See Figure 2.27) Additional tables of building counts and valuations by jurisdiction are located in *Appendix C: Maps and References*.



Source: County Assessors, 2012

Figure 2.27: Planning Area Property Values

Improvements, principally buildings, comprise 81 percent of the total property value in the Planning Area, with land value accounting for the remaining 19 percent. These shares are remarkably stable across the counties in the area. Land's share of total property value ranges from a low of 15 percent in Ray County to a high of 25 percent in Clay County. (See Figure 2.28 below)

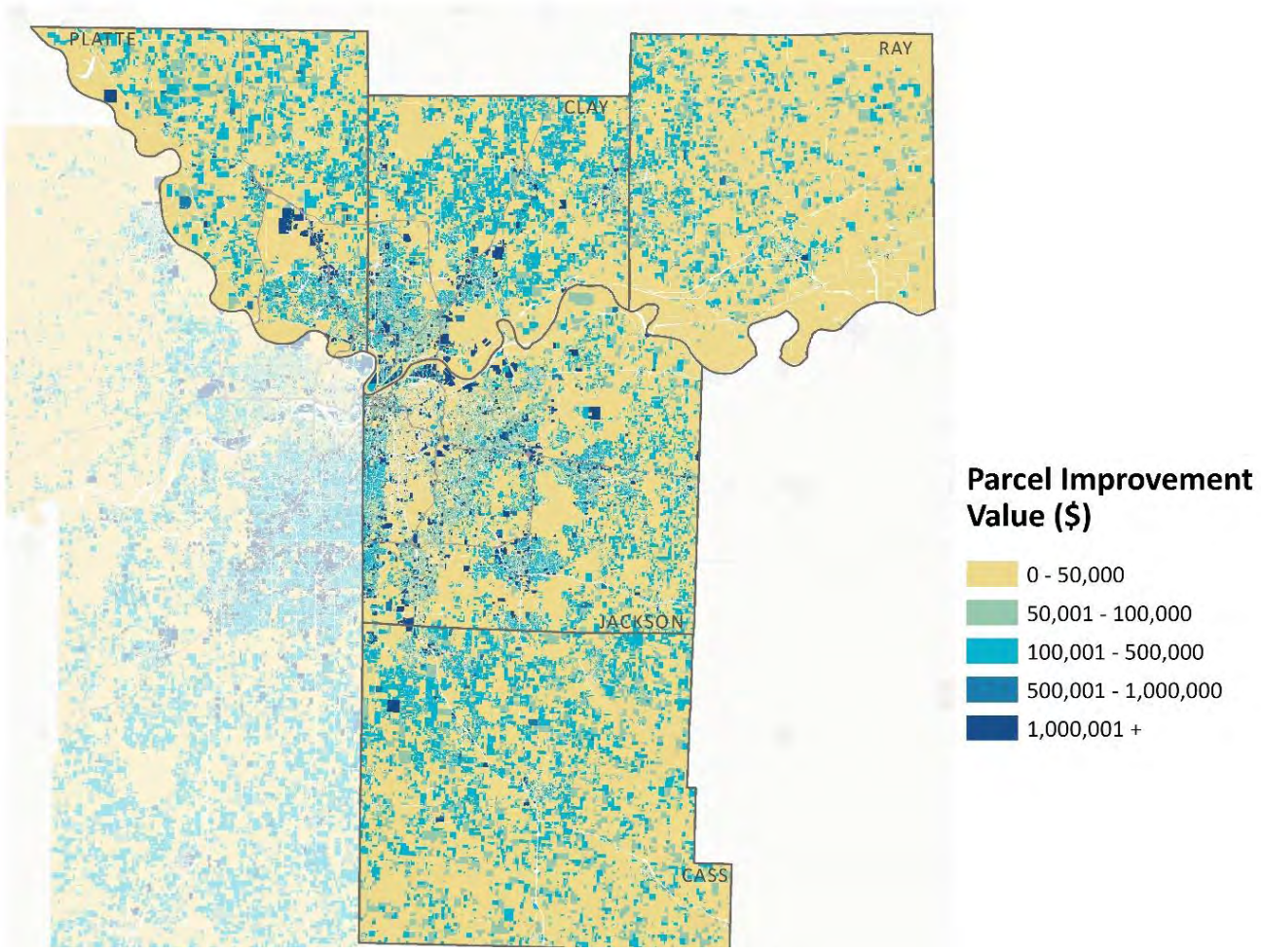


Source: County Assessors, 2012

Figure 2.28: Improvement and Land Shares of Total Property Value

Table 2.3: Improvement, Land and Total Property Value			
County/Area	**Improvement**	**Land**	**Total**
Cass	$4,331,361,133	$1,069,542,390	$5,400,903,523
Clay	$11,264,257,389	$3,694,354,650	$14,958,612,039
Jackson	$63,397,277,836	$13,214,964,272	$76,612,242,108
Platte	$6,200,789,371	$1,706,797,920	$7,907,587,291
Ray	$796,236,331	$139,604,114	$935,840,445
Planning Area	**$85,989,922,060**	**$19,825,263,346**	**$105,815,185,406**
Kansas City	$51,463,280,508	$9,798,273,172	$61,261,553,680
Source: County Assessor, 2012			

The highest valued parcels tend to be commercial, office and industrial areas. High value residential areas are focused in Clay and Platte Counties; Kansas City west of Troost; eastern Independence, Lee's Summit and Blue Springs in eastern Jackson County, and the northern half of Cass County (See Table 2.3 above). The map below in Map 2.19 shows improvement values by parcel. Therefore, parks, lakes and restricted areas show up with very low values because no structures exist.



Source: County Assessors, 2012

Map 2.19: Parcel Improvement Value ($)

2.5 Planning for the Future

2.5.1 Population Forecasts

Perhaps the biggest demographic change expected in the future is the aging of the population. The number of older adults—defined as those 65 years old and above—in the Kansas City metropolitan area is expected to increase by 233,000 between 2010 and 2030.

In large part, this is because the post-World War II baby boom (those who were born from 1946 to 1964), shown as a bulge in ages 25-44 in the 1990 population pyramid, began to reach retirement age in 2010. (Figure 2.29) This, plus medical advances, will result in a 2030 population where the number of older adults roughly equals the number of people in other broad age groups in the community. (Figure 2.30)

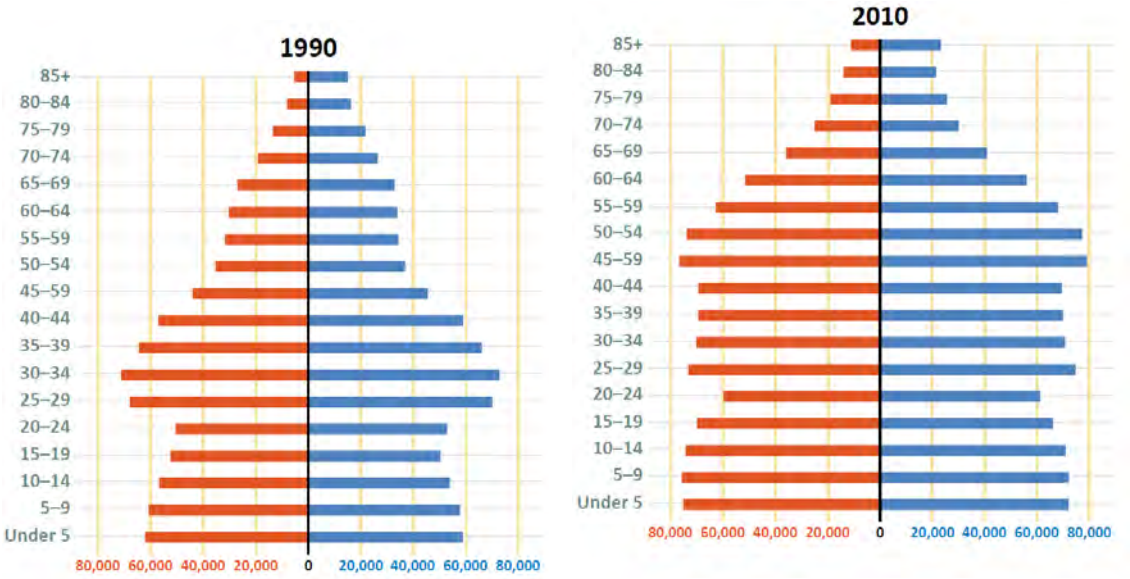
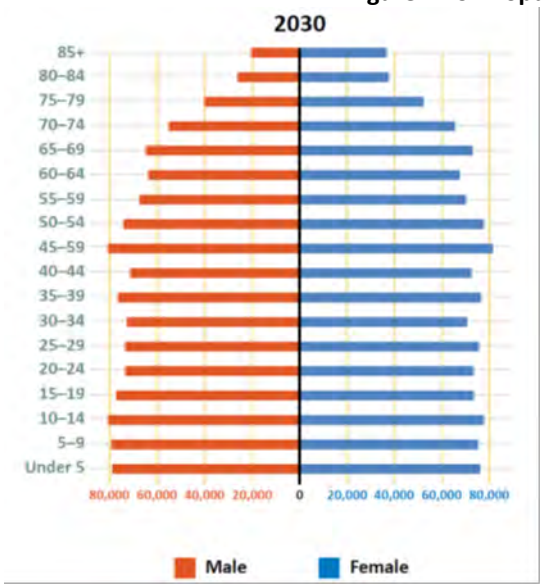


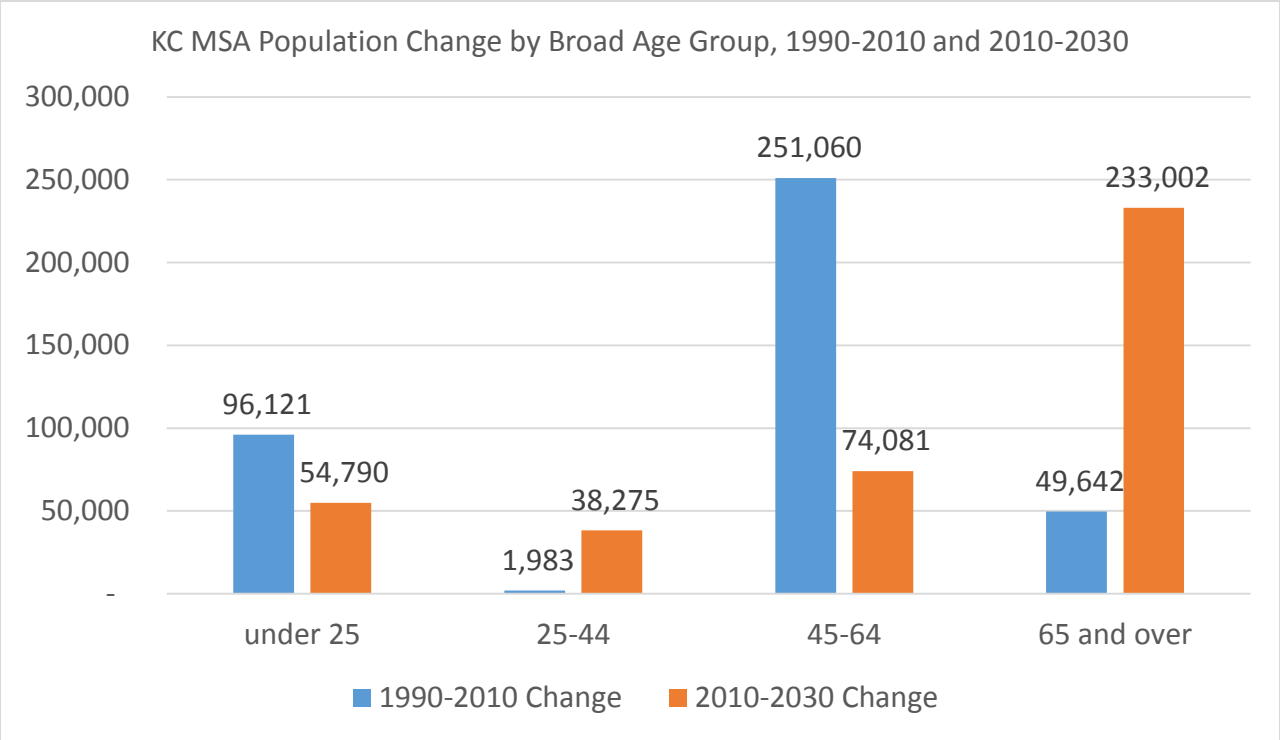
Figure 2.29: Population Pyramids, 1990 and 2010



Source: Census Bureau, 1990 and 2010 Census, MARC

Figure 2.30: Population Pyramid, 2030

In 2010, older adults were 12 percent of the Kansas City region's population, a percentage that was unchanged from 1990. But the aging of the baby boom generation means the senior share of the region's population is expected to increase to 20 percent by 2030. As a result, the population 65 and older will approximately double between 2010 and 2030 bringing their total to nearly one-half million. In fact, fully 58 percent of the Kansas City metropolitan area's total population growth between 2010 and 2030 is expected to be as a result of the increase in adults 65 years of age and older.



Source: Census Bureau, 1990 and 2010 Census, MARC

Figure 2.31: Kansas City MSA Population Change by Broad Age Group, 1990-2010 and 2010-2030

Conversely, the younger adult share of the population will decline from 28 percent to 24 percent, while the middle-aged adult share will decline from 27 percent to 24 percent between 2010 and 2030. (See Figure 2.31) Because the region's overall population is expected to grow by some 600,000, however, these age groups are still projected to increase in numbers despite their declining share.

These changes in the age structure of the population have implications for how the region accommodates its population growth in terms of its land use. Compared to the prior 20 years, most of the growth in the future will be from households seeking a smaller rather than a larger home in which to live, with amenities near-by and accessible by multiple means—walking, transit, ride sharing—rather than only by way of driving a private automobile.

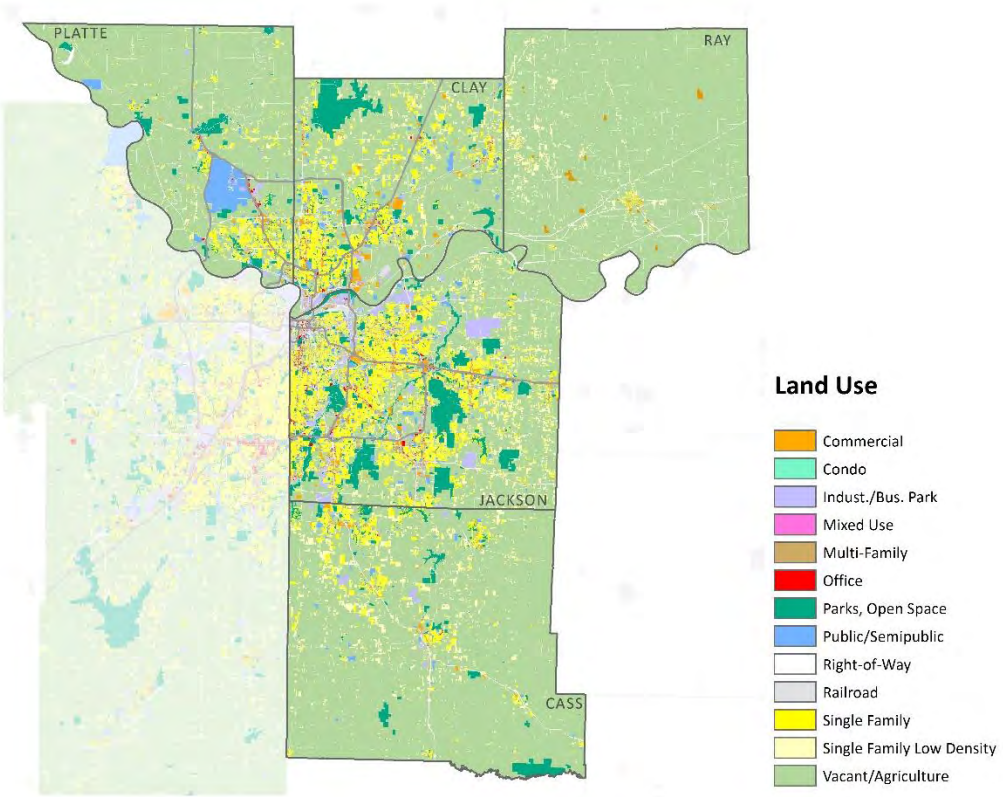
2.5.2 Land Use

As the Kansas City Region's metropolitan planning organization (MPO), MARC makes land use forecasts as an input into the region's long-range transportation plan. MARC forecasts population and employment growth by first forecasting land use change, then applying planned densities to those changes. This process begins with the distribution of activity as given by the region's current land use (See Table 2.4). Land use acreage tables by jurisdiction are also located in *Appendix C: Maps and References*.

Table 2.4: Existing Land Use by Major Type, in acres

Land Use	Cass	Clay	Jackson	Platte	Ray	Total
Single Family	15,963	27,942	61,856	12,018	1,668	119,446
Single Family (low density)	23,372	11,527	21,609	5,298	11,269	73,075
Multi-Family	339	1,443	5,276	672	-	7,730
Mixed use	-	-	11	-	-	11
Commercial	2,047	6,483	9,993	1,135	1,716	21,374
Office	36	764	2,306	441	-	3,546
Industrial/Business Park	1,878	2,418	17,014	1,821	-	23,132
Public/Semipublic	3,087	7,022	10,354	13,452	9	33,924
ROW	9,333	21,106	45,554	16,133	-	92,127
Parks and Open Space	11,683	21,941	38,056	9,392	-	81,073
Vacant or Agricultural	381,775	159,114	182,986	212,112	337,837	1,273,854
Total	**449,514**	**259,789**	**395,015**	**272,474**	**352,499**	**1,729,292**

Source: County Assessors Offices and GIS departments, as compiled and tabulated by MARC



Source: County Assessors Offices and GIS departments, as compiled and tabulated by MARC

Map 2.20: Area Land Use

Vacant or agricultural land is still the dominant land use in the Planning Area, comprising two-thirds of the total land area. Adding parks and open space to this total, more than three-quarters (78 percent) of the Planning area is undeveloped. This varies by county, from Ray and Cass Counties, with 96 percent and 88 percent undeveloped, respectively, to Jackson County, with 56 percent undeveloped. (See Map 2.20)

Among the land devoted to developed uses in the Planning Area, single-family residential areas comprise half of it, and right-of-way—principally for roads—make up another quarter. Public/semi-public facilities, such as KCI, city halls, schools and churches, sit on 9 percent of the developed land, while commercial areas use 6 percent, as do office/warehouse parks and industrial areas. The highest density uses take up the least amount of land, as multifamily and office uses comprise only 2 percent and 1 percent of the developed land area, respectively.

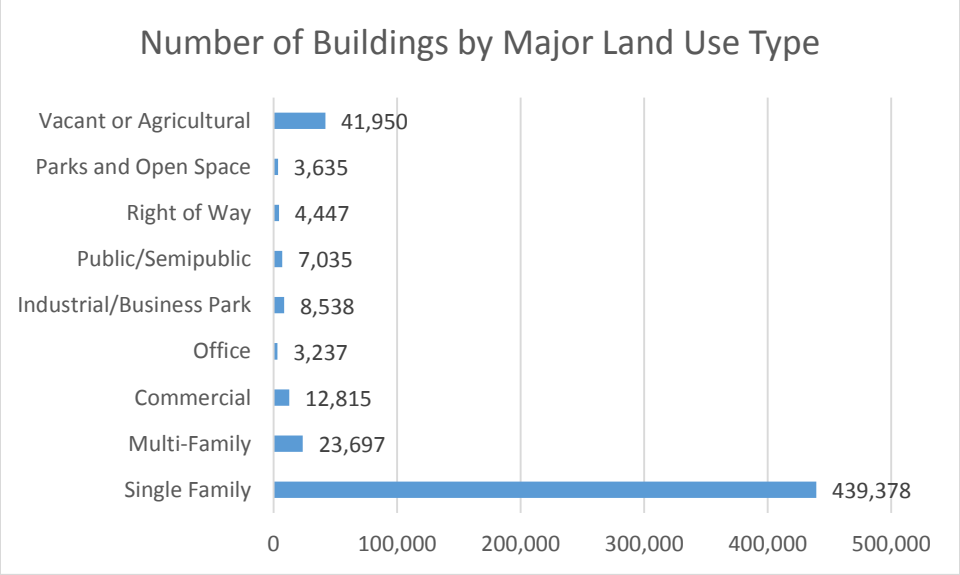
Not surprisingly, given its relative share of developed land uses, single-family homes dominate the structure count, comprising 81 percent of the total structures in the Planning Area (See Table 2.5 and Figure 2.32).

Table 2.5: Building Counts by Major Land Use Type

Land Use Type	Cass	Clay	Jackson	Platte	Total
Single Family	41,060	88,812	277,991	31,515	439,378

Table 2.5: Building Counts by Major Land Use Type					
Land Use Type	**Cass**	**Clay**	**Jackson**	**Platte**	**Total**
Multi-Family	1,695	3,003	17,620	1,379	23,697
Commercial	1,521	2,418	8,162	714	12,815
Office	20	614	2,366	237	3,237
Industrial/Business Park	299	1,214	6,450	575	8,538
Public/Semipublic	846	1,498	3,814	877	7,035
Right-of Way	323	768	3,037	319	4,447
Parks and Open Space	250	1,031	1,991	363	3,635
Vacant or Agricultural	12,450	8,281	14,516	6,703	41,950
Total	**58,464**	**107,639**	**335,947**	**42,682**	**544,732**

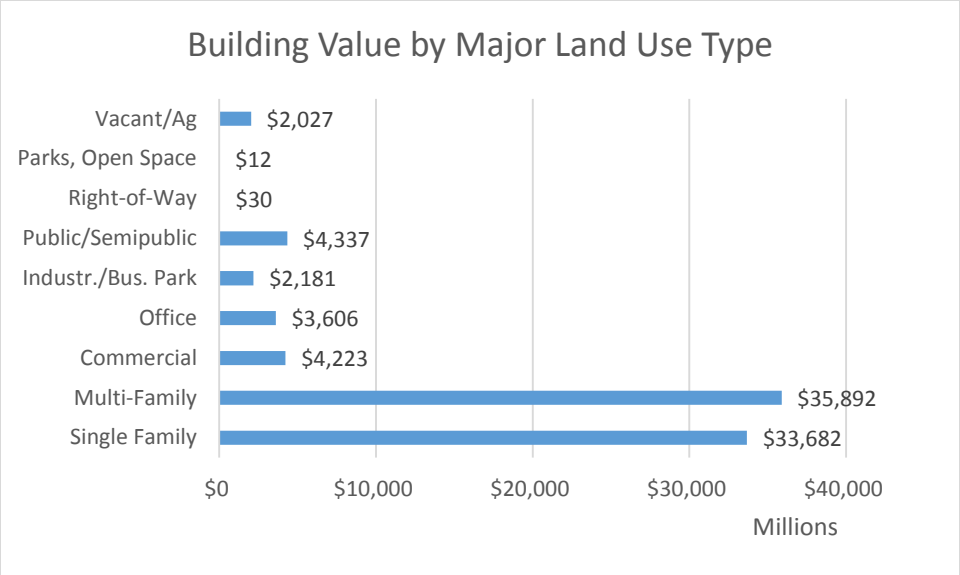
Source: City and County GIS departments and MARC. Ray County data not available.



Source: City and County GIS departments and MARC

Figure 2.32: Number of Buildings by Major Land Use Type

A different picture emerges, however, when considering the value of the buildings in the Planning Area by land use type (See Figure 2.33). The value of multi-family buildings, at $36 billion, actually exceeds that of single family buildings, despite the latter's vastly superior numbers. As a result, the share of total building value attributable to single family buildings drops to 39 percent, less than half its share of building counts. Public/semi-public buildings such as schools and churches, as well as commercial buildings, each account for five percent of the planning area's building value, while commercial buildings account for four percent and industrial buildings account for three percent. (See Figure 2.33 and Table 2.6)



Source: County assessors, city and county Planning and GIS departments, as compiled and tabulated by MARC. Ray County data not available

Figure 2.33: Building Value by Major Land Use Type

Table 2.6: Value of Buildings by Major Land Use

Land Use	Cass	Clay	Jackson	Platte	Ray	Total
Single Family	$3,337,956,481	$7,162,847,774	$19,166,839,774	$3,449,072,564	$565,297,796	$33,682,014,389
Multi-Family	$184,691,350	$732,145,300	$34,518,171,676	$457,470,958	$0	$35,892,479,284
Commercial	$278,150,530	$1,343,889,500	$1,939,900,862	$603,375,375	$57,598,608	$4,222,914,875
Office	$10,452,940	$347,552,500	$2,969,343,553	$278,274,486	$0	$3,605,623,479
Industrial/Business Park	$47,734,040	$414,396,600	$1,418,751,260	$299,714,749	$0	$2,180,596,649
Public/Semipublic	$21,189,620	$968,632,955	$2,584,563,266	$763,048,373	$0	$4,337,434,214
Right-of-Way	$1,145,180	$0	$29,252,972	$0	$0	$30,398,152
Parks, Open Space	$10,731,550	$0	$1,066,205	$0	$0	$11,797,755
Vacant/Ag	$439,309,442	$294,792,760	$769,388,268	$349,832,866	$173,339,927	$2,026,663,263
Total	**$4,331,361,133**	**$11,264,257,389**	**$63,397,277,836**	**$6,200,789,371**	**$796,236,331**	**$85,989,922,060**

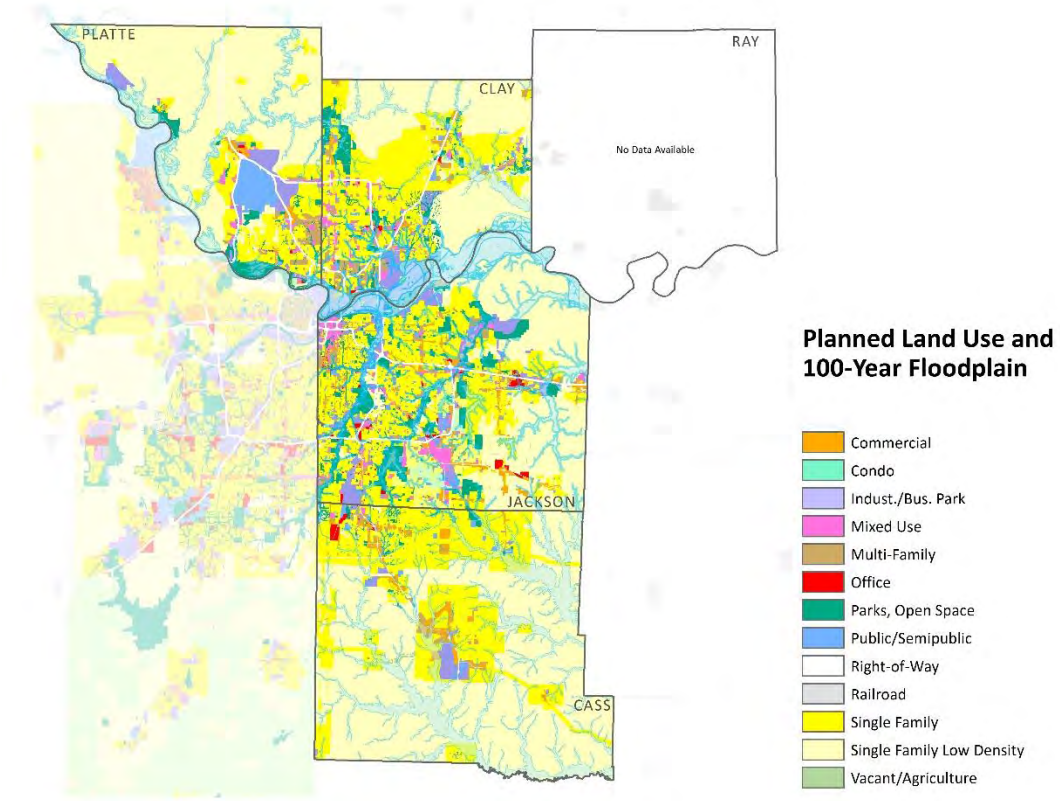
Source: County assessors, city and county Planning and GIS departments, as compiled and tabulated by MARC.

2.5.2a Planned Land Use

After collecting existing land use, MARC surveys cities and counties to obtain their future land use plans. Typically, these plans are designed to visualize what the jurisdiction will look like once it is fully built-out or, in older areas, when anticipated redevelopment is completed. As such, these plans provide guidance for MARC's forecast concerning what kinds of development will occur and where, provided there is sufficient demand to make the development economically feasible (See Table 2.7).

Table 2.7: Planned Land Use by Major Type, in acres					
Land Use (in acres)	**Cass**	**Clay**	**Jackson**	**Platte**	**Total**
Single Family	127,985	92,455	166,281	43,538	430,259
Single Family (low density)	279,118	99,746	92,374	180,870	652,108
Multi-Family	3,093	10,078	13,022	5,707	31,900
Mixed use	315	5,936	13,455	3,592	23,298
Commercial	10,789	4,261	13,070	2,508	30,629
Office	1,172	876	3,684	308	6,040
Industrial/Business Park	6,237	13,244	23,459	10,929	53,869
Public/Semipublic	2,700	4,026	7,583	11,190	25,498
Right-of-Way	5,074	7,506	13,405	3,480	29,466
Parks and Open Space	4,619	21,229	40,937	9,930	76,715
Vacant or Agricultural	8,412	432	7,746	422	17,011
Total	**449,514**	**259,789**	**395,015**	**272,473**	**1,376,793**

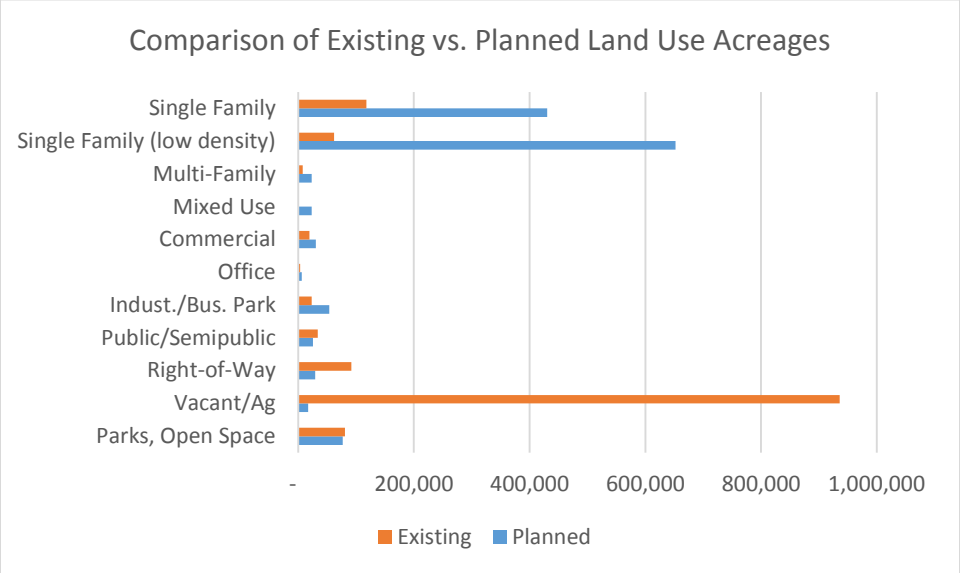
Source: City and County Planning and GIS departments, as compiled and tabulated by MARC. Ray County data not available



Source: City and County Planning and GIS departments, as compiled and tabulated by MARC

Map 2.21: Planned Land Use and 100-Year Floodplain

Planned land use maps in local land use plans are not as precise as the data for existing land use, so most of the land in right-of-way is classified according to its surrounding land use. Still, it is clear from the planned land use map above (Map 2.21) that local governments intend to convert most of the Planning Area's vacant and agricultural land to single-family housing at some point in the future. This represents an increase in developed land of 257 percent (See Figure 2.34). Given that the population in the Kansas City region as a whole is only projected to grow by 31 percent between 2010 and 2040, however, this implies that not all of the land planned for development will, in fact, develop during a typical 30-year planning horizon.

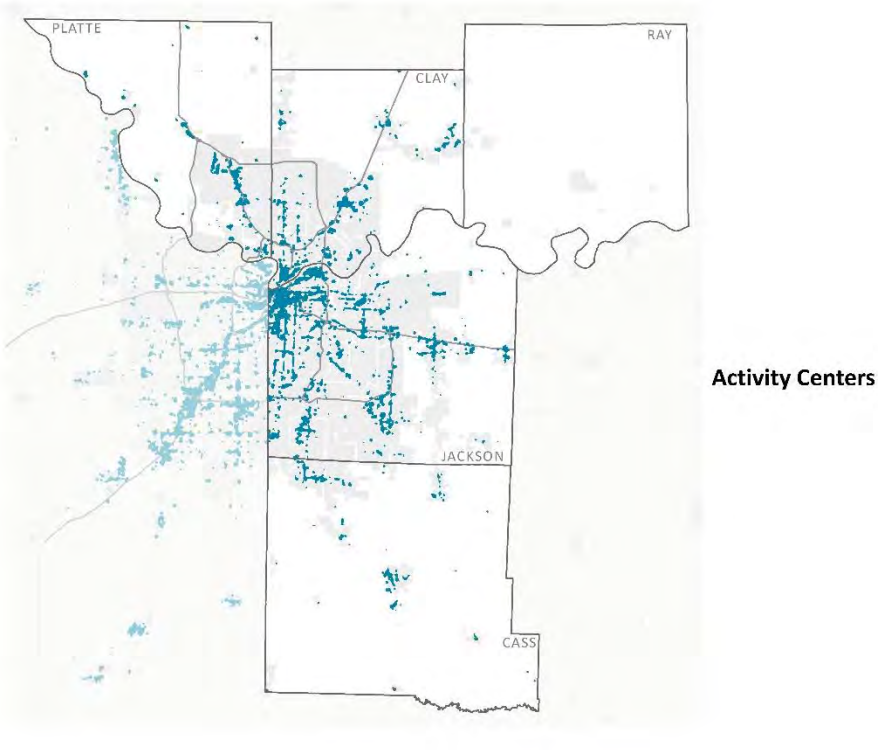


Source: City and County Planning and GIS departments, as compiled and tabulated by MARC

Figure 2.34: Comparison of Existing vs. Planned Land Use Acreages

To forecast where development is expected to occur between 2010 and 2040, given the vast quantity of land where growth could theoretically occur, MARC uses a series of statistical models to estimate the land most likely to develop. These history-based probabilities are augmented with information concerning local priorities for development that jurisdictions are encouraging with policy, investments and incentives. In particular, local plans exclude future development in flood plains, so no new growth is forecast there.

Additionally, most local governments plan to focus future development in activity centers along transportation corridors to increase walkability, better serve growing senior population, and make growth more affordable by limiting infrastructure extensions (See Map 2.22).



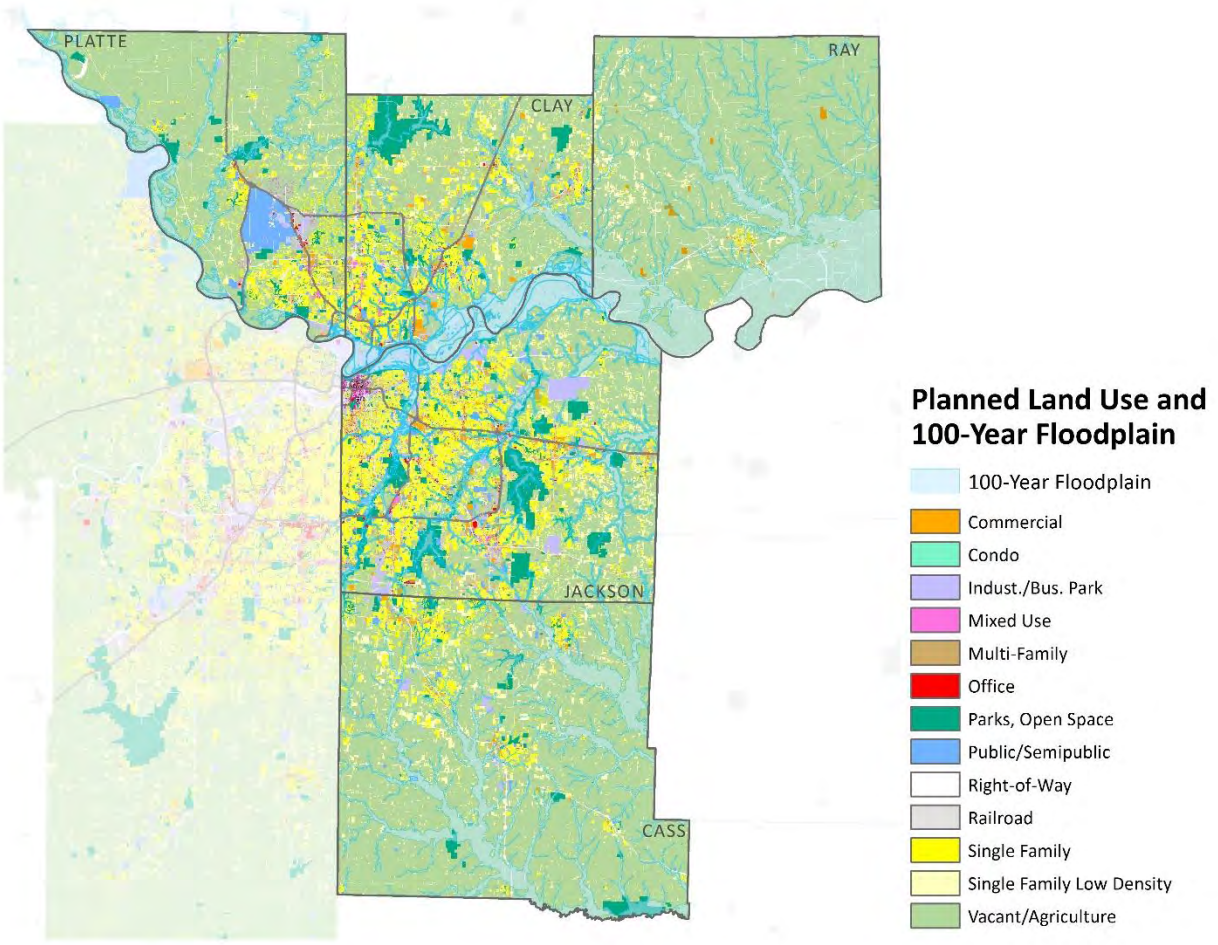
Source: MARC

Map 2.22: Planning Area Activity Centers

2.5.2b Land Use Forecast

Future land use is forecast based on 1) the expected growth in total population and employment, 2) the probability a given parcel of land will newly develop, redevelop or decline based on existing land use and historical trends, and 3) current local land use policy and public investments designed to focus growth where it can be most efficiently and successfully accommodated. These forecasts also include as a policy that no new development will occur in floodplains (See Map 2.23).

As a result, most new development is projected to occur adjacent to or near existing development, especially along existing transportation corridors and in existing or planned activity centers.



Source: MARC

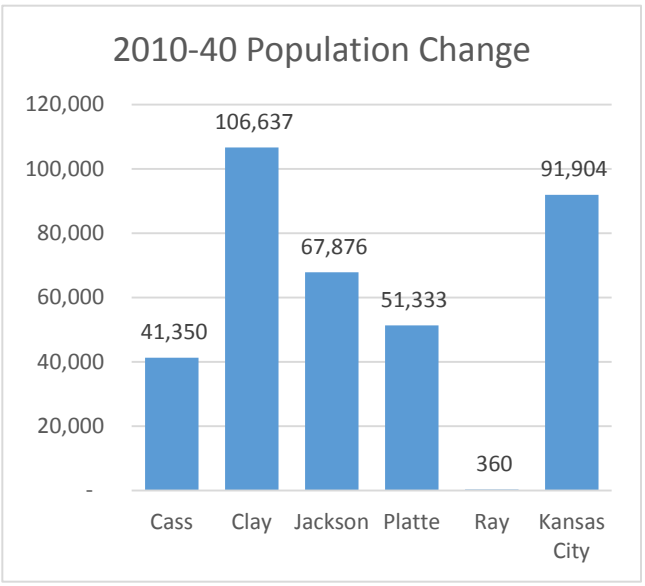
Map 2.23: Forecast Future Land Use with 100-Year Floodplain

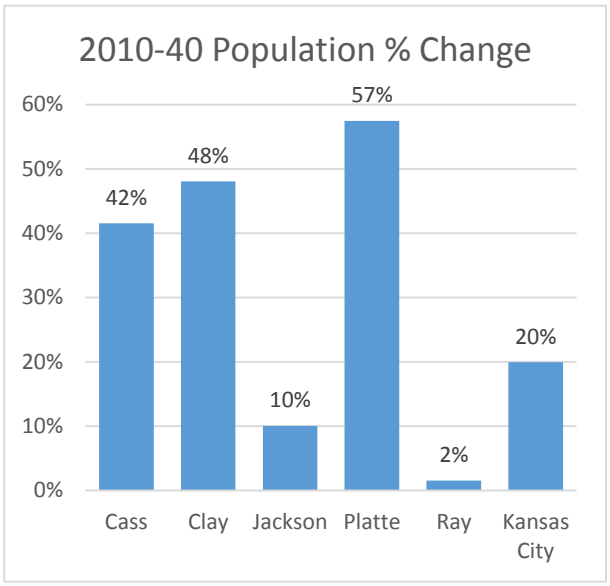
2.5.3 Population and Employment Forecast

This future land use forecast is then converted to a population and employment forecast by applying the planned densities, along with expected persons per household and employees per square foot, to the forecast land use. When aggregated to a county level, Clay County is forecast to experience the greatest population growth, adding more than nearly 107,000 people between 2010 and 2040, while Platte County is expected to grow the fastest, increasing its population by 57 percent over the period, a gain of some 51,000 people. Jackson County will remain the Planning Area's largest county, adding 68,000 people—second most in the Planning Area—to reach 742,000 by 2040, a 10 percent increase over 2010 levels. Cass County is expected add 41,000 people during the 30-year period, an increase of 42 percent. Ray County's population is expected to remain stable over the planning horizon. Combined, the Planning Area's population is forecast to grow by more than one-quarter million by 2040, a 24 percent increase over its population in 2010. (See Table 2.8)

Table 2.8: Population Forecast							
County/Area	2000	2010	2020	2030	2040	2010-2040 Change	2010-2040 % Change
Cass	82,123	99,478	114,166	128,037	140,828	41,350	42%
Clay	183,941	221,939	261,433	296,452	328,576	106,637	48%
Jackson	654,941	674,158	692,187	714,702	742,034	67,876	10%
Platte	73,826	89,322	104,769	122,115	140,655	51,333	57%
Ray	23,374	23,494	23,614	23,734	23,854	360	2%
Planning Area	1,018,205	1,110,401	1,198,190	1,287,071	1,377,986	267,585	24%
MARC Region	1,724,694	1,921,099	2,123,240	2,321,968	2,518,436	597,337	31%
Planning area share	59%	58%	56%	55%	55%	45%	78%
Kansas City	442,369	460,639	484,693	516,244	552,543	91,904	20%

Source: Census Bureau, MARC. Ray County projection not officially adopted.





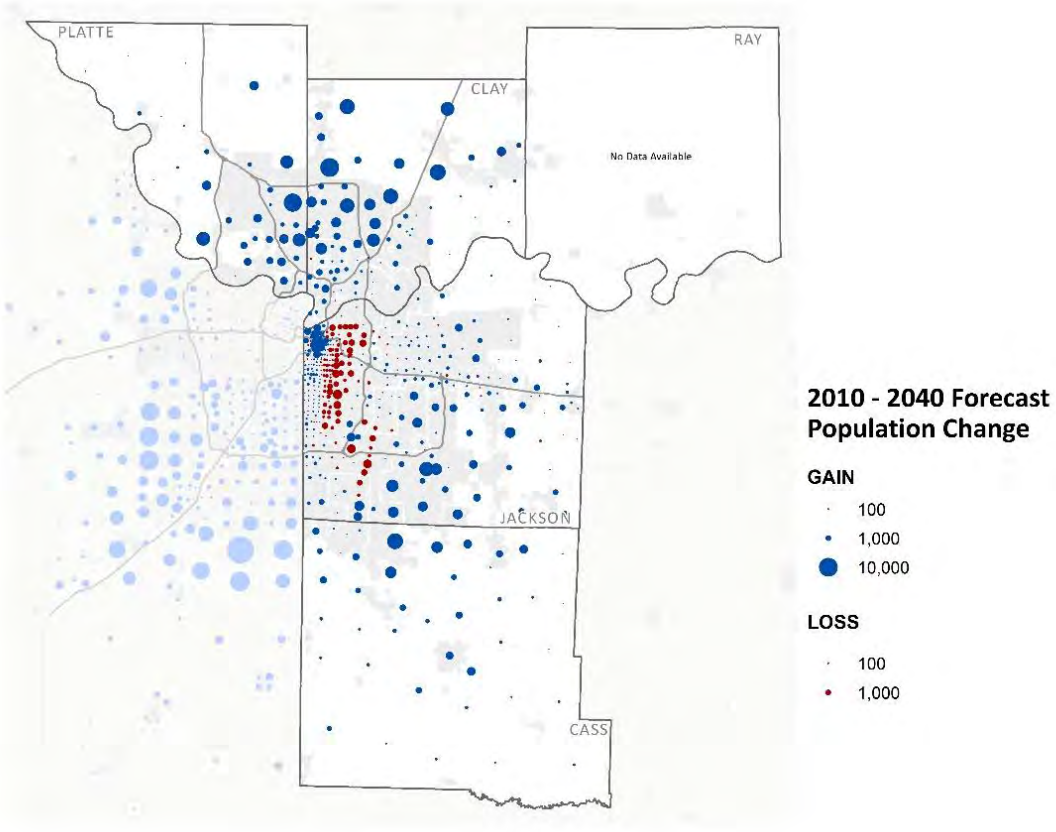
Source: MARC

Figure 2.35: Population Change, 2010-2040

Figure 2.36: Population Change, 2010-2040 (%)

Kansas City is expected to grow by 92,000 people between 2010 and 2040, a 20 percent increase (See Figure 2.35 and Figure 2.36). Most of its growth will be concentrated in the Northland—i.e., the portions in Clay and Platte Counties, which lie north of the Missouri River. Besides Kansas City, Liberty, Kearney, Smithville, Gladstone and Parkville are expected to experience substantial population growth over the period.

In Jackson County, the eastern portions of Kansas City are forecast to continue to decline, albeit at reduced rates compared to historical trends. This decline is partially offset by the continued redevelopment in around Downtown. Most of the growth in Jackson County, however, is concentrated in the eastern portions, particularly in Independence, Lee's Summit and Blue Springs and, to a lesser extent, Grandview.



Source: MARC

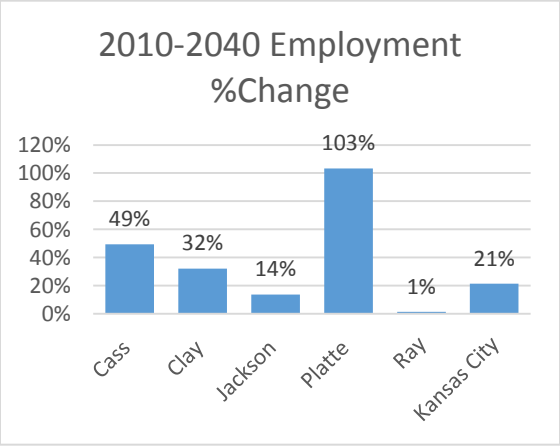
Map 2.24: 2010-2040 Forecast Population Change

In Cass County, population growth is expected to continue to be concentrated in its northern tier of cities – Belton, Raymore, Peculiar and Pleasant Hill. However, Harrisonville is also expected to see significant population growth between 2010 and 2040. (Map 2.24)

Employment growth is expected to be more equally spread throughout the Planning Area than population. Jackson County is projected to add the most jobs between 2010 and 2040 at about 46,000, a 14 percent increase. But Platte County's job forecast is right behind, at 40,000 due to expected development near the airport. This represents a doubling of Platte County's 2010 employment, making it the fastest growing job generator in the Planning Area. Cass County's job growth is expected to be the next fastest, as it is forecast to increase its 2010 employment levels by half by the end of the planning period, resulting in a gain of 11,000 jobs. Meanwhile, jobs in Clay County will grow by 29,000, a 32 percent increase, while Ray County's jobs will remain stable over the period. Overall, the Planning Area will add about 127,000 jobs between 2010 and 2040, a 25 percent increase. (See Table 2.9 and Figures 2.37-2.38)

Table 2.9: Employment Forecast by County							
County	2001	2010	2020	2030	2040	2010-2040 Change	2010-2040 % Change
Cass	19,660	22,801	27,229	31,187	34,065	11,264	49%
Clay	83,947	90,973	102,118	112,288	120,161	29,188	32%
Jackson	384,473	340,370	355,033	370,898	386,781	46,411	14%
Platte	34,832	38,856	54,180	68,201	78,948	40,092	103%
Ray	4,898	3,991	4049	4049	4049	58	1%
Planning Area	529,811	499,001	544,629	588,653	626,044	127,043	25%
MARC Region	928,642	959,164	1,079,246	1,191,240	1,281,338	322,174	34%
Planning Area Share	57%	52%	50%	49%	49%	39%	76%
Kansas City	288,400	286,646	304,896	324,763	347,702	61,056	21%

Source: Bureau of Labor Statistics, Census Bureau, MARC. Ray County projection not officially adopted.



Source: MARC

Figure 2.37: Employment Change, 2010-2040 (%)

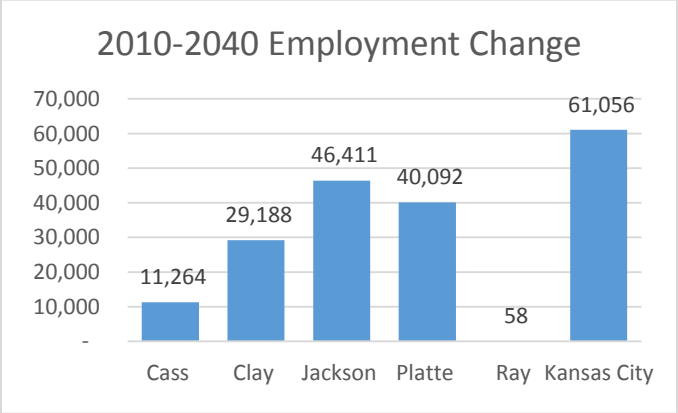
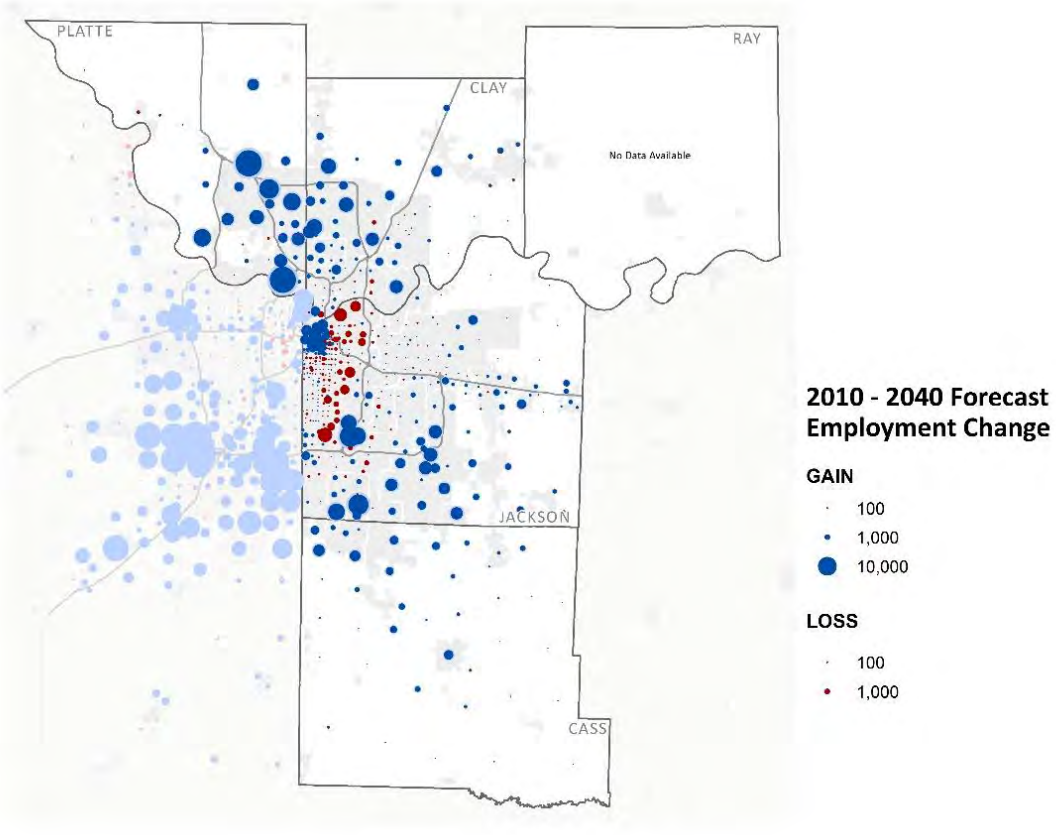


Figure 2.38: Employment Change, 2010-2040

See also *Appendix C: Maps and References* for population and employment forecasts by jurisdiction.

Kansas City accounts for just under half the Planning Area's projected employment growth. In addition to the area near KCI, significant employment increases are expected in and around Downtown, at I-435 and Bannister Road as Cerner builds a new campus there, and in south Kansas City as a result of moving the National Nuclear Security Administration's (NNSA) National Security Campus in Kansas City.



Source: MARC

Map 2.25: 2010-2040 Forecast Employment Change

Other cities in the Planning Area expecting to add a significant number of jobs include Belton and Raymore in Cass County; Gladstone and Liberty in Clay County; Blue Springs, Grandview, Independence and Lee's Summit in Jackson County; and Parkville and Riverside in Platte County. (Map 2.25)

2.6 Critical Infrastructure

2.6.1 Transportation

The Kansas City region, a major transportation hub, sits at the intersection of four interstate highways — Interstates 70, 35, 29 and 49 — which connect the region to both coasts, Canada and Mexico. In addition, the region is served by numerous interstate beltways, U.S. and state highways.

Major trucking companies, including YRC Freight, operate out of the Kansas City area. Air transportation, including considerable air freight operations and general aviation activity, is served by Kansas City International Airport and a number of smaller airports. Kansas City is the second busiest railroad center in the nation, with major rail yards for Union Pacific, Burlington Northern, and Canadian Pacific. The

region is also served by barge transportation, with about a dozen regulated barge lines transporting goods through the metropolitan area on the Missouri River (See Map 2.26 below).

2.6.2 Roadway System Infrastructure

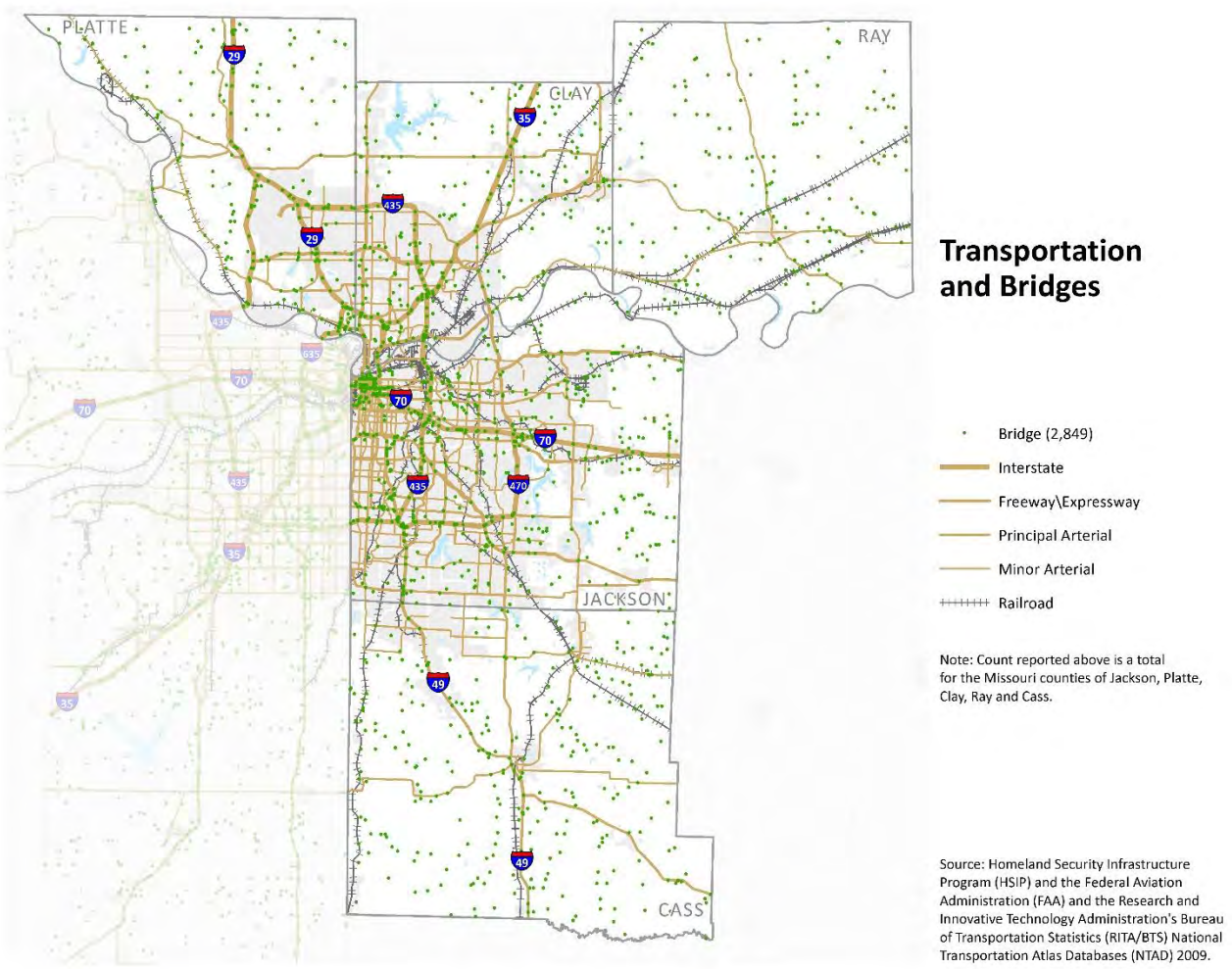
Kansas City's system of roadways is among the most extensive in the nation. According to Federal Highway Administration statistics, the Kansas City region has the most freeway miles per person of all urbanized areas with populations greater than 500,000. The Kansas City metro area also has the second highest total roadway miles per person and the eighth highest daily vehicle miles traveled (DMVT) per person (See Table 2.10).

These rankings are due in large part to the extensive highway projects implemented in the Kansas City region during the 1970s and 1980s, such as the construction of the Interstate 435 loop.

Table 2.10: Functional Class Miles

Roadway Type	Cass	Clay	Jackson	Platte	Ray	Planning Area	Kansas City
Interstate	62	98	170	107	0	437	207
Freeway / Expressway	0	84	102	26	0	212	116
Principal Arterial	53	73	274	37	n/a	437	188
Minor Arterial	92	131	400	88	76*	787	377
Major Collector	224	195	288	148	205*	1,060	182
Minor Collector	43	5	3	8	n/a	59	0
All other roads	1,588	1,608	3,656	931	863	8,669	1,070
Total	**2,062**	**2,194**	**4,893**	**1,345**	**1,144**	**11,661**	**2,140**

Source: MARC



Source: Homeland Security Infrastructure Program, Research and Innovative Technology Administration's Bureau

Map 2.26: Planning Area Major Roads, Bridges and Rail Lines

2.6.3 Roadway System Condition

According to data collected from The Road Information Program (TRIP), Kansas City's average pavement conditions have improved significantly compared to national and peer city averages. In TRIP's 2013 Bumpy Roads Ahead research report, Kansas City's "poor" pavement conditions significantly exceeded both the national and peer city averages.

In TRIP's 2013 report, only 15 percent of Kansas City's roads were classified as "poor" pavement conditions. Of 75 metros with populations over 500,000, only 13 had fewer "poor" roads than Kansas City. The report found 29 percent of the Kansas City region's roads to be in mediocre condition; 18 percent fair; and 38 percent good. TRIP's report uses 2011 FHWA data for its analysis.

2.6.4 Bicycle/Pedestrian Trails

Bicycle and pedestrian trails in the Kansas City metropolitan area are being developed at an increasing rate under the auspices of MetroGreen®, a plan for a 1,100-mile, area-wide, interconnected system of public and private open spaces, greenways and trails that will link seven counties in the Kansas City metropolitan area (Figure 2.39). Many communities in the region have adopted local plans for both on-road and off-road facilities.

Bikeways	Miles
Bike lanes	45
Mountain bike trails	83
Walking / hiking trails	175
Bike routes	188
Share-the-road bikeways	1,225
Paved trails	555
TOTAL	1,273

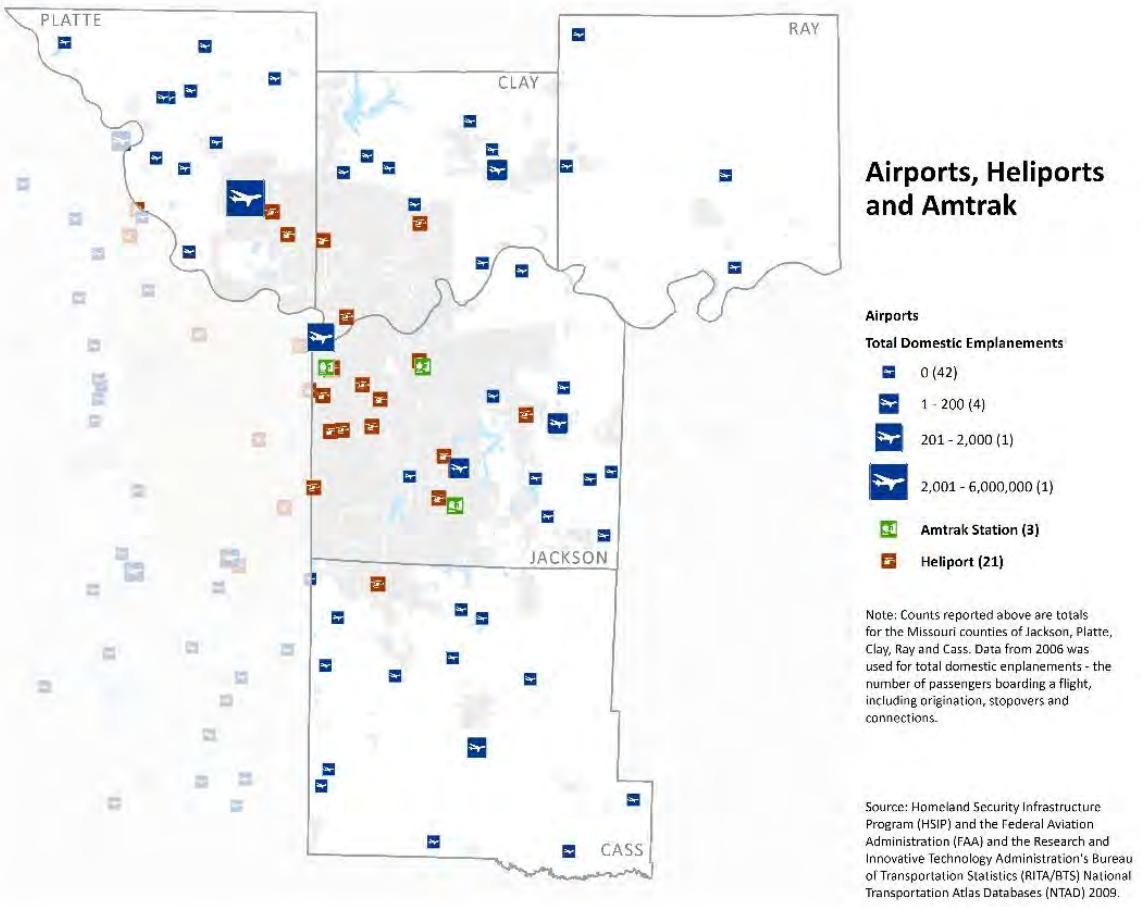
Figure 2.39: Bicycle/Pedestrian Trails

2.6.5 Freight and Goods Movement Facilities

Kansas City's rail system consists of five Class I railroads and several regional or shortline carriers. The extensive rail network throughout the region serves local industry with major intermodal yards and provides connection to international markets. BNSF Railway's Transcontinental Route runs diagonally through the region from the southwest to the northeast. The "Transcon" connects the Ports of Los Angeles and Long Beach to Chicago via Kansas City with 80 to 90 trains per day. The Union Pacific (UP) Railroad's major coal route runs east-west through the region from Topeka into Missouri where it parallels the Missouri River. This route carries upwards of 80 trains per day of loaded unit coal trains. (A unit train is typically one mile long.) Other significant routes in the region include Kansas City Southern (KCS) north-south route that connects to Mexico at Laredo, Texas and Norfolk Southern (NS) east-west route that ends in Kansas City. Canadian Pacific now serves Kansas City over the ICE route.

There are currently five intermodal yards in Kansas City. BNSF, KCS and NS each have one facility and UP has two facilities in the region. Along with intermodal activity there are numerous switching yards, classification yards, transload facilities and other rail operations that occur in the region. Kansas City Southern recently moved its intermodal operations to the former Richards Gebaur Airport site, which allows for more opportunities for complimentary development at the CenterPoint Intermodal Center – Kansas City. BNSF is moving its intermodal operations to Logistics Park KC in southern Johnson County, Kan., where significant warehouse space is also under development.

Kansas City International Airport (KCI) is home to the region's air cargo terminal, one of the highest-volume air freight hubs in the six-state region. KCI has plans to expand service capabilities and enhance the attractiveness of aviation facilities associated with manufacturing and industrial operations. An initial phase includes a 800-acre master planned site, the KCI Intermodal Business Centre, which could include more than 5 million square feet of distribution, air cargo and on-ramp, airport-related logistics buildings.



Source: Homeland Security Infrastructure Program, Federal Aviation Administration (FAA) Research and Innovative Technology Administration's Bureau of Transportation Statistics (RITA/BTS), National Transportation Atlas Databases (NTAD) 2009.

Map 2.27: Airports, Heliports and Amtrak

Other airports in the region with runways of sufficient length to support large aircraft for air cargo operations include Kansas City's Charles B. Wheeler downtown airport, and New Century AirCenter in Johnson County (Map 2.27). Currently these facilities do not handle air cargo.

The Kansas City Port Authority operates the area's only public port, located along the Missouri River near the confluence of the Kansas and Missouri Rivers. The port is an intermodal facility, transferring freight between barge, truck and rail. In addition, the Kansas City region benefits from numerous private ports, which are used by companies shipping commodities that include grains, sand and gravel, fertilizer, chemicals, coal and coke. Currently, river flows are managed by the U.S. Corps of Engineers' Missouri River Master Manual which limits the navigation season to approximately six months each year.

The Kansas City area is also one of the nation's top five trucking centers. Truck volumes in the region are heavily concentrated on interstates and U.S. highways. I-70 in Missouri is the most heavily traveled truck route in the region with some segments exceeding 12,000 trucks per day. The region's national freight corridors are estimated to carry approximately 70 percent of truck vehicle miles traveled (Figure 2.40), with historic trends indicating a high rate of growth which is likely to continue.

Type	Tons	Value
Truck	49,709,507	$38,852,588,766
Rail	7,162,598	$1,837,835,018
Water	9	$3,604
Air (includes truck/air)	1,845	$130,477,098
Multiple modes & mail	833,128	$10,676,976,049
Pipeline	1,194	$485,369
Other and Unknown	2,124,747	$10,868,911,556
TOTAL	**59,833,028**	**$62,367,277,460**

Source: Freight movement in the Kansas City MSA, 2010

Figure 2.40: Freight Movement in the Kansas City MSA, 2010

2.6.6 Transit Service and Ridership

Transit service in the region is provided by the Kansas City Area Transportation Authority (KCATA), Johnson County Transit (JCT), Unified Government Transit (UGT) and IndeBus.

Day	Number of Trips
Weekdays	53,550
Saturdays	22,079
Sundays	11,499

*Sources: KCATA, The Jo and Unified Government Transit

Figure 2.41: Average Transit Trips, 2010

For more than a decade, MARC and area transit providers have worked cooperatively to develop and implement the Smart Moves Transit Plan, a regional transportation plan for expanded transit service throughout a seven-county region. For the last several years, the Kansas City area's transit providers have seen an increase in transit ridership due to expanded services and dramatically increasing gasoline prices (Figure 2.41). System-wide, transit ridership has grown by more than 20 percent since 2004.

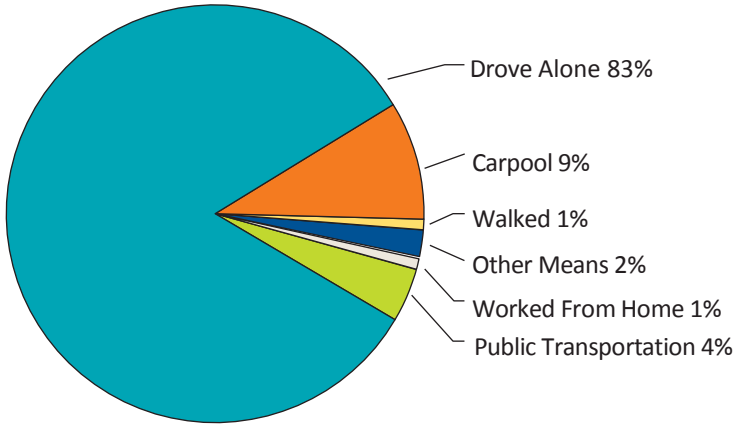
Efforts are underway to expand transit services to meet a growing demand. In 2011, a bus rapid transit was added along the Troost Corridor in Kansas City, Mo. With funding from a Transportation Investments Generating Economic Recovery (TIGER) grant from the U.S. Department of Transportation, significant improvements were made to transit facilities across the region, including the Metcalf/Shawnee Mission corridor in Johnson County, Kan.; the State Avenue corridor in Wyandotte County, Kan.; the North Oak corridor in Clay County, Mo.; and several locations in Jackson County, Mo.

Work is currently underway on a new streetcar line. KC Streetcar is scheduled to become operational in early 2016 in downtown Kansas City, Mo. It will operate a two-mile north-south route — approximately a four-mile round trip — on city streets that will connect the River Market area to the Crown Center/Union Station area. The streetcar will also serve the Central Business District ("working home" to some 65,000 employees), the Crossroads Arts District and the Power and Light District. The route will run primarily on Main Street.

2.6.7 Modes of Travel

The Kansas City metropolitan area is heavily dependent on the automobile as the dominant mode of transportation. According to 2006–2010 American Community Survey (ACS) 5-Year Estimates, 92 percent of all commute trips made in the region are by automobile (83 percent drive alone; 9 percent carpool).

Public transportation accounts for 4 percent of all commute trips in the region, while only 1 percent walk to work. (Figure 2.42)



Source: U.S. Census Bureau

Figure 2.42: Work Trip Travel Modes, 2006–2010

Commute trips in the Kansas City region are generally characterized by very low vehicle occupancy rates. U.S. Census data on commuting found an average worker vehicle occupancy rate of 1.06 for the Kansas City metropolitan area in 2011, up slightly from 1.05 in 2010.

Roadway users in the Kansas City urban area travel more vehicle miles on average than roadway users in other urban areas of similar population size (1 to 3 million). The region experienced a slight increase in daily vehicle miles traveled (VMT) between 2010 and 2011, rising from 24.7 miles to 24.9 miles per capita. Total regional VMT increased from 46,813,223 miles to 47,649,645 miles over this same period.

2.6.8 Congestion

Traffic congestion has increased in metropolitan Kansas City, but it still ranks among the least congested metro areas. The Texas Transportation Institute (TTI) measures congestion in 439 urban areas each year. According to TTI's 2011 Urban Mobility Report, the percent of congested travel during peak vehicle miles held steady at 23 percent — comparing very favorably to the 55 percent average for all large urban areas (Figure 2.43).

2.6.9 TTI Urban Mobility Reports

TTI also evaluates the annual cost of congestion per auto commuter. After years of steady increases, peaking at nearly $800 per year per commuter in 2005, the cost of congestion in the Kansas City region declined to just over $400 in 2008 before rising sharply; in 2011, the cost of congestion is $584 per year per

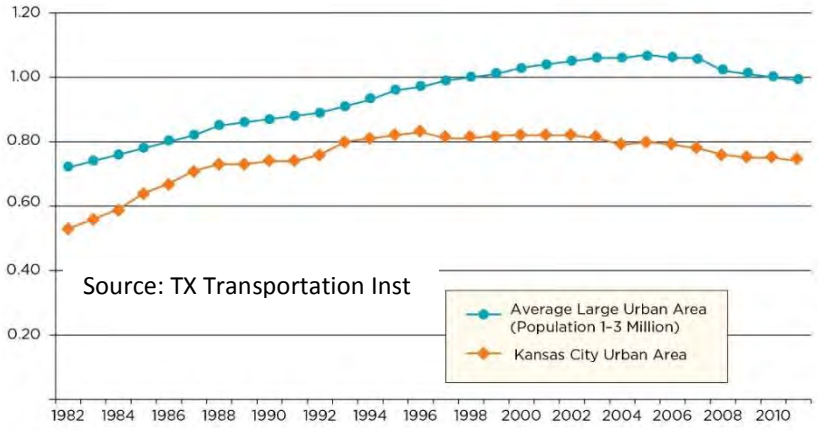


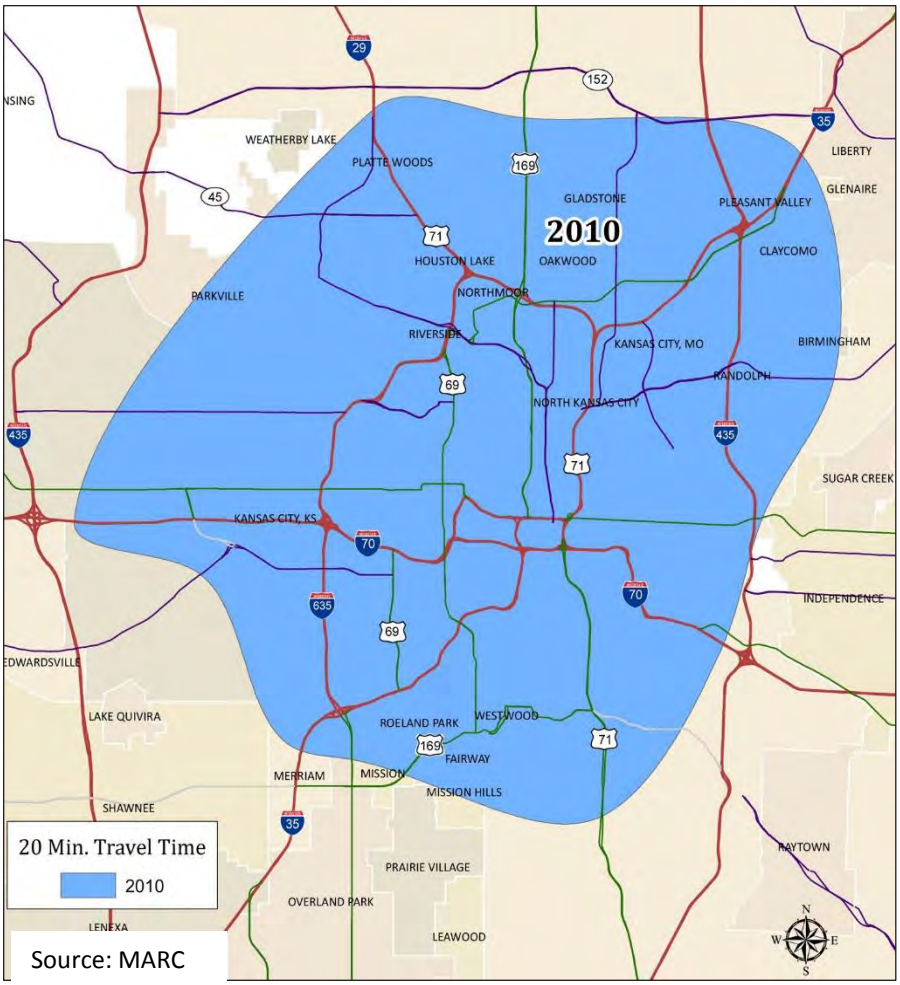
Figure 2.43: Roadway Congestion Index, 1982–2011

auto commuter.

Severe congestion most often develops in the Kansas City region as a result of traffic accident or closing of lanes due to construction or safety concerns. In recent years, several bridges have been completely or partially closed due to structural deficiencies that have arisen from lack of proper maintenance. As the budget issues facing state and local governments are projected to continue for the foreseeable future, such closures are likely to worsen in the future, and with them, the region's traffic congestion.

2.6.10 Travel Time

Because of its relatively low congestion levels, metropolitan Kansas City generally experiences shorter travel times than many other metropolitan areas. Travel time is a function of both the distance traveled and the degree of traffic congestion. While travel distances can be relatively long in Greater Kansas City because of the low-density urban form, limited congestion keeps travel times low. In MARC's latest Travel Time Study, published in2013, regional travel speeds increased for all functional classifications of roads from 2010 to 2012. The study, available online at www.marc.org /Transportation/Plans-Studies, includes a full description of methodology.



Map 2.28: 20-Minute Travel Distance, 4–6 p.m., 2010

Commuters into the Central Business District continue to experience a decrease in travel time. The 20-minute travel time distances from downtown increased slightly in every direction. Congestion in peak travel times was heaviest on the I-35 corridor from downtown south to Olathe, Kan.; the I-70 corridor from downtown east to Blue Springs, Mo.; U.S. 69 from I-35 to 151st Street; and U.S.71/I-49 from downtown to Belton, Mo. (Map 2.28)

2.6.11 Other Critical Infrastructure

In addition to transportation infrastructure, other community facilities make up important components of the region's critical infrastructure. Some of these are critical to responding in times of emergencies,

including the locations of first responders and medical centers. Others are places where large numbers of people typically congregate and therefore represent locations of high population vulnerability, such as schools, day care, nursing homes, apartments and public housing. Still others are locations where hazardous materials are stored.

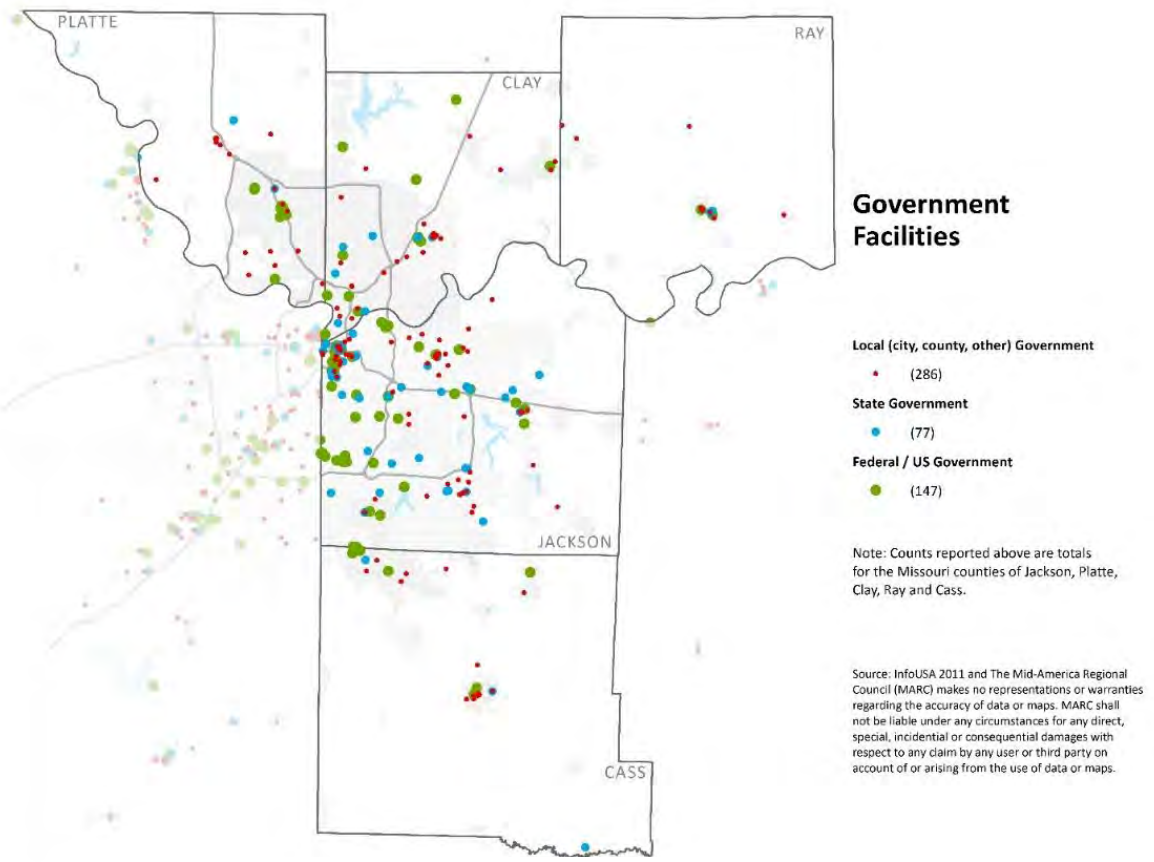
Table 2.11 below lists the number of each type of facility for each county in the Planning Area, as well as Kansas City. After the table, maps of the facilities follow (Map 2.29-Map 2.38). Each color grouping in the table represents a different map. The maps of critical infrastructure then provide necessary input into the assessment of risk and vulnerability for each hazard.

Table 2.11: Critical Facility Types

Asset (critical facility)	Cass	Clay	Jackson	Platte	Ray	Planning Area	Kansas City
Day Care	66	118	478	39	8	**709**	332
Nursing Home	16	28	148	17	2	**211**	94
Public Housing	0	146	573	31	84	**834**	587
School	53	88	310	39	13	**503**	213
Dormitory	2	9	11	3	0	**25**	14
College	1	7	52	7	0	**67**	48
Trauma Center	0	2	5	0	0	**7**	4
Hospital	2	7	23	2	1	**35**	20
Other Health Facility	5	5	32	5	2	**49**	16
Police	15	16	23	16	9	**79**	11
Fire	18	26	66	17	7	**134**	37
EOC	1	4	7	2	0	**14**	1
PSAP	5	6	17	2	1	**31**	6
Enhanced HazMat Team	0	1	4	0	0	**5**	1
Local (city, county, other) Government	29	74	152	17	14	**286**	60
State Government	4	7	61	2	3	**77**	42
Federal / US Government	9	13	110	13	2	**147**	111
Shopping Center	43	135	344	54	8	**584**	227
Grocery (large)	7	14	33	5	1	**60**	22
Grocery (small)	6	11	85	3	0	**105**	65
Refrigerated Warehouse	0	0	2	0	0	**2**	1
Hunting, Trapping and Game Propagation	3	1	6	0	0	**10**	4
Meat Processing	1	1	14	0	0	**16**	12
Airport	13	9	11	11	4	**48**	3
Amtrak	0	0	3	0	0	**3**	1
Heliport	1	3	15	2	0	**21**	14
Hotels	10	36	101	37	1	**185**	98
Apartments	19	101	403	40	6	**569**	360
Trailer Parks	22	15	25	6	2	**70**	12
NFL stadium	0	0	1	0	0	**1**	1
MLB Stadium	0	0	1	0	0	**1**	1
Botanical / Zoological Garden	0	0	1	0	0	**1**	1
Arena or Convention Center	0	0	5	0	0	**5**	4
Historical Sites	12	36	290	11	15	**364**	237
EPA FRS	31	93	284	25	14	**447**	237

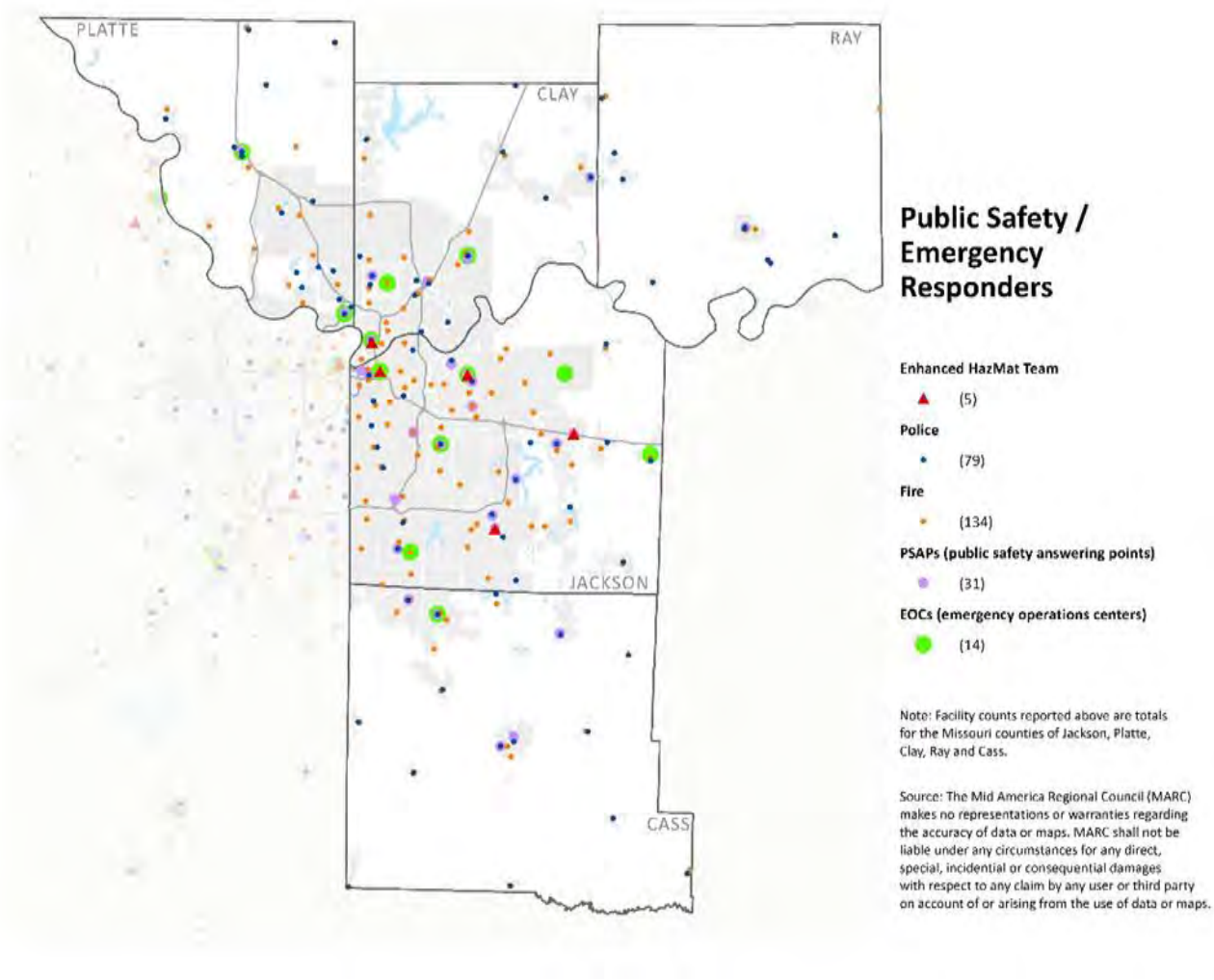
Table 2.11: Critical Facility Types							
Asset (critical facility)	**Cass**	**Clay**	**Jackson**	**Platte**	**Ray**	**Planning Area**	**Kansas City**
Superfund NPL	0	2	2	0	0	**4**	1
Alternative Fuel	1	2	4	2	0	**9**	2
Mine	0	0	0	1	0	**1**	0
Tier II	100	195	550	94	42	**981**	423
RMP	8	4	10	3	4	**29**	8
Waste Water Treatment	2	6	7	2	1	**18**	5
Total	**505**	**1221**	**4269**	**508**	**244**	**6747**	**3336**

Source: City and county Governments.



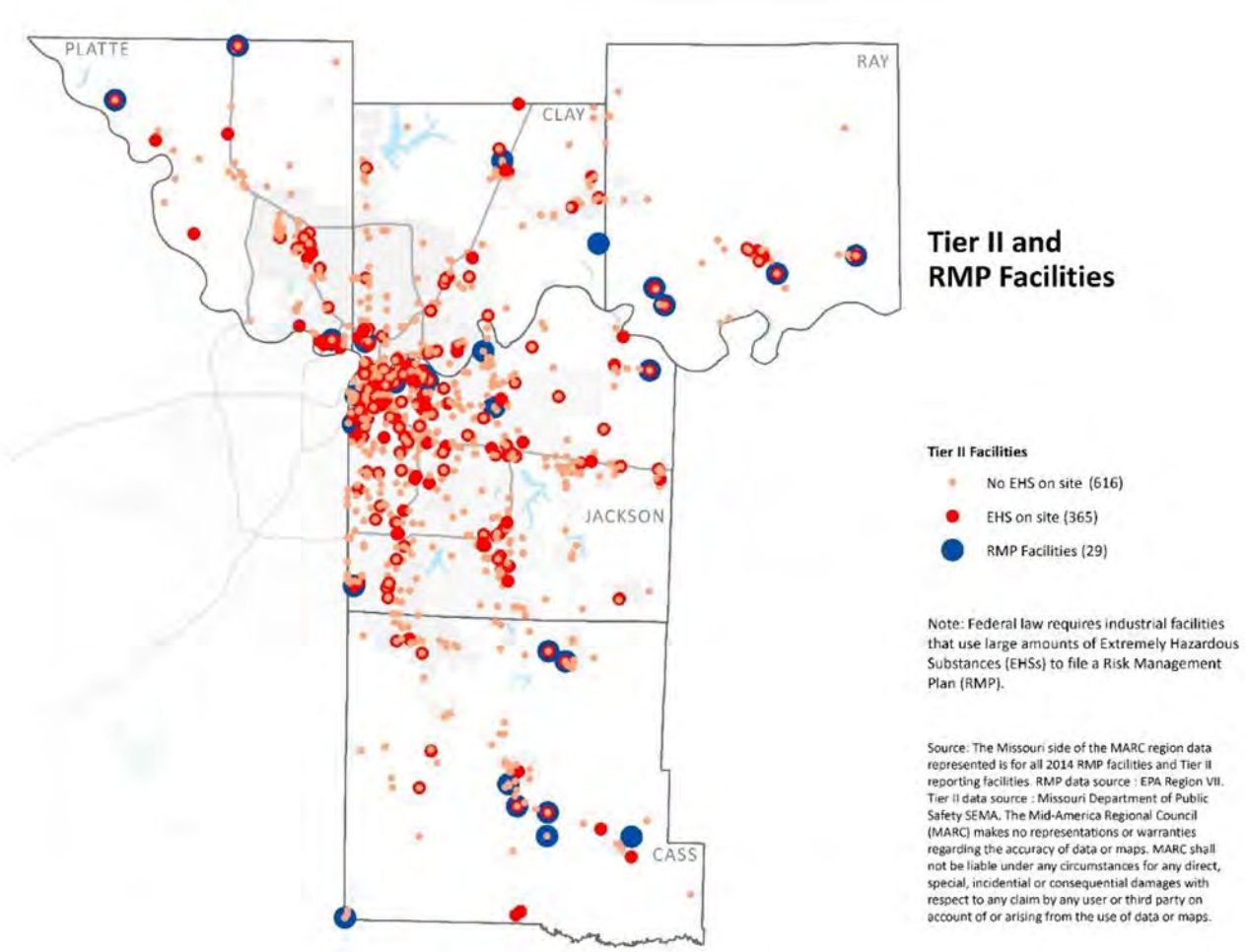
Source: City and county governments

Map 2.29: Government Facilities



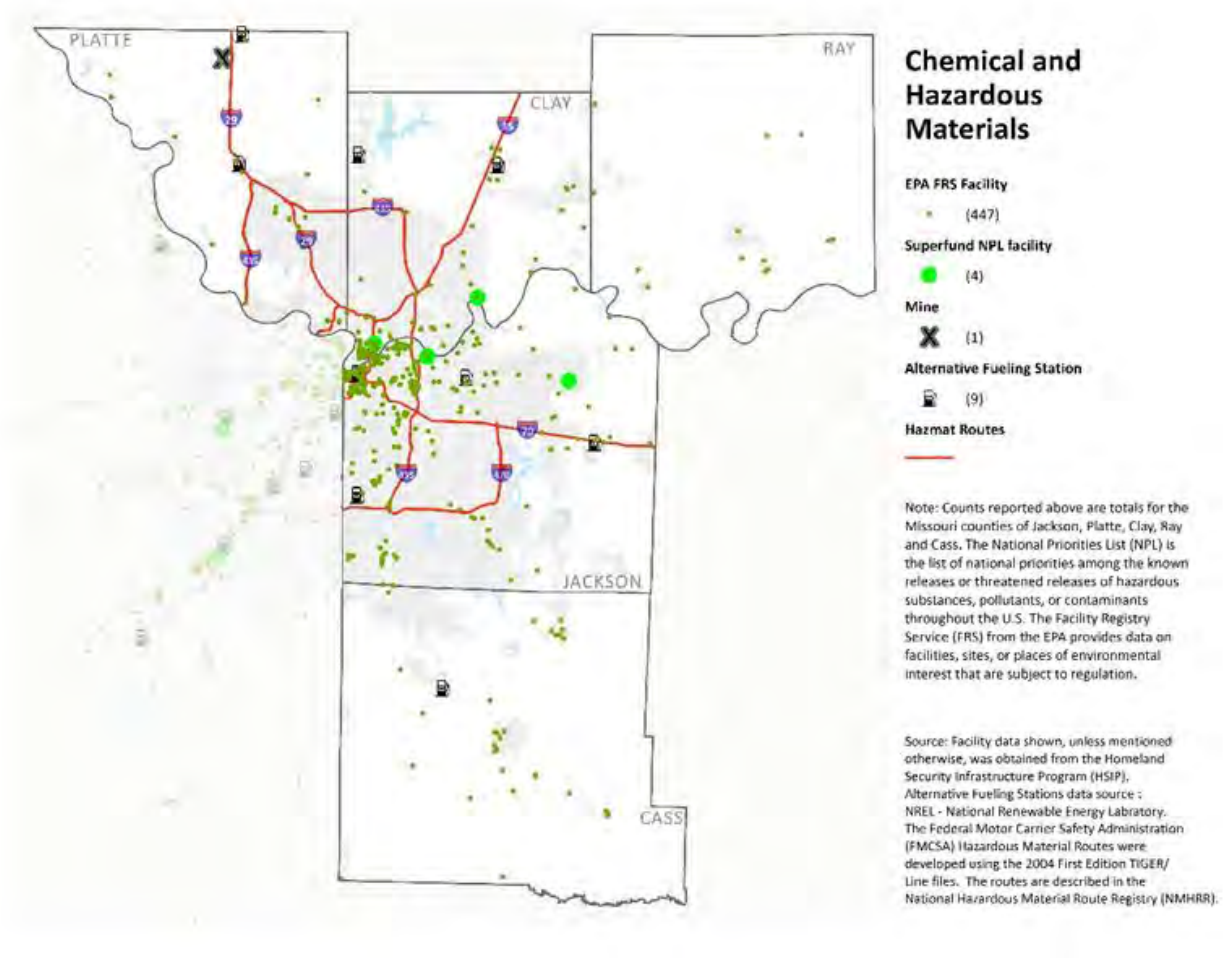
Source: City and county governments

Map 2.30: Public Safety/Emergency Responders



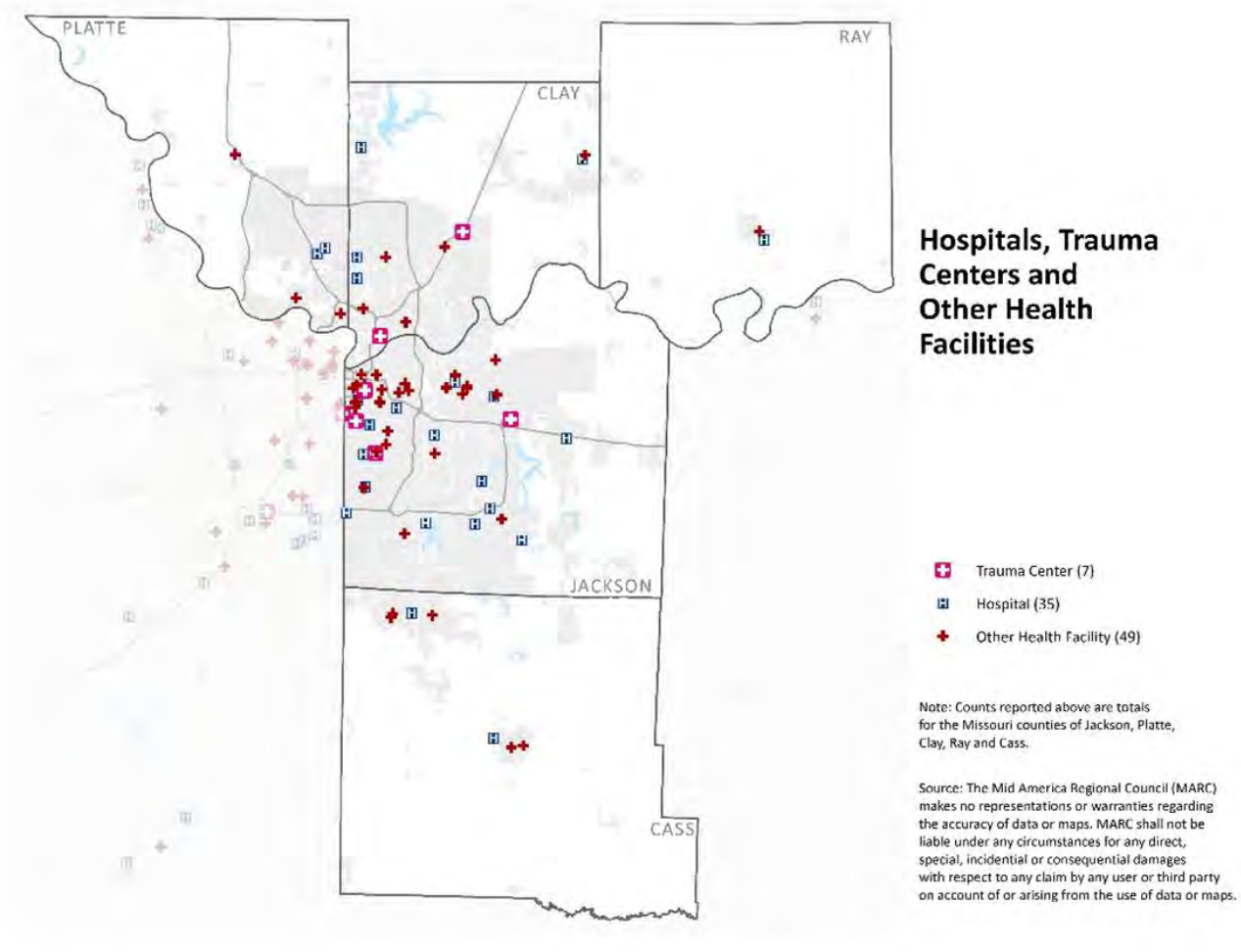
Source: City and county governments

Map 2.31: Tier II and RMP Facilities



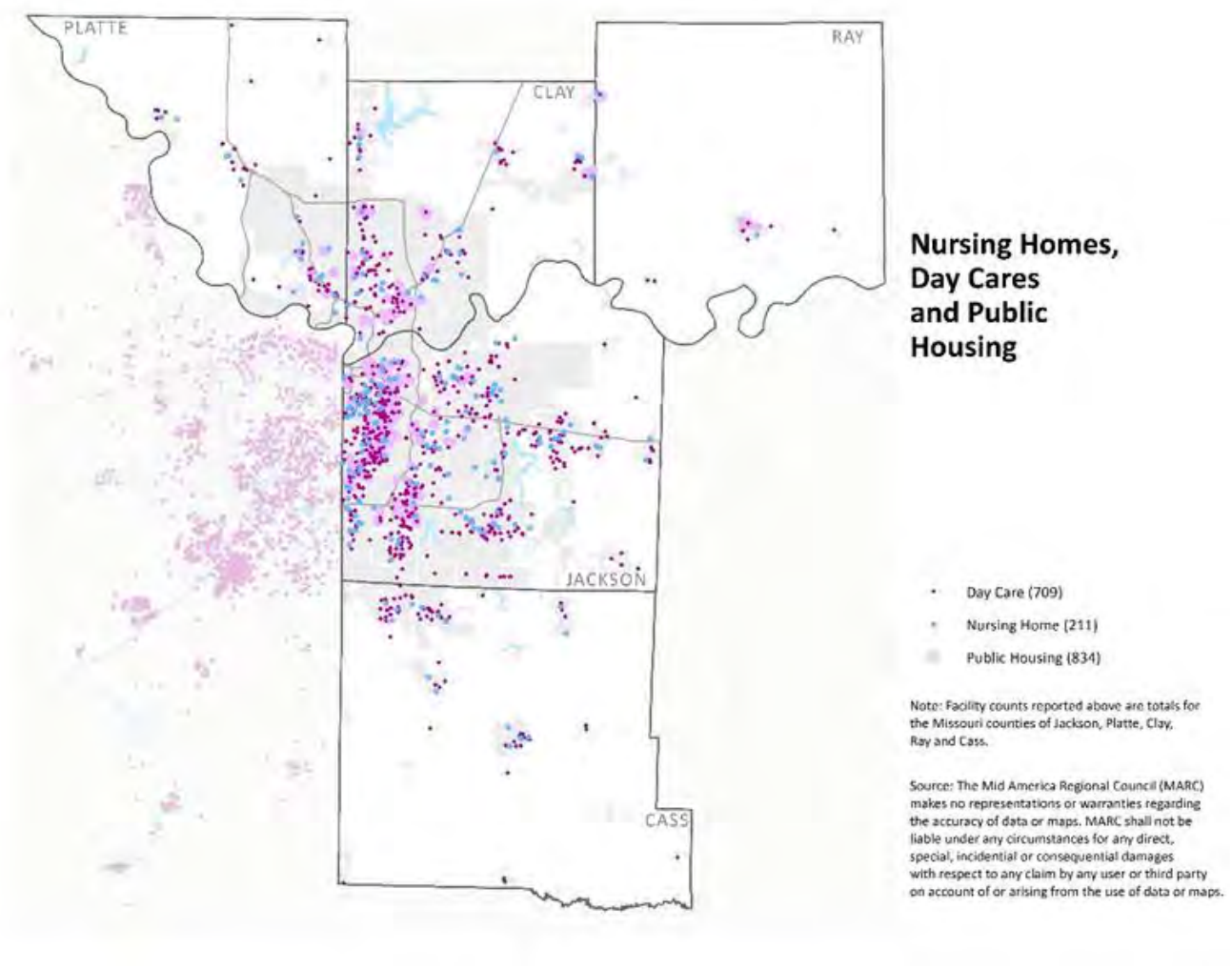
Source: City and county governments

Map 2.32: Chemical and Hazardous Materials



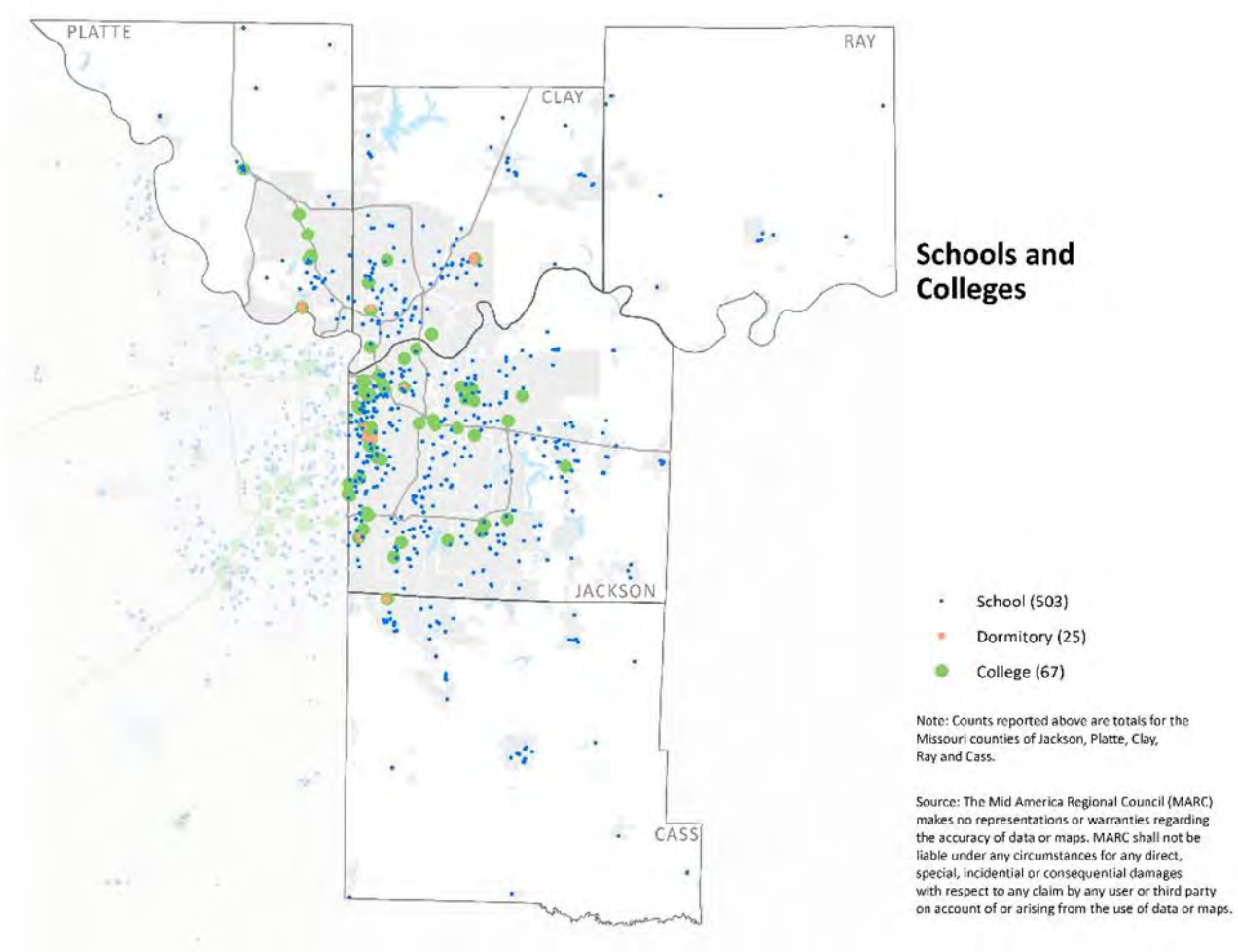
Source: City and county governments

Map 2.33: Hospitals, Trauma Centers and Other Health Facilities



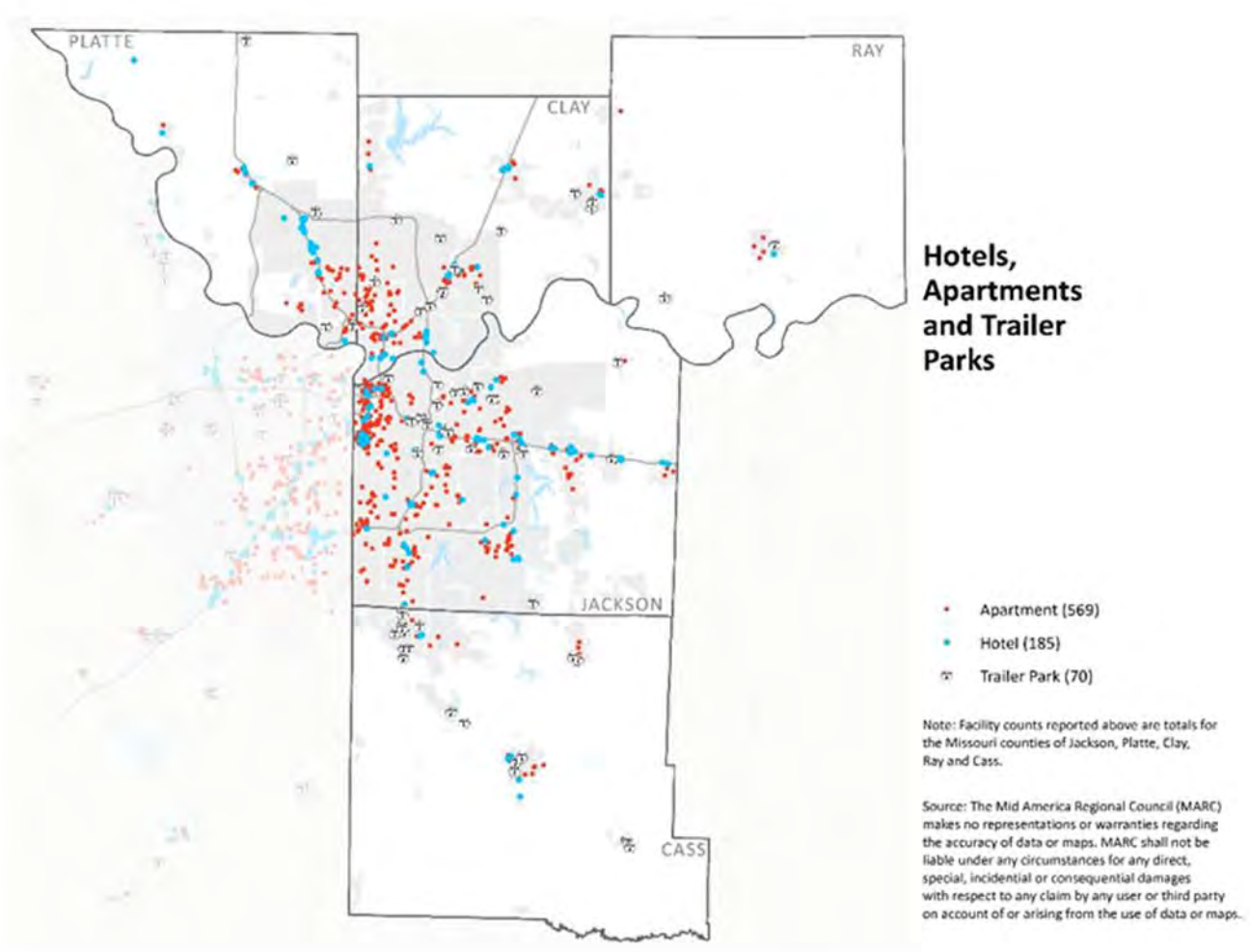
Source: City and county governments

Map 2.34: Nursing Homes, Day Cares and Public Housing



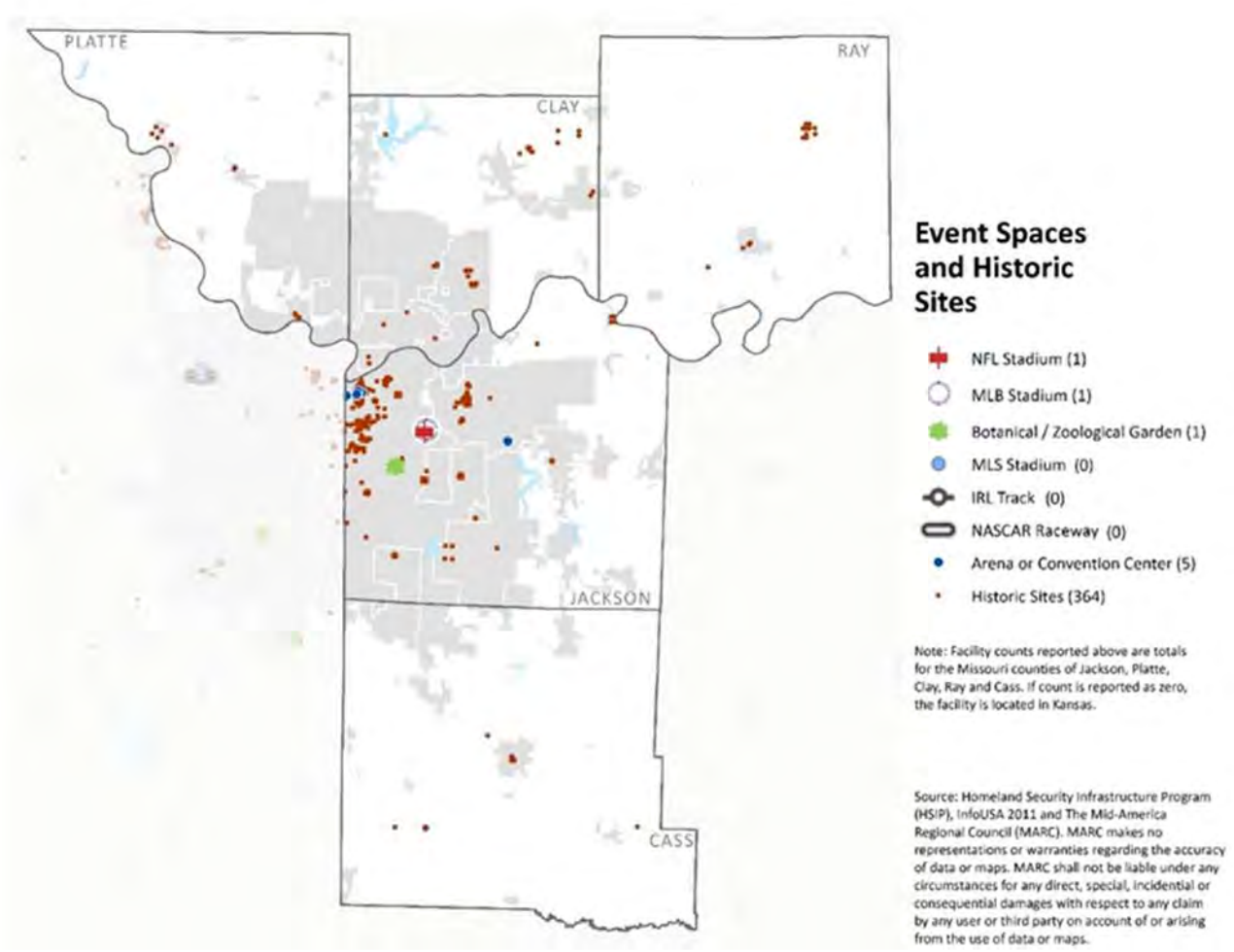
Source: City and county governments

Map 2.35: Schools and Colleges



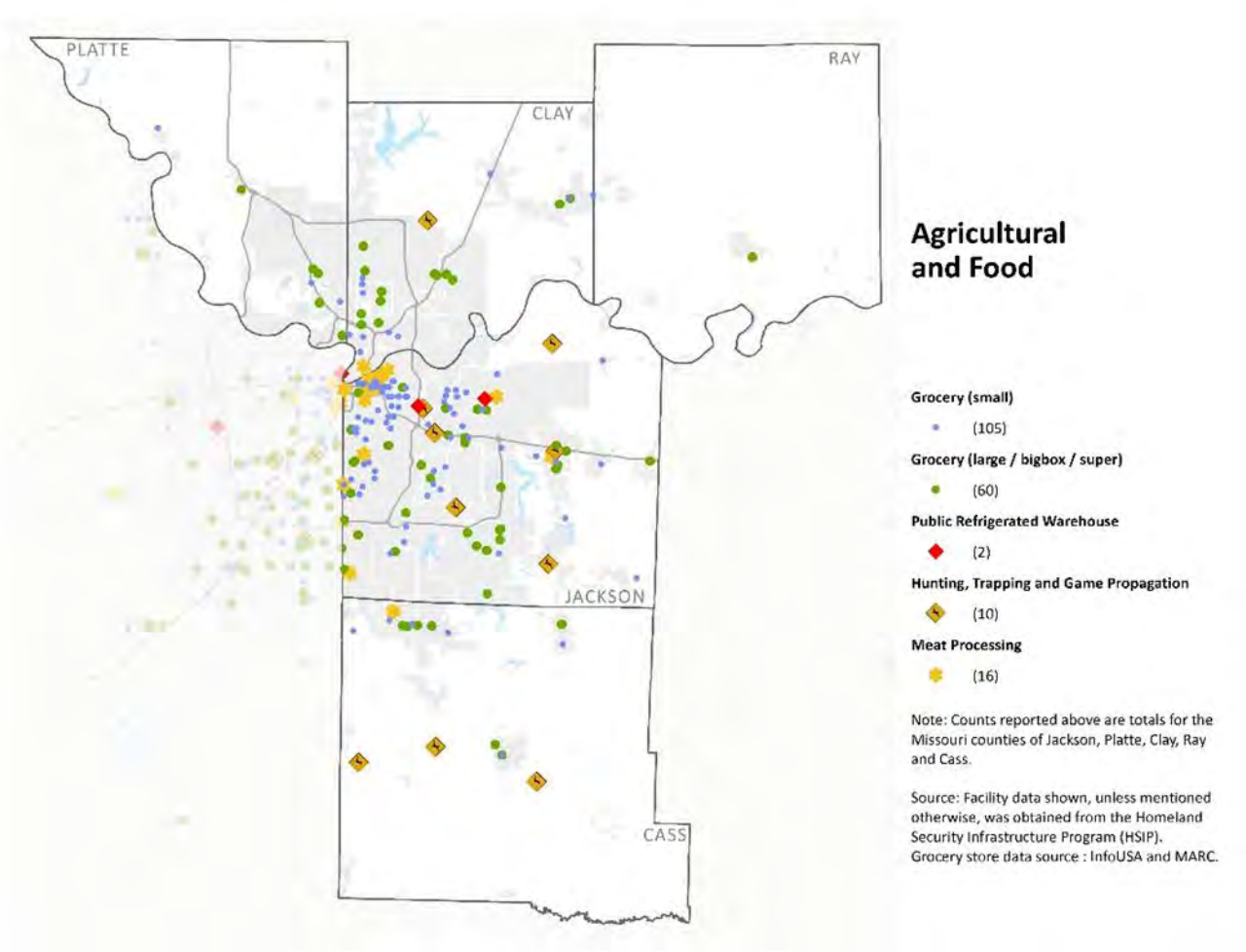
Source: City and county governments

Map 2.36: Hotels, Apartments and Trailer Parks



Source: City and county governments

Map 2.37: Event Spaces and Historic Sites



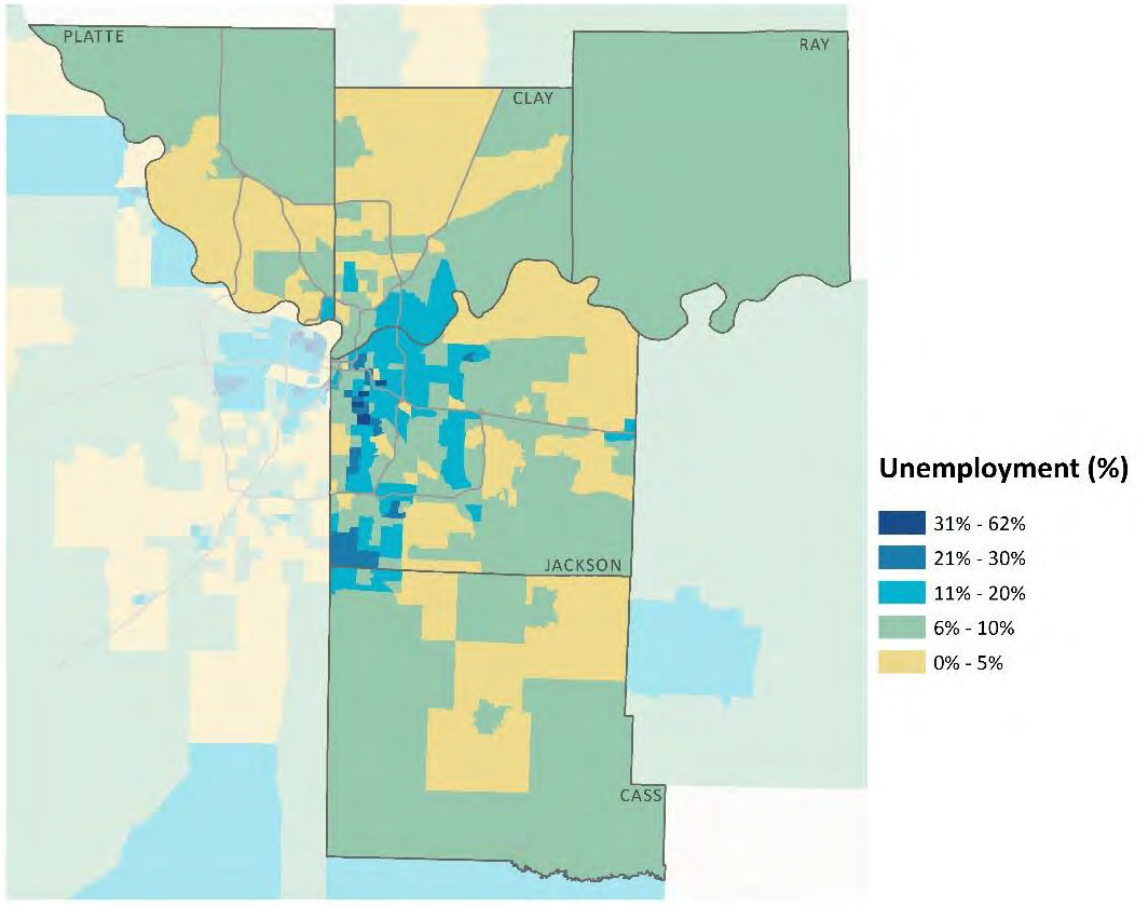
Source: City and county governments

Map 2.38: Agricultural and Food

2.7 Attachments

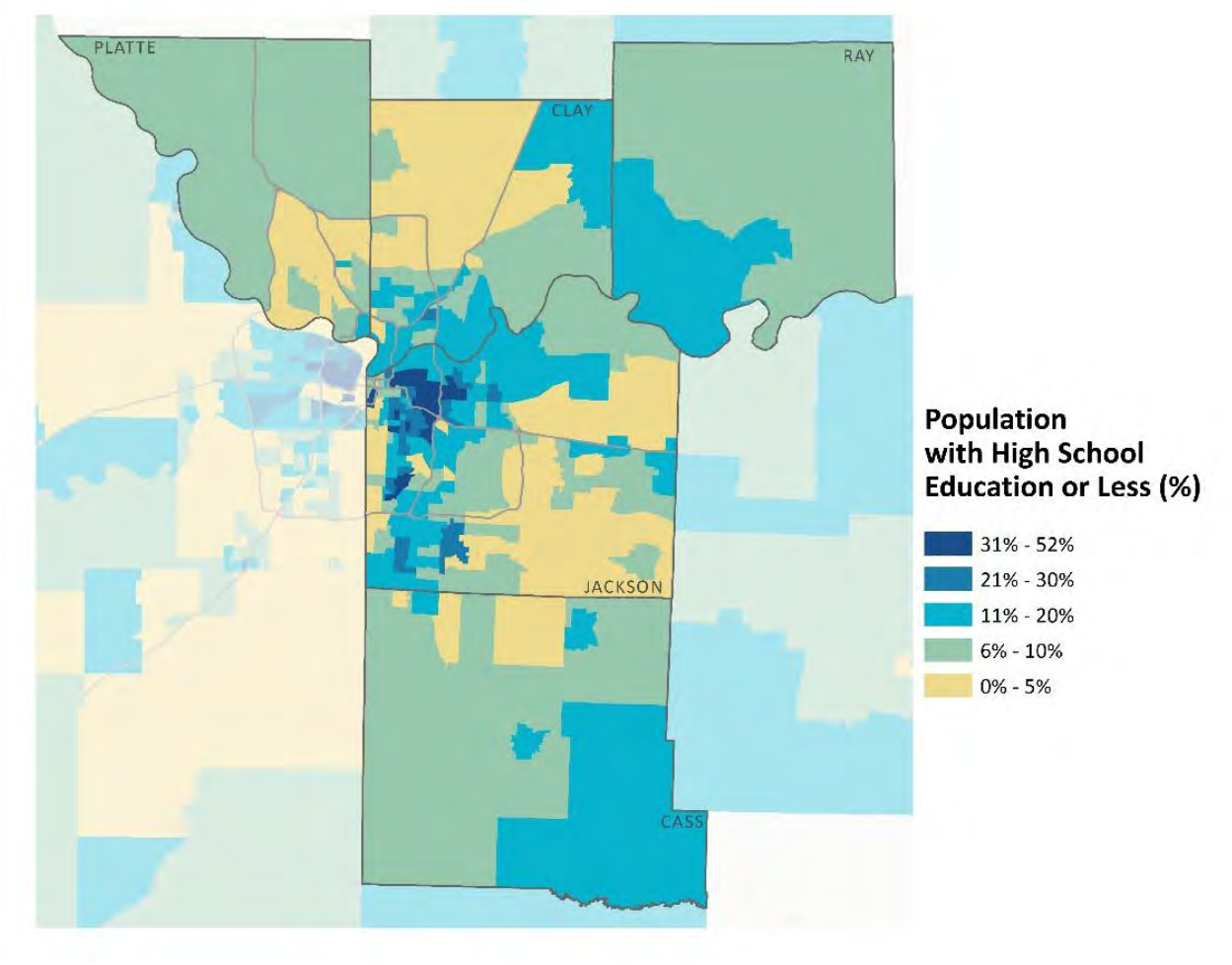
Attachment Table 2.1: Population by Age									
	2000			2013			Change, 2000-2013		
County	Median Age	% < 5 years	% 65+	Median Age	% < 5 years	% 65+	Median Age	< 5 years	65+ years
Cass	35.8	7.4%	11.7%	38.4	6.4%	14.1%	2.6	6.2%	45.9%
Clay	35.0	7.2%	10.8%	36.3	7.0%	11.6%	1.3	19.9%	31.5%
Jackson	35.2	7.0%	12.5%	36.3	7.0%	12.7%	1.1	3.8%	4.9%
Platte	35.9	6.9%	8.8%	38.2	6.2%	11.7%	2.3	11.4%	64.1%
Ray	37.1	6.6%	12.7%	40.6	6.0%	15.3%	3.5	-9.3%	20.2%
Planning Area	n/a	7.0%	11.9%	n/a	6.9%	12.6%	n/a	7.2%	16.1%
Kansas City	34.0	7.2%	11.3%	35.0	7.4%	11.5%	1.0	8.0%	2.5%

Attachment Table 2.2: Population by Race/Ethnicity								
		Cass	Clay	Jackson	Platte	Ray	Planning Area	Kansas City
2000	**Total**	**82,092**	**184,006**	**654,880**	**73,781**	**23,354**	**1,018,113**	**441,545**
	White	77,259	166,549	443,586	66,248	22,437	776,079	255,383
	All Minorities	4,833	17,457	211,294	7,533	917	242,034	186,162
	Black/ African American	1,326	4,447	149,201	2,365	290	157,629	134,822
	Hispanic/Latino (any race)	1,605	6,364	34,925	2,212	289	45,395	30,374
2013	**Total**	**99,875**	**225,116**	**675,641**	**90,842**	**23,290**	**1,114,764**	**462,378**
	White	89,051	187,971	427,020	76,045	22,052	802,139	254,606
	All Minorities	10,824	37,145	248,621	14,797	1,238	312,625	207,772
	Black/ African American	3,522	11,340	159,332	5,408	255	179,857	134,165
	Hispanic/Latino (any race)	4,054	13,695	56,797	4,755	458	79,759	46,738



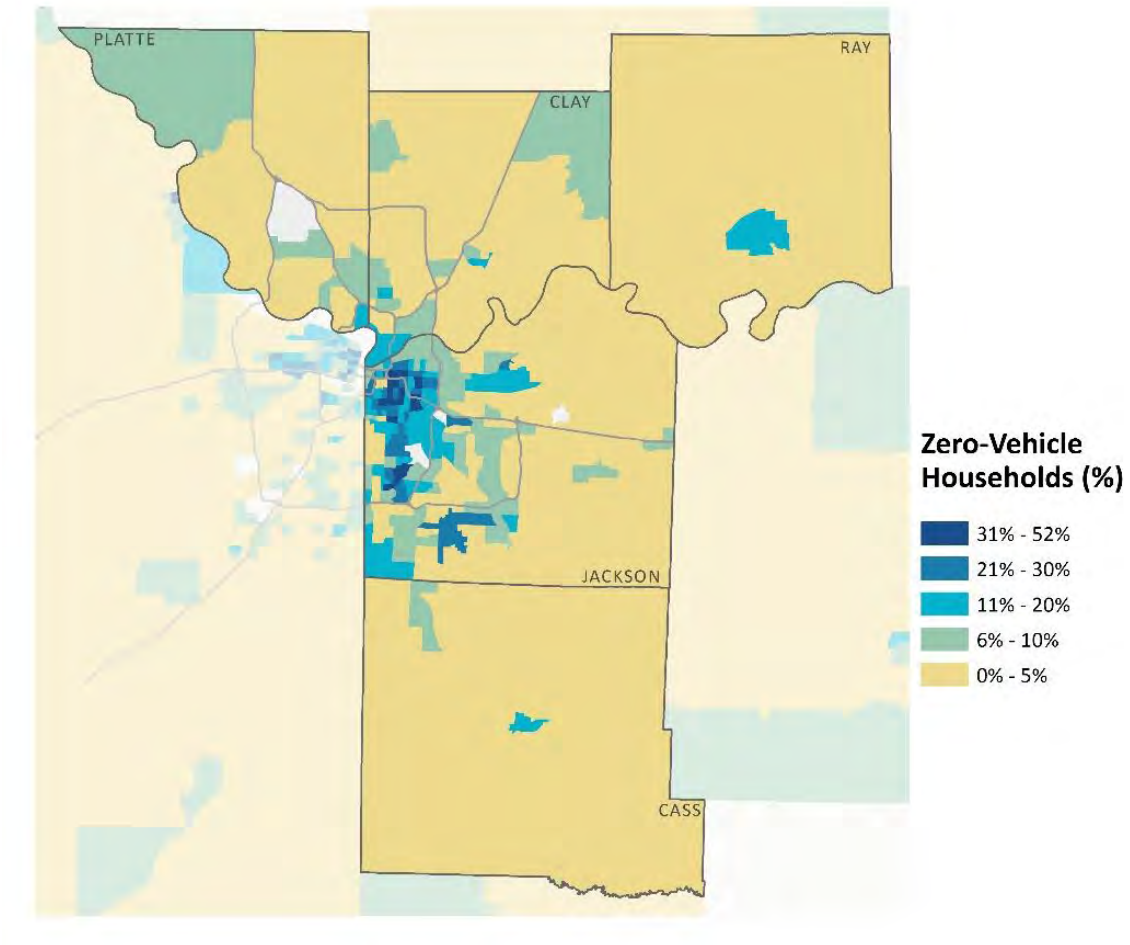
Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.1: Unemployment (%)



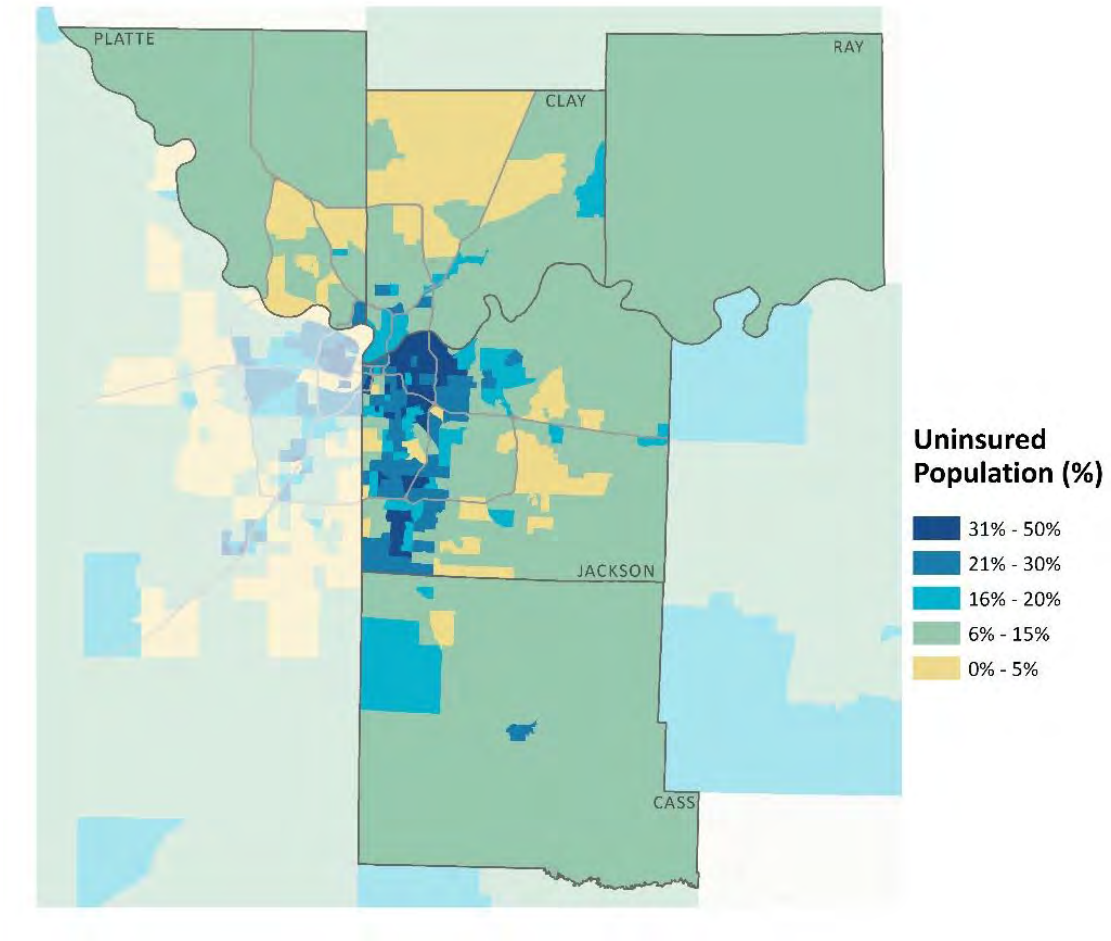
Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.2: Population with High School Education or Less (%)



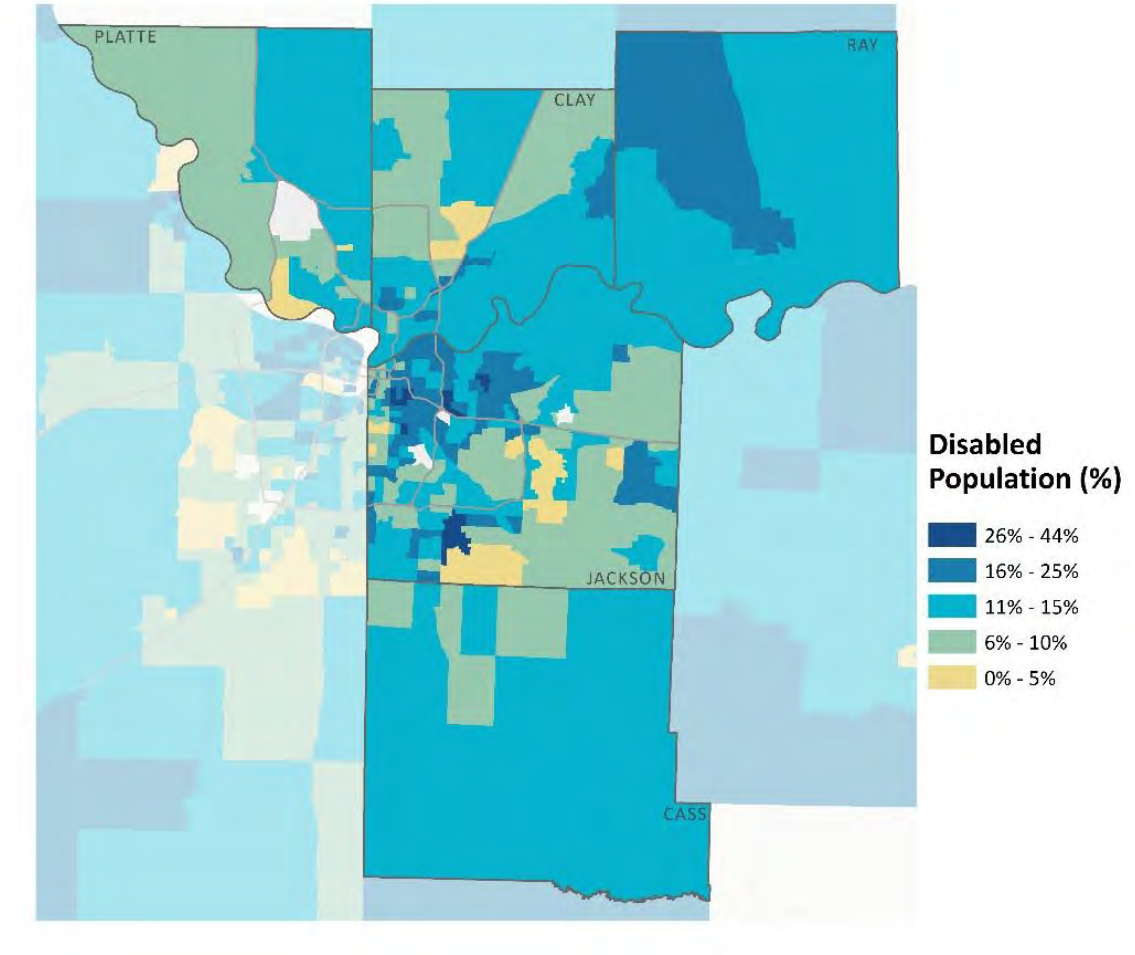
Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.3: Zero-Vehicle Households (%)



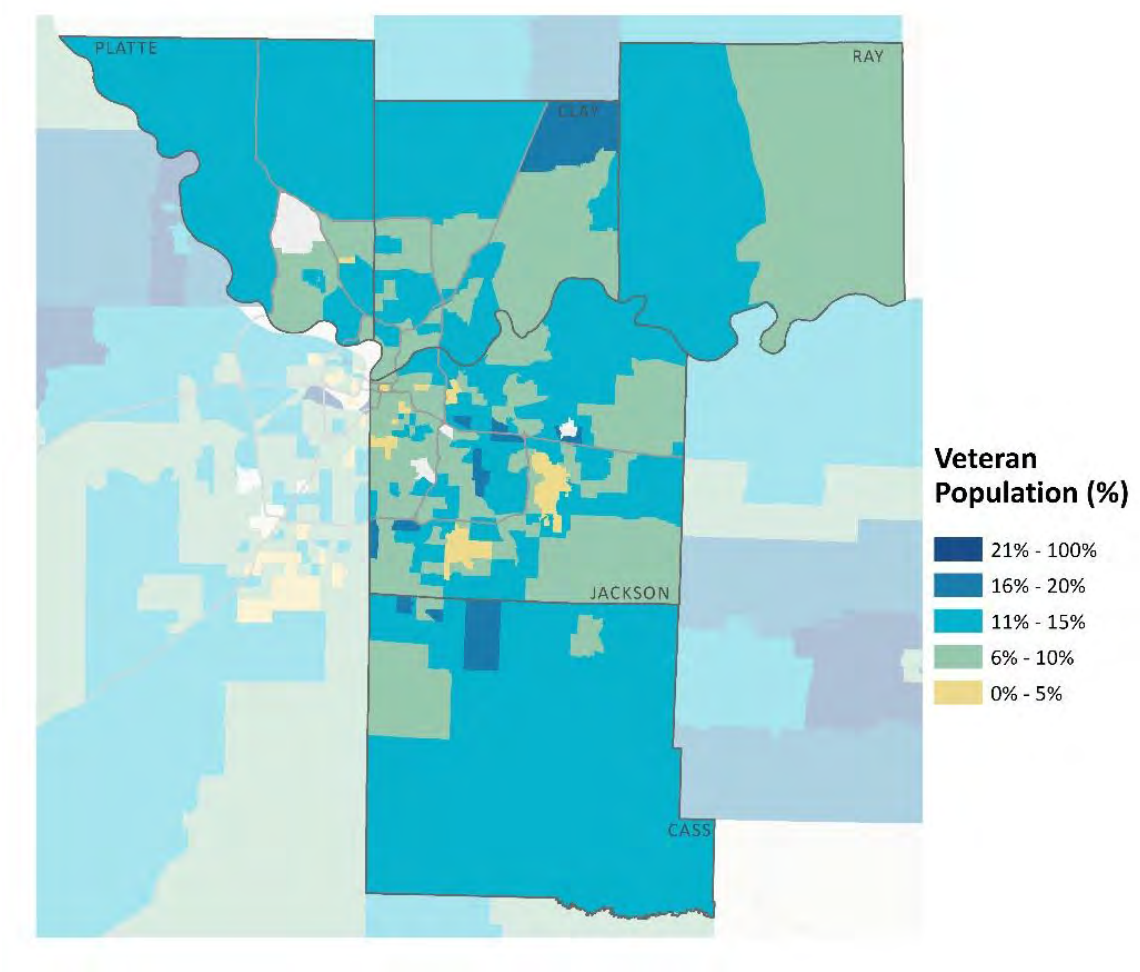
Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.4: Uninsured Population (%)



Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.5: Disabled Population (%)



Source: Census Bureau, 2013 American Community Survey, 5-year data

Attachment Map 2.6: Veteran Population (%)

This page intentionally left blank.

Section 3: Capabilities Assessment

The purpose of the capabilities assessment is to identify and consider each community's unique set of capabilities that currently reduce disaster losses or could be used to reduce losses in the future. For the purposes of this plan "community/jurisdiction" is used interchangeably and refers to all current plan participants – cities, counties, special districts, school districts, colleges and universities. Capabilities include policies, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability.

3.1 Data Gathering Methods

To facilitate data gathering from the participating jurisdictions, online profile surveys were developed for communities and school districts based on the FEMA Capabilities Worksheets 4.1-4.3.[ii] Community and school profile survey instruments are included in Attachment 3.1 at the end of this section.

The survey tools collected information on: the hazards communities face, their capabilities to support development and implementation of Mitigation Strategies, (See *Section 5: Mitigation Strategy*), existing planning mechanisms that were incorporated in the hazard mitigation planning process, gather information on safe growth audit and to demonstrate continued compliance with the requirements of the National Flood Insurance Program (NFIP) .

The following subsections provide highlights from both community and school profile surveys completed by the 2015 Plan update participants. Supplemental survey response data by jurisdiction appears in Attachment 3.2. *Sections 3.3.1* through *3.3.6* apply only to cities and counties; *Section 3.3.7* applies only to school districts, colleges and universities:

3.3.1. Planning and Regulatory Capabilities
3.3.2. Administrative and Technical Capabilities
3.3.3. Financial Capabilities
3.3.4. Education and Outreach Capabilities
3.3.5. Safe Growth Audit
3.3.6. Floodplain Management and NFIP Participation
3.3.7. School District Capabilities

Key observations:

The profile represents a snapshot of a community's mitigation capabilities and provides the foundation for inclusive mitigation planning. The 2015 profile survey was more comprehensive than prior assessments; and as a result in some cases, increased the overall awareness of the variety of community plans that intersect with mitigation intent.

Planning and Regulatory: An added benefit of compiling this information into a regional plan is it allows a jurisdiction to compare their responses to other jurisdictions'. This can be especially valuable for those jurisdictions who may not previously have considered these developing or adopting the referenced plans within their own community. It may offer opportunities in the future to expand mitigation planning efforts and reinforce successful implementation. The survey results also illustrate the complexity of planning within jurisdictions.

Administrative and Technical: Many jurisdictions possess a number of technical and administrative tools to support ongoing mitigation efforts. Codes, policies and ordinances can be extremely effective tools available to local government to control, to the extent possible, negative impacts from a variety of

hazards. This is especially true for floodplain management, where most jurisdictions indicate they have effective measures in place. Smaller jurisdictions have more limited access to these tools, but generally also have more limited exposure to hazard risks. While nearly every jurisdiction has emergency management staff, nearly 38 percent of these personnel are part time.

Financial: The vast majority of jurisdictions are leveraging existing capabilities in order to be able to fund mitigation projects.

Education and Outreach: Over the last several decades, the region has built and continues to build a robust alert and warning system. With the advent of social media, alert systems have been able to be customized for individual user experiences, which have led to an increased complexity between the community and government. It has also created new avenues for citizens to participate and take more responsibility for their own preparedness.

Regional collaboration continues to expand and can be an effective tool for leveraging limited resources, and the majority of the planning area participates in a variety of community partnerships.

Data limitation: Survey responses are the best available information reported by the jurisdiction or school at the time of the survey. Completion of the survey should not be interpreted to mean the information itself is complete or accurately reflects the current status of the capability. Limitations of the survey tool include the inability to accurately interpret false statements; therefore, data marked as false is depicted as blank or as not reported in the following summary tables.

3.2 Review and Incorporation of Existing Plans

In accordance with statutory requirements, the plan must describe each jurisdiction's existing authorities, policies, programs, and resources available to accomplish hazard mitigation. Table 3.1 highlights how specific plans are being utilized by jurisdictions throughout the planning area to support and enhance mitigation activities.

Table 3.1: Local Plans and Regulations Used by Jurisdictions

Plan or Regulation	Significance to Hazard Mitigation
Emergency Management Plans (EOP)	Assists local jurisdictions in clarifying roles and responsibilities prior to a disaster. EOPs include or reference the policies and procedures and authorities to support emergency response and initial recovery that are in place. The EOP helps identify resources prior to and during an emergency, including natural hazard events. A jurisdiction's EOP is a document that assigns responsibility for carrying out specific actions that exceed routine responsibility at projected times and places during an emergency, sets forth lines of authority and organizational relationships and shows coordination strategy. The EOP describes how people and property are protected and identifies resources available within the jurisdiction or by agreement with other jurisdictions. The EOP facilitates prevention, protection, response, and short-term recovery, which sets the stage for successful long-term recovery. These plans help local jurisdictions assess locations of vulnerable areas within their communities and how to address these areas during an emergency. This plan is a good source of information for local risk assessment activities.
Floodplain Management Regulations/Ordinance	Assists jurisdictions in effectively managing floodplain areas. These regulations are usually part of a jurisdiction's land use regulations. Depending on the jurisdiction, regulations may take the form of a stand-alone municipal ordinance. Regulations may require specific minimum design, construction, or development elements; compliance required for health and safety reasons.

Table 3.1: Local Plans and Regulations Used by Jurisdictions	
Plan or Regulation	**Significance to Hazard Mitigation**
Land Use Regulations (e.g., zoning regulations, subdivision regulations, storm water regulations)	Primary tools for jurisdictions to shaping the character and development of a community. Land use regulations may restrict particular uses or structures from being located in hazard vulnerable areas. These regulations may also require specific minimum design, construction, or development elements; compliance required for health and safety reasons.
Wetland Regulations	Helps jurisdictions maintain and protection the integrity of wetland resources. Local wetland areas often coincide with FEMA-delineated floodplain areas.
Local Building Codes	Critical tools to maintain adequate safety and building integrity factors in construction. These codes may limit structure size, type, and place additional requirements in the construction of structures located in an identified hazard area (i.e., high wind, floodplain, wildland/urban interface area, etc.).

To demonstrate compliance, Table 3.2 and Table 3.3 represent a record of review showing how jurisdictions reviewed and integrated the following topics into the 2015 Plan review process. Responses displayed in this table were gathered from the community profile survey.

- Types of natural and other hazards that affect or concern local governments
- Plans related to natural hazard mitigation, land use or development
- Local ordinances related to natural hazard mitigation
- Building, fire and related codes
- Participation in federal hazard mitigation programs, e.g., NFIP, FMA, PDM
- Existing mitigation practices
- Use of technical documents

Table 3.2: Record of Review - Cass, Clay, Jackson County																								
PLANS, POLICIES, ORDINANCES, CODES, TECHNICAL DOCUMENTS, RESOURCES	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	**Clay County**	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	**Jackson County**	Blue Springs	Grandview	Independence	Kansas City, MO	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Comprehensive/Master Plan	*	✓	✓	✓	X	*	✓	X	✓	✓	✓	*	X	X	X	NA	✓	✓	X	*	NA	X	✓	*	NA
Capital Improvement Plan	*	X	✓	✓	✓	✓	✓	*	*	✓	*	*	*	*	X	*	X	✓	X	✓	X	X	X	*	X
Local Emergency Operations Plan	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	*	✓	X	*	✓	✓	X	✓	X	X	✓	✓	X
Missouri State Hazard Mitigation Plan	*	*	*	*	X	*	✓	✓	*	✓	*	*	X	*	*	*	✓	*	*	✓	X	*	✓	X	✓
Continuity of Operations Plan	X	✓	X	*	*	*	R	*	*	✓	✓	X	*	*	*	NA	✓	*	*	✓	X	NA	N	X	NA
Economic Development Plan	X	✓	R	*	X	*	*	*	*	*	*	*	*	*	X	NA	✓	*	*	✓	NA	X	N	*	NA
Public Health Emergency Preparedness Plan	X	*	R	*	*	*	✓	✓	*	✓	*	*	*	X	*	NA	✓	*	*	✓	X	X	N	*	NA
Transportation Plan	*	*	✓	*	X	*	✓	*	*	*	*	X	*	*	*	NA	✓	✓	X	*	X	X	✓	*	NA
Storm Water Management Plan	*	✓	R	X	X	*	✓	*	✓	*	*	*	*	*	X	NA	✓	✓	X	✓	X	X	X	*	NA
Community Wildfire Protection Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	NA	*	*	*	NA	NA	N	*	*
Brownfields Redevelopment	*	*	R	*	*	*	*	*	*	*	*	*	*	X	*	NA	✓	*	*	*	X	NA	N	*	NA
Climate Change Adaption	*	*	R	*	*	*	*	*	*	*	*	*	*	*	*	NA	✓	*	*	*	NA	NA	N	*	NA
RELATED PLANNING ACTIVITIES:																									
Building Codes	X	X	✓	X	X	X	✓	✓	✓	✓	✓	X	*	X	X	*	✓	✓	X	✓	X	X	X	✓	X
Land Use Maps (Existing and/or Future)	✓	✓	✓	*	✓	✓	✓	✓	X	✓	X	✓	*	X	X	*	✓	X	✓	✓	✓	✓	✓	✓	✓
Critical Facilities Map/APRS	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	*	*	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Floodplain Management Ordinance	X	X	X	X	✓	✓	✓	✓	X	R	✓	X	X	X	X	*	✓	✓	X	✓	X	X	✓	*	*
Soil and Erosion Control Ordinance	X	X	X	X	✓	✓	✓	✓	X	R	✓	X	X	X	X	*	✓	✓	X	✓	X	X	✓	*	*
Hazard Zone Identification (on Future Land Use Map)	✓	*	✓	*	✓	*	*	✓	*	*	✓	✓	✓	*	✓	*	✓	*	*	✓	*	✓	✓	*	*
Stormwater Engineering Studies	✓	✓	✓	*	✓	✓	*	✓	*	✓	✓	✓	*	*	✓	*	✓	*	*	✓	*	✓	✓	*	*
Elevation Provisions (in Building Code)	✓	✓	✓	*	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	*	✓	*	*	✓	✓	*	✓	*	✓
Hazard Vulnerability Analysis	*	*	*	✓	✓	*	✓	✓	✓	*	*	✓	*	✓	✓	✓	✓	*	*	✓	✓	*	✓	✓	✓
Land Use Planning	✓	✓	✓	*	✓	✓	*	✓	✓	✓	✓	✓	✓	*	✓	*	✓	*	*	✓	*	✓	✓	*	*
Zoning Ordinance	✓	✓	*	*	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	*	✓	*	*	✓	✓	✓	✓	*	*
Subdivision Ordinance	*	*	*	*	✓	✓	✓	✓	*	✓	✓	✓		✓	✓	*	✓	*	*	✓	✓	✓	✓	*	*
Natural Hazard-related Ordinance(s)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓

✓ = Adopted and reviewed X = Adopted but not reviewed N = Not adopted R = Reviewed for plan update NA = Not applicable * = Not reported

Table 3.3: Record of Review - Platte, Ray County																				
PLANS, POLICIES, ORDINANCES, CODES, TECHNICAL DOCUMENTS, RESOURCES	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Comprehensive/Master Plan	✓	*	R	*	X	*	*	✓	✓	✓	*	✓	*	✓	X	X	X	*	X	X
Capital Improvement Plan	✓	*	R	*	*	*	*	*	✓	✓	*	✓	*	*	X	X	X	*	*	X
Local Emergency Operations Plan	✓	*	R	*	X	X	*	✓	✓	✓	✓	X	*	✓	✓	✓	X	*	✓	X
Missouri State Hazard Mitigation Plan	✓	✓	✓	*	*	X	*	✓	✓	✓	✓	*	*	✓	*	*	*	*	*	*
Continuity of Operations Plan	✓	*	R	*	*	X	*	*	*	✓	✓	*	*	X	*	*	*	*	*	*
Economic Development Plan	X	*	R	*	*	*	*	*	✓	✓	*	*	*	*	*	X	*	*	*	X
Public Health Emergency Preparedness Plan	✓	✓	R	*	*	*	*	*	*	✓	*	*	*	✓	*	✓	*	*	X	*
Transportation Plan	✓	*	R	*	*	*	*	*	✓	✓	*	*	*	*	*	*	*	*	N	*
Storm Water Management Plan	*	*	R	*	*	*	*	*	✓	✓	✓	✓	*	*	*	*	*	*	*	X
Community Wildfire Protection Plan	*	*	R	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Brownfields Redevelopment	*	*	R	*	*	*	*	*	*	✓	*	*	*	*	*	*	*	*	*	*
Climate Change Adaption	*	*	R	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
RELATED PLANNING ACTIVITIES:																				
Building Codes	✓	X	✓	X	X	X	*	✓	✓	✓	✓	✓	X	✓	X	*	X	*	X	X
Land Use Maps (Existing and/or Future)	✓	✓	*	*	*	✓	*	✓	✓	✓	✓	✓	*	✓	X	✓	✓	*	*	✓
Critical Facilities Map/APRS	✓	*	*	*	*	*	*	*	✓	✓	*	✓	*	✓	✓	*	*	*	*	✓
Floodplain Management Ordinance	✓	✓	✓	X	X	*	*	*	✓	✓	NA	✓	X	R	✓	NA	NA	NA	X	X
Soil and Erosion Control Ordinance	✓	*	R	*	*	*	*	*	✓	✓	*	✓	X	✓	*	*	*	*	X	X
Hazard Zone Identification (on Future Land Use Map)	✓	*	*	*	*	✓	*	✓	*	*	*	*	*	*	*	*	*	*	*	*
Stormwater Engineering Studies	✓	*	*	*	✓	*	*	*	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	✓
Elevation Provisions (in Building Code)	✓	*	*	*	*	✓	*	✓	✓	✓	✓	*	*	✓	✓	✓	*	*	✓	✓
Hazard Vulnerability Analysis	✓	✓	*	*	*	✓	*	*	✓	✓	✓	✓	*	✓	✓	*	*	*	✓	*
Land Use Planning utilized by community	✓	*	*	*	✓	✓	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓
Zoning Ordinance utilized by community	✓	*	*	*	✓	✓	*	*	✓	✓	✓	✓	✓	✓	✓	✓	*	*	✓	✓
Subdivision Ordinance utilized by community	✓	*	*	*	*	*	*	*	*	✓	*	✓	*	✓	✓	*	*	*	✓	*
Natural Hazard-related Ordinance(s) adopted	✓	✓	*	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	*	✓	✓

✓ = Adopted and reviewed X = Adopted but not reviewed N = Not adopted R = Reviewed for plan update NA = Not applicable * = Not reported

3.3 Community Profile Survey Findings

3.3.1 Planning and Regulatory Capabilities

The profile survey collected information about plans or programs that exist and how those plans are incorporated into the community's mitigation plan.

Plans and Regulations *(Community Profile, Part 2D, Question 1)*

Table 3.4 describes how the existing plans, regulations and other relevant measures reviewed in Table 3.2 and Table 3.3 above were incorporated into the hazard mitigation plan (HMP). Responses are organized by county.

Supplemental information about responses for this section of the survey is found in Attachment 3.2 and includes the following data points relating to Plans and Regulations: year adopted or last updated; does the plan address hazards; are projects identified to include in the mitigation strategy; and were plans and regulations reviewed as part of the HMP update referenced in Table 3.4.

Building Codes *(Community Profile, Part 2D, Question 2)*

Jurisdictions were next asked to identify all adopted building and fire codes and any measures complementary to local mitigation efforts. Table 3.5 represents an overview of building-related codes (type, year and class) by each jurisdiction and Table 3.6 indicates if the code is adequately enforced and whether the code was reviewed as part of the HMP update. Table 3.7 describes how codes and other relevant measures were incorporated into the HMP by each jurisdiction.

Ordinances and Policies *(Community Profile, Part 2D, Question 3)*

Finally, jurisdictions were asked to identify all relevant land use planning policies and ordinances and indicate if the ordinance is an effective measure to reduce natural hazard impacts and if ordinance is adequately administered and enforced. Table 3.8 represents an overview of responses on what ordinances and/or policies have been adopted by each jurisdiction.

Table 3.9 describes relevant measures incorporated into the HMP as stated by the jurisdiction.

Supplemental information by jurisdiction about these ordinances is available in Attachment 3.2 and includes responses on if the ordinances: are effective tools to mitigate hazards; have resources available to adequately administer; is the ordinance adequately enforced; and were the ordinances or policies reviewed as part of the HMP update.

Refer to the following pages for the Planning and Regulatory tables referenced above.

Table 3.4: Relevant Measures Incorporated into HMP (Plans/Regulations)

CAPABILITY	CASS COUNTY
Capital Improvements Plan	Pleasant Hill: Includes plan for community shelter (tornado mitigation) Raymore: Inflow and infiltration system improvements (drought mitigation)
Economic Development Plan	Belton: Included in Comprehensive Plan
Emergency Operations Plan	Harrisonville: Updated every year (all hazards mitigation) Pleasant Hill: Includes plan for mitigation and recovery
Continuity of Operations Plan	Belton: Included in Emergency Operations Plan (all hazards mitigation)

Table 3.4: Relevant Measures Incorporated into HMP (Plans/Regulations)	
Public Health Emergency Preparedness Plan	Raymore: Revisions ongoing at County Health Department
Storm Water Management Plan	Lake Winnebago: Submitted under MS4 Management Plan (flood mitigation) Raymore: Foxhaven storm water improvements; Canter Road improvements. (flood mitigation)
CAPABILITY	**CLAY COUNTY**
Comprehensive Plan	Kearney: Recommends floodplains for open space and park land Mosby: Addresses floods and tornadoes
Emergency Operations Plan	Kearney: Draft emergency operations plan is headed by Kearney Fire (all hazards mitigation)
Continuity of Operations Plan	Kearney: Part of our local Emergency Operations Plan
CAPABILITY	**JACKSON COUNTY**
Comprehensive Plan	Lee's Summit: Development and impact on infrastructure (all hazards mitigation) Oak Grove: Too numerous to list; in revision (all hazards mitigation)
Capital Improvements Plan	Lee's Summit: Storm water management and transportation (flood management) Oak Grove: Annually reviewed with budget; too numerous to list (all hazards mitigation) Sni Valley FPD: Updated as part of annual budget (all hazards mitigation)
Economic Development Plan	Lee's Summit: Plans to redevelop blighted area (hazard reduction)
Emergency Operations Plan	Oak Grove: Continuous updates to Annexes since adoption (all hazards mitigation) Sni Valley: Basic Plan 2007; Annexes in continual update process (all hazards mitigation)
Continuity of Operations Plan	Independence: Available in Community Development (all hazards mitigation) Kansas City, Mo: Utilize MARC's products (all hazards mitigation) Lee's Summit: FEMA floodplain maps (flood mitigation/management) Oak Grove: Ongoing GIS data project (identification of hazard areas) Sni Valley FPD: GIS database (identification of hazard areas)
Public Health Emergency Preparedness Plan	Lee's Summit: Jackson County Health Department (emerging infectious disease mitigation)
Storm Water Management Plan	Lee's Summit: Management of storm water (supports flood mitigation) Oak Grove: Pending approval at MDNR (supports flood mitigation)
CAPABILITY	**PLATTE COUNTY**
Comprehensive Plan	Platte County: Supports ongoing mitigation projects. Parkville: Supports ongoing mitigation projects through resource preservation; setbacks; access strategies Platte City: Storm water sewers have been updated (flood mitigation) Weatherby Lake: Roads and sewers mitigation work to support flood mitigation efforts
Capital Improvements Plan	Platte County: Supports ongoing mitigation projects Parkville: Supports infrastructure; flood mitigation projects Platte City: Currently adopted this year, will support ongoing mitigation projects.

Table 3.4: Relevant Measures Incorporated into HMP (Plans/Regulations)	
Economic Development Plan	Platte County: Several staff in department to help in the process Parkville: Infrastructure projects Platte City: Current to maintain current issues
Emergency Operations Plan	Platte County: Ongoing yearly by Emergency Management (all hazards mitigation) Houston Lake: Adopted; undergoing revision; complete by October 2015 (all hazards mitigation) Parkville: County Plan (all hazards mitigation) Platte City: Adopted on County Plan (all hazards mitigation) Weatherby Lake: Update by County Emergency Management (all hazards mitigation)
Continuity of Operations Plan	Platte County: Updated and practiced in planning by Emergency Management (all hazards mitigation) Platte City: Currently used by the city (all hazards mitigation) Weatherby Lake: County and city have this capability (all hazards mitigation)
Public Health Emergency Preparedness Plan	Platte County: Platte County Health Department (emerging infectious disease mitigation) Dearborn: Platte County Health Department (emerging infectious disease mitigation) Platte City: Platte County Health Department (emerging infectious disease mitigation) Weatherby Lake: Platte County Health Department (emerging infectious disease mitigation)
Transportation Plan	Platte County: Road Master Plan Parkville: Though master plan; addresses redundancy Platte City: Does not include an evacuation for the entire city
Storm Water Management Plan	Parkville: Supports flood Mitigation/Prevention Platte City: Supports Comprehensive Plan and ongoing mitigation projects
Brownfields Redevelopment	Platte City: Community Center
CAPABILITY	**RAY COUNTY**
Emergency Operations Plan	Ray County: Reviewed to address threats and hazards
Transportation Plan	Ray County: Direct Transit

Table 3.5: Building Codes Adopted by Local Jurisdictions																		
Jurisdiction	**Building Code**	**Year**	**Class**	**Fire Code**	**Year**	**Class**	**Mechanical Code**	**Year**	**Class**	**Plumbing Code**	**Year**	**Class**	**Dangerous Buildings**	**Year**	**Class**	**Other Codes**	**Year**	**Class**
Cass County																		
Belton	IBC	2012	4	IFC	2012	4	IMC	2012	4	IPC	2012	4	IBC	2012	4			
Harrisonville	IBC	2012	3	IFC	2012	4	IMC	2012	3	IPC	2012	3	IBC	2012	3			
Lake Winnebago	IRC	2012		IFC	2012		IMC	2012		IPC	2012					NEC	2011	
Peculiar	IBC	2003		IFC	2006		IMC	2003		IPC	2003		IBC	2003		NEC	1999	
Pleasant Hill	IC	2012	4	IC	2012	4	IC	2012	4	IC	2012	4	IC	2012	4			
Raymore	IBC	2012		IFC	2012		UMC	2012		UPC	2012			2006				
Clay County	IBC	2012		IFC	2011		IMC	2011		IPC	2011					IRC		
Excelsior Springs	IBC	2012	5	IFC	2012	5	IMC	2012	5	IPC	2012	5		1992				
Gladstone	IBC	2012	2	IFC	2012	2	IMC	2012	2	IPC	2012	2						
Kearney	IBC	2012	9	IFC	2012	4	IMC	2012	9	IPC	2012	9				NEC	2012	9
Liberty	IBC	2012		IFC	2012	3	IMC	2012		IPC	2012							
Mosby																		
North Kansas City	IBC	2012		IFC	2012	2	IMC	2012		IPC	2012					NEC	2012	
Smithville	IBC	2012	7				IBC	2012		IBC	2012		IPMC	2012				
Fishing River FPD																		
Jackson County	IBC	2010	5	IFC	2010	5	IMC	2010	5	IPC	2010	5						
Blue Springs	IBC	2012	4	IFC	2012	3	IMC	2012	4	IPC	2012	4	IBC	2012	4	IBC	2012	
Grandview	IBC	2012		IFC	2012		IMC	2012		IPC	2012					NEC	2012	
Independence	IBC	2012	4	IFC	2012	2	IMC	2012	4	IPC	2012	4		2012				
Kansas City, Mo.	IBC	2012	2	IFC	2000	2	IMC	2012	2	UPC	2012	2	IBC	2014	2			
Lee's Summit	IBC	2012	4	IFC	2012	3	IMC	2012	4	IPC	2012	4	UCADB					
Oak Grove	IBC	2009		IFC	2009		IMC	2009		IPC	2009					NEC	2008	
Raytown	IBC	2012	5	IFC	2012	5	IMC	2012	5	IPC	2012	5	IPMC	2012	5	NEC	2011	5
Sni Valley FPD	IBC	2003		IFC	2003		IMC	2003		IPC	2003			2003			2003	
Platte County	IBC	2012	5				IMC	2012	5	IPC	2012	5		1993				
Dearborn	IBC	2013	7	IFC	2014	5	IMC	2013										
Edgerton	IBC	2009		NFC	2010		IBC	2009		IBC	2009		IBC	2009				
Farley	IRC	2009																
Ferrelview	IBC	2012					IBC	2012		IBC	2012		IBC	2012				
Houston Lake	IRC	2005		IRC	2005		IRC	2005		IRC	2005							
Lake Waukomis																		

Table 3.5: Building Codes Adopted by Local Jurisdictions																		
Jurisdiction	**Building Code**	**Year**	**Class**	**Fire Code**	**Year**	**Class**	**Mechanical Code**	**Year**	**Class**	**Plumbing Code**	**Year**	**Class**	**Dangerous Buildings**	**Year**	**Class**	**Other Codes**	**Year**	**Class**
Northmoor	IBC	2006		IFC	2006		IMC	2006		IBC	2006		IBC	2006				
Parkville	IBC	2012	4	IFC	2012	4	IMC	2012	4	IPC	2012	4				NEC	2010	4
Platte City	IBC	2013	5	IBC	2013	5	IBC	2013	5	IBC	2013	5	IBC	2013	5			
Platte Woods	IBC	2007		IBC	2007		IBC	2007		IBC	2007		IBC	2007				
Riverside	IC	2012		IC	2012		IC	2012		IC	2012		IC	2012		IC	2011	
Tracy	IBC	2006	4	IBC	2006	4	IBC	2006	4	IBC	2006	4	IBC	2006	4	NEC	2011	4
Weatherby Lake	IRC	2009	3	IFC	2009	4	IRC	2009	3	IRC	2009	3	IRC	2009	3			
Weston	IBC	2000		IBC	2000		IBC	2000		IBC	2000		IBC	2000				
Northland RAD																		
Southern Platte FPD	IBC	2012	4	IFC	2012	4												
West Platte FPD																		
Ray County	IBC	2013																
Richmond	IBC	2012	9	IFC	2012	9	IMC	2012	9	IPC	2012	9	IBC	2012	9	NEC	2011	9

IC – International Code
IBC – International Building Code
IFC – International Fire Code
IMC – International Mechanical Code
IPC – International Plumbing Code
IPMC – International Property Maintenance Code
IRC – International Residential Code
NEC – National Electric Code
NFC – National Fire Code
UCABD – Uniform Code for Abatement of Dangerous Buildings
UMC – Uniform Mechanical Code
UPC – Uniform Plumbing Code

Table 3.6: Codes Reviewed for HMP Update and Adequately Enforced																		
Jurisdiction	Building			Fire			Mechanical			Plumbing			Dangerous Buildings			Other Codes		
	TYPE	ADEQ	HMP	TYPE	ADEQ	HMP	TYPE	ADEQ	HMP	TYPE	ADEQ	HMP	TYPE	ADEQ	HMP	TYPE	ADEQ	HMP
Cass County																		
Belton	IBC	X		IFC	X		IMC	X		IPC	X		IBC	X				
Harrisonville	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X	IBC	X	X			
Lake Winnebago	IRC	X		IFC	X		IMC	X		IPC	X					NEC	X	
Peculiar	IBC	X		IFC	X		IMC	X		IPC	X		IBC	X		NEC	X	
Pleasant Hill	IC	X		IC	X		IC	X		IC	X		IC	X				
Raymore	IBC	X	X	IFC	X	X	UMC	X	X	UPC	X	X		X	X			
Clay County	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X				IRC		
Excelsior Springs	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X		X	X			
Gladstone	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X						
Kearney	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X				NEC	X	X
Liberty	IBC	X		IFC	X		IMC	X		IPC	X							
Mosby																		
North Kansas City	IBC	X		IFC	X		IMC	X		IPC	X					NEC	X	
Smithville	IBC	X					IBC	X		IBC	X		IPMC					
Fishing River FPD																		
Jackson County	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X						
Blue Springs	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X	IBC	X	X	IBC	X	X
Grandview	IBC	X		IFC	X		IMC	X		IPC	X					NEC	X	
Independence	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X		X	X			
Kansas City, Mo.	IBC	X		IFC	X		IMC	X		UPC	X		IBC	X				
Lee's Summit	IBC	X		IFC	X		IMC	X		IPC	X		UCADB					
Oak Grove	IBC	X		IFC	X		IMC	X		IPC	X					NEC		
Raytown	IBC		X	IFC		X	IMC		X	IPC		X	IPMC		X	NEC		X
Sni Valley FPD	IBC			IFC			IMC			IPC								
Platte County	IBC	X	X				IMC	X	X	IPC	X	X			X			
Dearborn	IBC			IFC			IMC											
Edgerton	IBC		X	NFC		X	IBC		X	IBC		X	IBC		X			
Farley	IRC	X																
Ferrelview	IBC	X					IBC	X		IBC	X		IBC	X				
Houston Lake	IRC	X		IRC	X		IRC	X		IRC	X							

Table 3.6: Codes Reviewed for HMP Update and Adequately Enforced																		
Jurisdiction	**Building**			**Fire**			**Mechanical**			**Plumbing**			**Dangerous Buildings**			**Other Codes**		
	TYPE	**ADEQ**	**HMP**	**TYPE**	**ADEQ**	**HMP**	**TYPE**	**ADEQ**	**HMP**	**TYPE**	**ADEQ**	**HMP**	**TYPE**	**ADEQ**	**HMP**	**TYPE**	**ADEQ**	**HMP**
Lake Waukomis																		
Northmoor	IBC		X	IFC		X	IMC		X	IBC		X	IBC		X			
Parkville	IBC	X	X	IFC	X	X	IMC	X	X	IPC	X	X				NEC	X	X
Platte City	IBC	X	X	IBC	X	X	IBC	X	X	IBC	X	X	IBC	X	X			
Platte Woods	IBC	X	X	IBC	X	X	IBC	X	X	IBC	X	X	IBC	X	X			
Riverside	IC	X	X	IC	X	X	IC	X	X	IC	X	X	IC	X	X	IC	X	X
Tracy	IBC	X		IBC	X		IBC	X		IBC	X		IBC	X		NEC	X	
Weatherby Lake	IRC	X	X	IFC	X	X	IRC	X	X	IRC	X	X	IRC	X	X			
Weston	IBC	X		IBC	X		IBC	X		IBC	X		IBC					
Northland RAD																		
Southern Platte FPD	IBC	X		IFC	X													
West Platte FPD																		
Ray County	IBC																	
Richmond	IBC	X		IFC	X		IMC	X		IPC	X		IBC	X		NEC	X	

Key: ADEQ = Adequately Enforced HMP = Reviewed for HMP Update

IC – International Code
IBC – International Building Code
IFC – International Fire Code
IMC – International Mechanical Code
IPC – International Plumbing Code
IPMC – International Property Maintenance Code
IRC – International Residential Code
NEC – National Electric Code
NFC – National Fire Code
UCABD – Uniform Code for Abatement of Dangerous Buildings
UMC – Uniform Mechanical Code
UPC – Uniform Plumbing Code

Table 3.7: Relevant Measures Incorporated into HMP (Building Codes)	
CAPABILITY	**CASS COUNTY**
Dangerous Building Code	Lake Winnebago: Does not apply to current City R-1 Zoning Raymore: Local code regulations
Other Codes	Lake Winnebago: NEC Peculiar: NEC
CAPABILITY	**CLAY COUNTY**
Building Code	Kearney: 2012 IRC and IBC
Fire Code	Kearney: KRFPD has a Class 4
Dangerous Building Code	Excelsior Springs: City has local ordinance
Other Codes	Clay County: IRC Kearney: 2012 NEC; 2012 ISPSC North Kansas City: NEC
CAPABILITY	**JACKSON COUNTY**
Dangerous Building Code	Jackson County: Not applicable Blue Springs: All IBC modules Independence: City has local ordinance Lee's Summit: City has local ordinance Oak Grove: Oak Grove Municipal Ordinance
Other Codes	Jackson County: NEC Independence: IFGC, IRC, NEC, IEBC Oak Grove: NEC; 2009 IFGC; Int'l Private Property
CAPABILITY	**PLATTE COUNTY**
Building Code	Platte County: Planning and Zoning Dearborn: Building codes follow county standards Parkville: 2015 Code to be adopted Spring 2016 Weatherby Lake: 2015 Update later in 2015
Fire Code	Parkville: 2015 Code to be adopted Spring 2016
Mechanical Code	Platte County: Planning and Zoning Dearborn: Building codes follow county standards Parkville: 2015 Code to be adopted Spring 2016 Weatherby Lake: 2015 Update later in 2015
Plumbing Code	Platte County: Planning and Zoning Parkville: 2015 Code to be adopted Spring 2016 Weatherby Lake: 2015 Update later in 2015
Dangerous Building Code	Platte County: County-only code Weatherby Lake: City has local ordinance
Other Codes	Riverside: IC Parkville: 2015 NEC to be adopted Spring 2016 Tracy: NEC
CAPABILITY	**RAY COUNTY**
Other Codes	Richmond: NEC

IBC – International Building Code
IC – International Code
IEBC – International Existing Building Code
IFGC – International Fuel Gas Code
ISPSC – International Swimming Pool and Spa Code
NEC – National Electric Code

Table 3.8: Ordinances and Policies Adopted by Local Jurisdictions																									
ORDINANCES ADOPTED BY JURISDICTION	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	**Clay County**	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	**Jackson County**	Blue Springs	Grandview	**Independence**	**Kansas City, MO**	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Stream setback ordinances	✓	✓			✓		✓	✓	✓			✓					✓	✓	✓	✓	✓	✓	✓		
Floodplain management ordinances	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Soil and erosion ordinances		✓	✓	✓	✓		✓	✓	✓			✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		
Burn ordinances	✓	✓	✓		✓				✓		✓	✓				✓	✓	✓		✓	✓	✓	✓		✓
Storm water runoff ordinances		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		
Water conservation measures					✓		✓		✓			✓					✓	✓			✓		✓		
Open space acquisition/dedication		✓	✓		✓		✓	✓	✓		✓	✓			✓		✓	✓	✓	✓	✓		✓		
Flood buyout			✓		✓				✓			✓	✓				✓			✓	✓	✓			
Site plan review requirements	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		

Table 3.8: Ordinances and Policies Adopted by Local Jurisdictions (Continued)																					
ORDINANCES ADOPTED BY JURISDICTION	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Stream setback ordinances	✓	✓							✓	✓		✓							✓	✓
Floodplain management ordinances	✓	✓		✓	✓				✓	✓		✓	✓		✓				✓	✓
Soil and erosion ordinances	✓								✓	✓		✓	✓	✓					✓	✓
Burn ordinances		✓				✓				✓	✓	✓	✓	✓	✓		✓			✓
Storm water runoff ordinances	✓	✓						✓	✓	✓	✓	✓	✓	✓					✓	✓
Water conservation measures	✓									✓					✓					
Open space acquisition/dedication	✓								✓	✓										✓
Flood buyout	✓												✓							✓
Site plan review requirements	✓	✓			✓	✓			✓	✓		✓	✓	✓	✓					✓

Table 3.9: Relevant Measures Incorporated into HMP (Ordinances/Policies)	
CAPABILITY	**CASS COUNTY**
Floodplain Management Ordinance	Lake Winnebago: City has adopted ordinances as part of the UDO
Soil and Erosion Ordinance	Lake Winnebago: City has adopted UDO Erosion Control Ordinances
Burn Ordinance (i.e., farmland, prairie)	Raymore: As needed through South Metro Fire Protection (wildland fire mitigation)
Storm Water Runoff Ordinance	Lake Winnebago: Adopted in the current Building Codes
Flood Buyout	Raymore: No structures are within the flood hazard area (Supports continued NFIP participation)
Site Plan Review Requirements	Lake Winnebago: Required for all construction permit applications
CAPABILITY	**CLAY COUNTY**
Floodplain Management Ordinance	Kearney: Development required to meet floodplain ordinance (Supports continued NFIP participation)
Burn Ordinance (i.e., farmland, prairie)	Kearney: burn permits required; issued by fire district
Storm Water Runoff Ordinance	Kearney: Detention facilities required to minimize flooding (Supports continued NFIP participation)
Flood Buyout	Kearney: No residential structures within floodplain (Supports continued NFIP participation)
CAPABILITY	**JACKSON COUNTY**
Stream Setback Ordinance	Oak Grove: Uniform Development Code (UDC) (Supports continued NFIP participation)
Floodplain Management Ordinance	Lee's Summit: Chapter 6 of the Unified Development Ordinance (Supports continued NFIP participation)
Soil and Erosion Ordinance	Oak Grove: Follow Federal Clean Water Act
Burn Ordinance (i.e., farmland, prairie)	Oak Grove: Limited to 5 weeks in spring and 5 weeks in fall
Storm Water Runoff Ordinance	Lee's Summit: Chapter 34 of the City Code of Ordinances (Supports continued NFIP participation) Oak Grove: UDC incorporates requirements on developers (Supports continued NFIP participation)
Water Conservation Measures	Lee's Summit: As needed during drought conditions Oak Grove: Emergency Powers under Emergency Management Ordinance
Open Space Acquisition/Dedication	Lee's Summit: Being evaluated to acquire stream corridors (Supports continued NFIP participation) Oak Grove: Flood Plain and Uniform Development Code (Supports continued NFIP participation)
Flood Buyout	Lee's Summit: Limited scale (Supports continued NFIP participation) Oak Grove: No developed property eligible to buyout (Supports continued NFIP participation)
Site Plan Review Requirements	Oak Grove: Site plans reviewed according to UDC standards

CAPABILITY	PLATTE COUNTY
Stream Setback Ordinance	Platte County: Planning and Zoning (Supports continued NFIP participation)
Floodplain Management Ordinance	Platte County: Planning and Zoning and Emergency Management (Supports continued NFIP participation) Parkville: Adopting Update January 2015 (Supports continued NFIP participation) Platte City: Adopting February 2015 (Supports continued NFIP participation)
Soil and Erosion Ordinance	Platte County: Planning and Zoning Weatherby Lake: City ordinance enforced by Public works
Burn Ordinance (i.e., farmland, prairie)	Platte County: These are done by the fire departments Houston Lake: Open burning ordinance adopted into city code 2013 Weatherby Lake: City ordinance enforced by Public Works
Storm Water Runoff Ordinance	Platte County: Planning and Zoning (Supports continued NFIP participation) Weatherby Lake: City ordinance monitored by MS4 Committee (Supports continued NFIP participation)
Water Conservation Measures	Platte County: Voluntary Green Build
Open Space Acquisition/Dedication	Platte County: Planning and Zoning (Supports continued NFIP participation)
Flood Buyout	Platte County: Bean Lake 1993 (Supports continued NFIP participation)
Site Plan Review Requirements	Platte County: Planning and Zoning Weatherby Lake: This is part of the building code ordinance

3.3.2 Administrative and Technical Capabilities

The profile survey collected information about administrative functions, staffing, and technical resources to identify whether capabilities were available at the local level to assist with mitigation planning and implementation of mitigation actions. Smaller jurisdictions were asked to indicate any public resources available at the next higher level of government (i.e., technical assistance).

Administrative Resources *(Community Profile, Part 2A, Question 1)*

In Part 2A of the Community Profile Survey, jurisdictions were asked to identify administrative resources available to assist with mitigation activities. Table 3.10 provides a list of administrative functions fulfilled at the local level by each jurisdiction.

Supplemental information by jurisdiction about administrative resources is available in **Attachment 3.2** and includes responses on: is assistance available at the next level of government; is coordination between governments effective for mitigation purposes; and were functions reviewed as part of the HMP update.

Staffing Resources *(Community Profile, Part 2A, Question 2)*

Jurisdictions were next asked to describe staffing resources available to assist with mitigation efforts. Table 3.11 lists all relevant full- and part-time positions.

Supplemental information by jurisdiction about staffing resources is available in **Attachment 3.2** and includes responses on: is staffing adequate to enforce regulations; is staff trained on hazard mitigation;

is technical assistance is available at the next higher level of government; is coordination effective between staff and agencies; and were staffing resources reviewed as part of the HMP update.

Technical Resources *(Community Profile, Part 2A, Question 3)*

Finally, jurisdictions were asked to identify all technical resources available to assess and mitigate risk. Table 3.12 lists which tools were useful to meet local planning needs.

Table 3.13 describes relevant measures incorporated into the HMP as stated by the jurisdiction.

Supplemental information by jurisdiction about technical resources is available in **Attachment 3.2** and includes responses on: has the community used the tool to assess and/or mitigate the risk; and, were technical resources reviewed as part of the HMP update.

Refer to the following pages for the Administrative and Technical tables referenced above

.

Table 3.10: Local Administrative Resources by Jurisdiction																									
ADMINISTRATIVE FUNCTION AT THE LOCAL LEVEL	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	**Clay County**	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	**Jackson County**	Blue Springs	Grandview	Independence	**Kansas City, MO**	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Planning & Zoning Commission	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Mitigation Planning Committee	✓		✓		✓		✓					✓	✓				✓								
Maintenance program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
Mutual aid agreement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 3.10: Local Administrative Resources by Jurisdiction (Continued)																				
ADMINISTRATIVE FUNCTION AT THE LOCAL LEVEL	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Planning & Zoning Commission	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓			✓	✓
Mitigation Planning Committee	✓	✓				✓										✓				
Maintenance program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓	✓
Mutual aid agreement	✓	✓				✓		✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓

Table 3.11: Local Staffing Resources by Jurisdiction																									
LOCAL STAFFING (FULL-TIME OR PART-TIME)	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	Clay County	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	Jackson County	Blue Springs	**Grandview**	Independence	Kansas City, MO	**Lee's Summit**	Oak Grove	Raytown	Sni Valley FPD
Chief Building Official	FT	FT	FT	PT	FT	FT	FT	FT	FT	FT		FT	PT	FT	FT		FT	FT	FT	FT	FT	FT	FT	PT	PT
Floodplain Administrator	PT	FT	PT	PT	FT		FT	FT			FT	FT	PT	FT			FT	FT	FT	FT	FT	PT	PT	PT	
Emergency Manager	FT	PT	FT	PT	FT	PT	FT	FT	PT	PT		FT	FT	FT	FT		FT	PT	FT	FT	FT	PT	FT	PT	FT
Community Planner	PT	FT	FT	PT	FT	FT	FT	FT		FT	FT	FT	PT	FT	FT		FT	FT	FT	FT		FT		FT	
Civil Engineer	PT	FT	FT	PT	FT		FT			FT	FT	FT	PT	PT			FT	FT	FT	FT	FT	FT	PT	PT	
Public Health Official	FT							FT		FT							FT			FT	FT	FT		PT	
IT Support	FT	FT	FT	PT	FT	PT	FT	FT		FT	PT	FT	PT	FT	PT		FT	FT	PT	FT	FT	FT	PT	PT	PT
GIS Coordinator	FT	FT			PT	FT	FT	FT	FT	FT		FT		FT			FT	FT	FT	FT	FT	FT	PT	PT	PT

Table 3.11: Local Staffing Resources by Jurisdiction (continued)																				
LOCAL STAFFING (FULL-TIME OR PART-TIME)	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Chief Building Official	FT		PT	PT	PT	PT	PT	PT	FT	FT	PT	FT		PT	PT		FT		PT	FT
Floodplain Administrator	FT	PT		PT	PT	PT			FT	FT		FT		FT	FT				PT	FT
Emergency Manager	FT	PT	PT	PT	PT	PT	PT	PT	FT	FT	FT	FT		FT	FT		FT		PT	PT
Community Planner	FT								FT	FT		FT								FT
Civil Engineer	FT						PT		FT	PT		FT		PT						
Public Health Official	FT				PT				FT	FT		PT		FT					FT	
IT Support	FT				PT	PT	PT	PT	PT	PT	PT	FT		PT	PT	PT	FT		PT	
GIS Coordinator	FT								FT	PT		FT							PT	FT

FT = FULL TIME PT = PART TIME

Table 3.12: Local Technical Resources by Jurisdiction																								
TECHNICAL RESOURCE USEFUL TO LOCAL PLANNING	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	Clay County	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	Jackson County	Blue Springs	**Grandview**	Independence	Kansas City, MO	**Lee's Summit**	Oak Grove	Raytown	Sni Valley FPD
Warning system/services	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Hazard data and information	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Critical Facility Map/APRS	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
HAZUS Analysis	✓		✓		✓		✓	✓		✓		✓	✓		✓		✓			✓	✓		✓	✓	✓
Existing Land Use Maps	✓	✓	✓		✓	✓	✓	✓		✓		✓					✓		✓	✓	✓	✓	✓	✓	✓
Future Land Use Maps		✓			✓		✓	✓		✓		✓	✓		✓		✓	✓	✓	✓			✓		✓
State Hazard Mitigation Plan	✓	✓	✓	✓	✓			✓		✓		✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Grant Writing			✓							✓		✓					✓		✓	✓	✓				

Table 3.12: Local Technical Resources by Jurisdiction (Continued)																					
TECHNICAL RESOURCE USEFUL TO LOCAL PLANNING	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Warning system/services	✓	✓		✓		✓		✓	✓	✓	✓	✓		✓	✓	✓			✓	✓
Hazard data and information	✓			✓				✓	✓	✓	✓	✓		✓	✓	✓				✓
Critical Facility Map/APRS	✓								✓	✓		✓		✓	✓					✓
HAZUS Analysis	✓	✓				✓		✓	✓	✓	✓			✓	✓	✓				
Existing Land Use Maps	✓					✓			✓	✓	✓			✓		✓	✓			✓
Future Land Use Maps	✓	✓				✓		✓	✓	✓		✓		✓		✓				✓
State Hazard Mitigation Plan	✓									✓		✓		✓		✓				
Grant Writing	✓																			

Table 3.13: Relevant Measures Incorporated into HMP (Technical Resources)	
CAPABILITY	**CASS COUNTY**
Warning Systems	Belton: VOIP System Lake Winnebago: New/Upgraded 2013 Peculiar: Emergency sirens
Hazard Data	Belton: Full access to all utility data through GIS and Rain Gauge Peculiar: Gates for low water bridge crossings
Grant Writing	Raymore: Continue to explore multiple grant opportunities in addition to EMPG
Existing Land Use Map	Belton: WebGIS and website Raymore: Local GIS specialist continues to assess and analyze land use
Critical Facilities Map	Belton: WebGIS Lake Winnebago: Maps are available hard copy and laptop Raymore: Need to collect more information on critical facilities
CAPABILITY	**CLAY COUNTY**
Warning Systems	Kearney: Used for tornadoes and severe weather Liberty: Warning sirens, mass texts to cell phones, email Smithville: Warning sirens
Existing Land Use Map	Kearney: Future Land Use Map identified future open space that correlates with floodplain areas (Supports continued participation in the NFIP) Liberty: Used to ensure no structures are built
Future Land Use Map	Liberty: Used to ensure no structures are built
CAPABILITY	**JACKSON COUNTY**
Warning Systems	Independence: SMS Texting System Lee's Summit: Several mass public notification systems Oak Grove: Land development fee with building permit to expand service throughout community Raytown: Outdoor warning sirens, weather radios and communication equipment Sni Valley FPD: District-owned outdoor warning siren in Bates City only
Hazard Data	Independence: Participated in THIRA update Kansas City, Mo: Information is contained within LEOP Oak Grove: Ongoing planning in LEOP Raytown: Awareness of historical data helps provide hazard analysis Sni Valley FPD: Reviewed for LEOP
Grant Writing	Sni Valley FPD: Using Fire Act and SAFER
HAZUS	Sni Valley FPD: Available but insufficient staff time to adequately utilize
Existing Land Use Map	Independence: Available in Community Development Kansas City, Mo: Utilize MARC's products Lee's Summit: FEMA floodplain maps Oak Grove: Ongoing GIS data project Sni Valley FPD: GIS database
Future Land Use Map	Independence: Available in Community Development Kansas City, Mo: Utilize MARC's products Lee's Summit: FEMA floodplain maps (Supports continued participation in the NFIP) Oak Grove: Ongoing GIS data project Sni Valley FPD: Available for Oak Grove only
SHMP	Kansas City, Mo: Reviewed and incorporated into the LEOP Sni Valley FPD: Reviewed for LEOP

Table 3.13: Relevant Measures Incorporated into HMP (Technical Resources)	
CAPABILITY	**PLATTE COUNTY**
Warning Systems	Platte County: Have 13 added sirens with Edgerton Dearborn: Tornado siren during severe weather Parkville: 4 sirens and weather radios in all city buildings Platte City: NIXLE used to notify residents for all types of events Riverside: Use social media sites and NIXLE Weatherby Lake: 2 weather sirens operated by the county
Hazard Data	Platte County: Updated from 2010 Dearborn: Fire station is familiar with chemicals at Sur Gro Parkville: Flood hazard data; new data acquired in 2014 (Supports continued participation in the NFIP) Northland RAD: Data is kept at county level and through dispatch software Weatherby Lake: Use mitigation tool to plan for future events
Grant Writing	Platte County: Several staff in department to help in the process Dearborn: Grant for parks, buildings, city improvement Parkville: Previous used in flood mitigation (Supports continued participation in the NFIP) Platte City: In-house person does all types of grants Riverside: Grant writing resources available on an as-needed basis Weatherby Lake: Work with storm water runoff and Park board for enhanced public use access
HAZUS	Platte County: Floodplain manager keeps update (Supports continued participation in the NFIP)
Existing Land Use Map	Platte County: County planning team Platte City: Currently used by the city Weatherby Lake: County and city have this capability
Future Land Use Map	Platte County: County planning team Parkville: Future land use projections consider hazard areas and goals and objectives for mitigation/prevention Platte City: Currently used by the city Weatherby Lake: County and city have this capability
SHMP	Platte County: SEMA plans Dearborn: County and State have the plans to cover the city Platte City: Working knowledge Weatherby Lake: Works along with current plan
Critical Facilities Map	Platte County: Updated in GIS Platte City: In-house use for the city Riverside: Evaluation of Critical infrastructure/facilities for entry into APRS Weatherby Lake: City hall and police station only; nothing else local Northland RAD: Data kept at county level and through dispatch software
CAPABILITY	**RAY COUNTY**
Warning Systems	Ray County: NIXLE mass communication systems Richmond: Monthly testing and maintenance contract
Hazard Data	Richmond: Floodplain and Storm water ordinances (Supports continued participation in the NFIP)
Grant Writing	Richmond: Utilize MARC
Existing Land Use Map	Richmond: Comprehensive Plan
Future Land Use Map	Richmond: Comprehensive Plan

3.3.3 Financial Capabilities

The profile survey collected information about financial capabilities to determine whether the jurisdiction has existing or potential funding resources to assist with planning and implementation of mitigation actions. Table 3.14 show the type of mitigation actions funded in the last five years for the entire planning area.

Table 3.14: Types of Mitigation Activities Funded by Funding Source

Funding Resource	Structure and Infrastructure Projects	Local Plans and Regulations	Natural Systems Protection	Education and Awareness Programs	Total Mitigation Activities Funded
Capital Improvement Project Funding	21	5	1	0	27
Authority to levy taxes for specific purposes	18	3	1	0	22
Fees for water, sewer, gas or electric services	16	5	0	0	21
Impact fees for new development	12	4	0	0	16
Storm water utility fee	7	3	0	0	10
Incur debt through general and/or special tax bonds	15	2	1	0	18
Incur debt through private activities	0	0	0	0	0
Community Development Block Grant	5	6	0	1	12
Flood Mitigation Assistance Program	5	3	3	1	12
Pre-Disaster Mitigation Program	3	5	0	2	10
Hazard Mitigation Grant Program	3	4	0	1	8
Other	4	0	0	0	4
Type of Mitigation Activities (Total)	**109**	**40**	**6**	**5**	**160**

Funding Resources *(Community Profile, Part 2B, Question 1)*

In Part 2B of the Community Profile Survey, jurisdictions were asked to describe the types of funding resources a jurisdiction has access to and is eligible to use funds for hazard mitigation.

Table 3.15 shows access or eligibility to use funding resources for hazard mitigation by jurisdiction.

Supplemental information by jurisdiction about funding resources is available in Attachment 3.2 and includes responses on: was funding resource used in the last five years; can funding resource be used for future mitigation; and was funding resource reviewed as part of the HMP update.

Table 3.15: Access or Eligibility to Use Funding Resource by Jurisdiction

JURISDICTION HAS ABILITY TO ACCESS THESE FUNDING RESOURCES	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	**Clay County**	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD	**Jackson County**	Blue Springs	Grandview	**Independence**	**Kansas City, MO**	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Capital Improvement Project Funding		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓		✓
Authority to levy taxes for specific purposes		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓		✓	✓	✓	✓		✓
Fees for water, sewer, gas or electric services		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓
Impact fees for new development	✓	✓	✓	✓	✓	✓				✓	✓	✓			✓		✓			✓		✓	✓		✓
Storm water utility fee			✓		✓		✓		✓	✓	✓	✓			✓		✓			✓	✓		✓		✓
Incur debt through general and/or special tax bonds	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓		✓
Incur debt through private activities			✓				✓				✓									✓	✓				
Community Development Block Grant	✓	✓	✓		✓				✓		✓	✓		✓	✓			✓		✓		✓	✓		
Flood Mitigation Assistance Program	✓	✓	✓	✓	✓			✓			✓	✓	✓				✓			✓	✓	✓	✓		
Pre-Disaster Mitigation Program	✓		✓	✓	✓			✓		✓	✓	✓					✓	✓		✓		✓	✓		
Hazard Mitigation Grant Program	✓		✓	✓	✓		✓	✓		✓	✓	✓					✓	✓		✓	✓	✓	✓		

JURISDICTION HAS ABILITY TO ACCESS THESE FUNDING RESOURCES	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond	**Independence**	**Kansas City, MO**
Capital Improvement Project Funding	✓					✓	✓		✓	✓	✓	✓		✓	✓	✓				✓	✓	✓
Authority to levy taxes for specific purposes	✓	✓			✓	✓	✓		✓	✓	✓	✓		✓	✓					✓	✓	✓
Fees for water, sewer, gas or electric services	✓	✓			✓		✓		✓	✓	✓	✓		✓	✓				✓	✓	✓	✓
Impact fees for new development		✓		✓					✓	✓				✓					✓	✓	✓	
Storm water utility fee									✓												✓	✓
Incur debt through general and/or special tax bonds	✓						✓		✓	✓		✓		✓	✓				✓	✓	✓	✓
Incur debt through private activities															✓				✓		✓	✓
Community Development Block Grant	✓											✓		✓	✓				✓	✓	✓	
Flood Mitigation Assistance Program	✓					✓			✓			✓		✓	✓						✓	✓
Pre-Disaster Mitigation Program	✓					✓	✓							✓	✓						✓	
Hazard Mitigation Grant Program	✓						✓							✓	✓						✓	✓

3.3.4 Education and Outreach Capabilities

The profile survey collected information about access to existing education and outreach programs that could be used to implement mitigation activities.

Programs and Organizations *(Community Profile, Part 2C, Question 1)*

In Part 2C of the Community Profile Survey, jurisdictions were asked to state the usefulness of regional and local outreach programs and methods to implement mitigation activities and/or communicate hazard-related information.

Table 3.16 shows which methods were considered useful for implementation.

Table 3.17 and Table 3.18 describe relevant measures incorporated into the HMP as stated by the jurisdiction.

Supplemental information about education and outreach capabilities by jurisdiction is available in **Attachment 3.2** and includes responses on: was the method useful for communication; and, was the method reviewed as part of the HMP update.

Table 3.16: Useful Outreach and Awareness Programs for Mitigation Activities by Jurisdiction																
PROGRAM/ORGANIZATION IS USEFUL TO IMPLEMENT MITIGATION STRATEGIES	**Cass County**	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore	**Clay County**	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD
Existing Warning Systems																
Storm sirens	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mass notification systems	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓		
CMAS												✓				
MEMC Project Community Alert	✓			✓	✓			✓		✓		✓				
National Weather Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kansas City Scout	✓	✓	✓		✓			✓				✓	✓			
Community Partnerships																
Regional Homeland Security Coordinating Committee				✓				✓			✓	✓		✓		
Metropolitan Emergency Managers Committee		✓		✓	✓		✓	✓	✓	✓		✓				
Mid-America Local Emergency Planning Committee		✓	✓	✓	✓		✓	✓	✓	✓		✓				
Mid-America Regional Council Emergency Rescue Committee		✓	✓	✓	✓				✓	✓	✓	✓		✓		
Metropolitan Official Health Agencies of the Kansas City Area				✓						✓		✓				
Regional 9-1-1 System		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
SAVE Coalition				✓										✓		
Kansas City Organizations Active in Disaster				✓		✓										
Community Emergency Response Team		✓	✓	✓	✓		✓	✓		✓		✓	✓	✓		
Medical Reserve Corps of Greater Kansas City				✓			✓	✓		✓		✓				
Successful Small Cities: A Technical Tool Kit		✓					✓									
Water Natural Resources Protection (NRI, WRP3)				✓			✓	✓								
Storm Shelter Model Ordinance		✓			✓	✓										
Ongoing public education or information program		✓		✓	✓		✓	✓		✓				✓		
Natural disaster or safety-related school program		✓			✓	✓	✓					✓				
StormReady certification		✓			✓		✓	✓		✓		✓				✓
Firewise Communities certification					✓							✓				
Public-private partnership initiatives (disaster-related)		✓		✓		✓	✓	✓				✓				
Media coverage and public awareness	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓				✓

Table 3.16: Useful Outreach and Awareness Programs for Mitigation Activities by Jurisdiction (Continued)																
PROGRAM/ORGANIZATION IS USEFUL TO IMPLEMENT MITIGATION STRATEGIES	**Jackson County**	Blue Springs	Grandview	Independence	Kansas City, MO	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD	**Platte County**	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis
Existing Warning Systems																
Storm sirens	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Mass notification systems	✓	✓	✓	✓	✓		✓		✓	✓	✓				✓	
CMAS	✓					✓	✓		✓							
MEMC Project Community Alert	✓			✓		✓		✓	✓	✓	✓					✓
National Weather Service	✓	✓		✓	✓	✓			✓	✓	✓	✓			✓	
Kansas City Scout	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
Community Partnerships																
Regional Homeland Security Coordinating Committee	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓				✓
Metropolitan Emergency Managers Committee	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓
Mid-America Local Emergency Planning Committee	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓				✓
Mid-America Regional Council Emergency Rescue Committee	✓	✓	✓	✓		✓			✓			✓				
Metropolitan Official Health Agencies of the Kansas City Area	✓	✓		✓			✓	✓			✓					
Regional 9-1-1 System	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
SAVE Coalition	✓	✓					✓	✓	✓	✓	✓				✓	
Kansas City Organizations Active in Disaster	✓			✓	✓		✓	✓	✓	✓	✓					✓
Community Emergency Response Team	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Medical Reserve Corps of Greater Kansas City	✓			✓				✓		✓	✓					✓
Successful Small Cities: A Technical Tool Kit	✓															
Water Natural Resources Protection (NRI, WRP3)	✓									✓						
Storm Shelter Model Ordinance									✓	✓						
Ongoing public education or information program	✓			✓	✓	✓	✓	✓	✓	✓	✓				✓	
Natural disaster or safety-related school program	✓				✓	✓	✓	✓	✓	✓	✓					
StormReady certification	✓			✓		✓				✓	✓					
Firewise Communities certification																✓
Public-private partnership initiatives (disaster-related)	✓				✓											
Media coverage and public awareness	✓			✓	✓	✓	✓	✓	✓	✓	✓				✓	

Table 3.16: Useful Outreach and Awareness Programs for Mitigation Activities by Jurisdiction (Continued)													
PROGRAM/ORGANIZATION IS USEFUL TO IMPLEMENT MITIGATION STRATEGIES	Northmoor	Parkville	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD	**Ray County**	Richmond
Existing Warning Systems													
Storm sirens	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓
Mass notification systems	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	
CMAS					✓		✓						
MEMC Project Community Alert		✓	✓		✓		✓		✓				
National Weather Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Kansas City Scout	✓		✓		✓		✓		✓	✓			
Community Partnerships													
Regional Homeland Security Coordinating Committee	✓	✓	✓		✓		✓		✓	✓			
Metropolitan Emergency Managers Committee	✓	✓	✓	✓	✓		✓		✓				
Mid-America Local Emergency Planning Committee	✓	✓	✓		✓		✓		✓	✓			
Mid-America Regional Council Emergency Rescue Committee	✓				✓				✓				
Metropolitan Official Health Agencies of the Kansas City Area	✓				✓		✓		✓			✓	
Regional 9-1-1 System	✓	✓	✓	✓	✓		✓	✓	✓				✓
SAVE Coalition	✓		✓		✓		✓						
Kansas City Organizations Active in Disaster	✓	✓	✓				✓						
Community Emergency Response Team	✓	✓	✓		✓		✓		✓				
Medical Reserve Corps of Greater Kansas City	✓	✓	✓		✓		✓		✓				
Successful Small Cities: A Technical Tool Kit	✓												
Water Natural Resources Protection (NRI, WRP3)	✓				✓		✓						
Storm Shelter Model Ordinance	✓						✓						✓
Ongoing public education or information program	✓	✓	✓	✓	✓		✓			✓			✓
Natural disaster or safety-related school program			✓				✓			✓			✓
StormReady certification	✓	✓	✓		✓		✓						
Firewise Communities certification	✓									✓			
Public-private partnership initiatives (disaster-related)	✓	✓			✓				✓				
Media coverage and public awareness	✓	✓	✓	✓	✓		✓		✓	✓			✓

Table 3.17: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Cass, Clay, and Jackson County	
Outreach Resource	**Cass County**
Storm Sirens	Lake Winnebago: New warning system in place Peculiar: Emergency sirens installed
Mass Notification Systems	Harrisonville: CodeRed program Peculiar: Mass email and cell phone notification available Raymore: Internal CodeRed; Mass CodeRed; and Social Media
SAVE Coalition	Raymore: City could request SAVE if needed
Water Natural Resources Protection (NRI, WRP3)	Raymore: Part of city's illicit elimination and detection program
Storm Shelter Model Ordinance	Belton: Review with Planning Commission
Natural Disaster or Safety-Related School Program	Peculiar: School Resource Officer Raymore: Full-time community and school outreach officer
StormReady Certification	Harrisonville: Have applied in the past Peculiar: Chief of Police is certified
Firewise Certification	Belton: Do not have Peculiar: West Peculiar Fire District Chief is certified
Public-Private Partnership Initiatives (disaster-related)	Raymore: Local churches and businesses are routine mitigation partners
Media Coverage and Public Awareness	Raymore: Local media, social media, and community outreach all used to raise public awareness
Outreach Resource	**Clay County**
Storm Sirens	Kearney: Used to communicate tornado warnings and other severe weather Liberty: utilized for outdoor notification for tornadic activity
Mass Notification Systems	Kearney: Kearney Police Department (KPD) participates in NIXEL and has an active Facebook page Liberty: Send mass texts and emails
CMAS	Kearney: KPD participates in NIXEL
National Weather Service	Kearney: MERS is received on KPD radios
Kansas City Scout	Kearney: Not available in the city limits
Regional Homeland Security Coordinating Committee	Kearney Fire & Rescue Protection District (KFRPD) & KPD receive their notices
Mid-America Regional Council Emergency Rescue Committee	Kearney: KFRPD participates in this organization and implements their activities
Regional 9-1-1 System	Reverse 9-1-1 is available
Community Emergency Response Team	Kearney: No such team in Kearney, though the KFRPD is considering
Storm Shelter Model Ordinance	Kearney: Building Code includes provisions for constructing safe rooms

Table 3.17: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Cass, Clay, and Jackson County	
Outreach Resource	**Jackson County**
Natural Disaster or Safety-Related School Program	Kearney: KPD participates in the school districts fire/disaster/intruder safety drills Liberty: Teach fire safety in the schools
Media Coverage and Public Awareness	Kearney: Local channel 2 is made available by Fairport
Storm Sirens	Jackson County: County addition to Lake Jacomo and Blue Springs Lake Blue Springs: Weather warning Oak Grove: Emergency Management uses Outdoor Warning Sirens with voice public address for numerous other emergency messages and hazards other than weather Sni Valley FPD: Outdoor warning siren in Bates City only; Oak Grove Voice System
Mass Notification Systems	Blue Springs: CodeRed reverse 911 Independence: EP uses Readytohelp.org for SMS-Currently do not have a comprehensive mass notification system that can be used for contact with the general public. Oak Grove: Emergency Management uses NIXLE.com for emergency messaging Sni Valley FPD: NIXLE.com use for mass notification
CMAS	Oak Grove: WEA will be used through Jackson County for emergency messaging in addition to NIXLE when all end user capability is in place. Sni Valley FPD: Available through Jackson County EMA
MEMC Project Community Alert	Independence: EP staff participated in Weather Radio programming event in May 2014 Oak Grove: This is not a warning system-public education/community partnership to educate about and sell NOAA radios Sni Valley FPD: This is not a warning system-public education/community partnership to educate about and sell NOAA radios
National Weather Service	Jackson County: Annual County level weather training Blue Springs: Weather information sharing Independence: EP staff distributes NWS forecast daily to all city employees. EP uses NWS chat during weather events Oak Grove: NOAA Radio Sni Valley: NOAA Radio
Kansas City Scout	Jackson County: Emergency Services (EOC) Belton: Information sharing Independence: Utilized during EOC activations for increased situational awareness Oak Grove: Used to provide notice of incidents affecting highways; provides weather emergency information on message boards and text messages Sni Valley FPD: Same as Oak Grove

Table 3.17: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Cass, Clay, and Jackson County	
Regional Homeland Security Coordinating Committee	Jackson County: Active member Independence: Attended by EP Staff Oak Grove: Provides overall oversight of emergency programs Sni Valle FPD: Provides overall oversight of MARC emergency programs
Mid-America Emergency Managers Committee	Jackson County: Active member Independence: Attended by EP Staff Oak Grove: Provides networking between emergency managers and supervises numerous programs including Regional Disaster Planning Project Community Alert Sni Valle FPD: Same as Oak Grove
Mid-America Local Emergency Planning Committee	Jackson County: Active member Independence: Attended by EP Staff Oak Grove: Provides networking and planning for Hazardous Material incidents Sni Valley FPD: Same as Oak Grove
Mid-America Regional Council Emergency Rescue Committee	Independence: EP considering attending Oak Grove: Provides planning for emergency medical response including ambulances and hospitals Sni Valley FPD: Same as Oak Grove
Metropolitan Official Health Agencies of the Kansas City Area	Independence: Health currently attends
Regional 9-1-1 System	Jackson County: PSAPs at EJC EOC and Jackson County Sheriff's Office Independence: EP not currently attending Sni Valley: Coordinates 911 center operations
SAVE Coalition	Oak Grove: SEMA sponsored damage assessment program using architects, engineers, and building officials Sni Valley: Same as Oak Grove
Kansas City Organizations Active in Disaster	Jackson County: KC VOAD Independence: Attended by EP Staff Oak Grove: Coordinates community and voluntary organizations Sni Valley FPD: Same as Oak Grove
Community Emergency Response Team	Independence: EP has a team in place-Two classes scheduled each year, one in Spring, one in the fall. Oak Grove: Trains citizens to become basic level emergency responders Sni Valley: Same as Oak Grove
Medical Reserve Corps of Greater Kansas City	Independence: EP currently meeting with MRC to try and house program here Oak Grove: Provides organized group of medical personnel available for disasters Sni Valley: Same as Oak Grove

Table 3.17: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Cass, Clay, and Jackson County	
Successful Small Cities: A Technical Tool Kit	Kansas City: Not applicable Sni Valley FPD: Found to have many measures not compatible with community or other planning and safety guidance
Storm Shelter Model Ordinance	Kansas City: only have an ordinance for mobile home parks Sni Valley FPD: Extreme resistance from developers; good standard for voluntary shelters
Ongoing Public Education or Information Program	Independence: EP distributes information at several events throughout the year Oak Grove: Oak Grove EMA Safety Information Program Sni Valley FPD: Same as Oak Grove
Natural Disaster or Safety-Related School Program	Oak Grove: 4th Grade Safety Education at Oak Grove R-VI Schools by Sni Valley FPD Sni Valley: Same as Oak Grove
StormReady Certification	Jackson County: County level StormReady Certification Independence: EP Staff renewed in November 2014 Oak Grove: Not applicable for Oak Grove-Sni Valley due to program requirements
Firewise Certification	Kansas City: Do not have this certification
Media Coverage and Public Awareness	Independence: City recently hired PIO; Public awareness campaign is under development Sni Valley: EMA uses combination for pamphlets, Local Access TV, Websites, print media, and public events

Table 3.18: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Platte and Ray County	
Outreach Resource	**Platte County**
Storm Sirens	Platte County: Monthly tests and state wide testing Dearborn: Used in severe weather Houston Lake: Sirens from surrounding close communities are used to alert this community Lake Waukomis: KCMO sounds sirens around city Platte City: New siren by city hall and recently upgraded and integrated Emmy Lane siren to the county activation Platte Woods: Siren system activated by KCMO Tracy: Platte County sirens heard throughout city Weatherby Lake: Storm sirens tested every month on the first Wednesday
Mass Notification Systems	Platte County: Numerous forms Dearborn: School sends periodic notifications Houston Lake: Web, TextCaster, social media, local phone tree Parkville: TextCaster through the County Platte City: NIXLE Platte Wood: NIXLE Weatherby Lake: TextCaster; NIXLE
CMAS	Dearborn: City does not have its own CMAS and relies on the county Weatherby Lake: Available within the city limits and surrounding areas
MEMC Project Community Alert	Platte County: Price Copper every year during storm seasons Dearborn: County provides this service Lake Waukomis: County provides the service Parkville: 2013 and 2014 Price Chopper made weather radios available Platte City: Annual severe weather week at local Price Chopper Weatherby Lake: Done yearly at the local Price Chopper and local events
National Weather Service	Platte County: Pleasant Hill Dearborn: County works with this organization Houston Lake: Member of NWS Weather Ambassador Lake Waukomis: Television; Internet Tracy: Get Alert Emails through City Hall Internet Weatherby Lake: Have this group in MEMC meetings and online with NWS Chat
Kansas City Scout	Platte County: New in Platte County Dearborn: County works with this service Platte City: In the last five year this has incorporated I29 in Platte City Weatherby Lake: In use on the major highways (I29, I635)

Table 3.18: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Platte and Ray County	
Regional Homeland Security Coordinating Committee	Platte County: Emergency Management is part of this organization Dearborn: Through the county Parkville: Through the county Weatherby Lake: Attend meetings on annual basis Platte City: Through the county
Mid-America Emergency Managers Committee	Platte County: Emergency Management team are members Dearborn: Through the county Houston Lake: Open communication avenues and liaisons Platte City: Through the county Weatherby Lake: Attend meetings on a regular basis
Mid-America Local Emergency Planning Committee	Platte County: Emergency Management is part of this Dearborn: Through the county Houston Lake: Open communication avenues and liaisons Platte City: Through the county Weatherby Lake: Attend meetings on a regular basis
Metropolitan Official Health Agencies of the Kansas City Area	Dearborn: County provides this service Weatherby Lake: Platte County Health Department is a valued member
Regional 9-1-1 System	Platte County: Platte County is a PSAP Dearborn: Through the county Lake Waukomis: Platte County is the 911 Center Platte City: Through the county Weatherby Lake: Platte County Communication Center is our 911 center
SAVE Coalition	Platte County: Emergency Management specialist are members Dearborn: Through the county Houston Lake: Emergency Management Director/Mayor ProTem is an active member Platte City: Through the State of Missouri Weatherby Lake: Several CERT members are part of this group
Kansas City Organizations Active in Disaster	Platte County: Emergency Management is a member Dearborn: Through the county Lake Waukomis: Through the county Platte City: Through the county Weatherby Lake: Attend meetings on a regular basis

Table 3.18: Relevant Measures Incorporated into HMP (Education and Outreach Resources) – Platte and Ray County	
Community Emergency Response Team	Platte County: Platte County has been involved in CERT since 2003 Dearborn: Through the county Lake Waukomis: Pay through the county Houston Lake: Ongoing CERT team recruitment and part of Northland CERT Team Platte City: Through the county and city classes Weatherby Lake: Several residents have taken the class
Medical Reserve Corps of Greater Kansas City	Platte County: Platte County recognizes this group Dearborn: The region has this service Platte City: MARC Weatherby Lake: Aware of the group
Water Natural Resources Protection (NRI, WRP3)	Platte County We are aware and work with NCRS
Storm Shelter Model Ordinance	Platte County: It is in the building code IBC 2012 Weatherby Lake: Nothing on the books at this time
Ongoing Public Education or Information Program	Platte County: Continued education throughout the year Dearborn: Through the county Platte City: Monthly Newsletter; NIXLE Weatherby Lake: With special events
Natural Disaster or Safety-Related School Program	Platte County: Promoted by Planning and Zoning along with Emergency Management Dearborn: School has this program Platte City: Platte County RIII Weatherby Lake: Park Hill School District
StormReady Certification	Platte County: 2013 to 2016 Dearborn: Through the county Lake Waukomis: Through the county Parkville: Through the county Weatherby Lake: Through the county Platte City: Through the county
Media Coverage and Public Awareness	Platte County: PIO on a regional effort Dearborn: County provides this service Platte City: City Administrator and use Platte County PIO Weatherby Lake: Local media works well with the community
Outreach Resource	**Ray County**
Mass Notification Systems	Ray County: Included as local warning capability
National Weather Service	Ray County: Work with routinely for storm information

3.3.5 Safe Growth Audit

Data Limitation: The Safe Growth Audit Tables, Table 3.19-Table 3.24, are presented for Cass, Clay, Jackson, Platte and Ray Counties and their respective jurisdictions. Responses are based on data received from the community profile survey. Supplemental information by jurisdiction about relevant measures incorporated into the HMP for each audit component is included in Attachment 3.2.

Table 3.19: Safe Growth Audit Summary for Cass County	Cass County	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore
Land Use							
Land use policies define an urban services area.	✓		✓		✓		
Land use policies contain provisions for hazard zone identification.			✓		✓		
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓	✓	✓		✓	✓	
The future land use map in the comprehensive plan clearly identifies natural hazard areas.			✓				
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	✓		✓		✓	✓	
Land use policies require storm water engineering studies prior to development.	✓	✓	✓		✓	✓	
Transportation							
The transportation plan limits access to hazard areas.							
Transportation policy is used to guide future growth to safe locations.			✓		✓		
Movement systems are designed to function under disaster conditions (e.g. evacuation).			✓		✓		
Environmental Management							
Environmental systems that protect development from hazards are identified and mapped.					✓		✓
Environmental policies maintain and restore protective ecosystems.	✓		✓		✓		✓
Environmental policies provide incentives to development located outside protective ecosystems.							✓
Public Safety							
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.			✓			✓	
Safety is explicitly included in the plan's growth and development policies.			✓				
The monitoring and implementation section of the plan covers safe growth objectives.			✓				
Building Codes							
The building code contains provisions to elevate construction to withstand hazard forces.	✓	✓	✓		✓	✓	✓
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓	✓	✓		✓	✓	✓
The code contains safe room or storm shelter requirements.		✓	✓		✓	✓	

Table 3.19: Safe Growth Audit Summary for Cass County	Cass County	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore
Zoning Ordinance							
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.	✓	✓			✓	✓	
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.	✓				✓		✓
The zoning ordinance contains mitigation performance standards.					✓		✓
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓	✓			✓	✓	✓
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	✓				✓		✓
Subdivision Regulations							
Subdivision regulations contain an adopted hazard disclosure.							✓
The regulations contain a provision for soil report evaluations.							
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.					✓	✓	✓
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.							✓
The regulations allow density transfers where hazard exists.							
Capital Improvement Program and Infrastructure Policies							
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.							
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.							
The capital improvements program provides funding for hazard mitigation projects.		✓	✓		✓	✓	
Other							
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.	✓		✓		✓		
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.	✓	✓	✓		✓	✓	✓
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.	✓	✓	✓		✓		

Table 3.20: Safe Growth Audit Summary for Clay County	Clay County	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD
Land Use									
Land use policies define an urban services area.	✓	✓		✓	✓				
Land use policies contain provisions for hazard zone identification.	✓			✓	✓	✓		✓	
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓			✓	✓	✓		✓	
The future land use map in the comprehensive plan clearly identifies natural hazard areas.	✓			✓	✓			✓	
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	✓			✓	✓			✓	
Land use policies require storm water engineering studies prior to development.	✓		✓	✓	✓			✓	
Transportation									
The transportation plan limits access to hazard areas.			✓		✓				
Transportation policy is used to guide future growth to safe locations.			✓	✓	✓				
Movement systems are designed to function under disaster conditions (e.g. evacuation).	✓		✓		✓				
Environmental Management									
Environmental systems that protect development from hazards are identified and mapped.	✓				✓				
Environmental policies maintain and restore protective ecosystems.	✓			✓	✓				
Environmental policies provide incentives to development located outside protective ecosystems.	✓			✓	✓				
Public Safety									
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.	✓		✓	✓	✓	✓			✓
Safety is explicitly included in the plan's growth and development policies.	✓		✓		✓			✓	✓
The monitoring and implementation section of the plan covers safe growth objectives.	✓		✓		✓				✓
Building Codes									
The building code contains provisions to elevate construction to withstand hazard forces.	✓		✓	✓	✓	✓	✓	✓	
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓		✓	✓	✓		✓	✓	
The code contains safe room or storm shelter requirements.			✓	✓	✓				

Table 3.20: Safe Growth Audit Summary for Clay County	Clay County	Excelsior Springs	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville	Fishing River FPD
Zoning Ordinance									
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.	✓		✓	✓	✓	✓	✓	✓	
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.	✓			✓	✓		✓	✓	
The zoning ordinance contains mitigation performance standards.	✓		✓	✓	✓			✓	
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓		✓	✓	✓	✓			
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	✓		✓	✓	✓	✓		✓	
Subdivision Regulations									
Subdivision regulations contain an adopted hazard disclosure.			✓				✓		
The regulations contain a provision for soil report evaluations.								✓	
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.	✓		✓	✓	✓			✓	
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.	✓			✓	✓			✓	
The regulations allow density transfers where hazard exists.	✓			✓					
Capital Improvement Program and Infrastructure Policies									
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.	✓		✓		✓			✓	
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.	✓		✓		✓	✓		✓	
The capital improvements program provides funding for hazard mitigation projects.	✓		✓		✓				
Other									
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.	✓		✓		✓				
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.	✓		✓		✓		✓		
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.	✓				✓	✓			

Table 3.21: Safe Growth Audit Summary for Jackson County	Jackson County	Blue Springs	Grandview	Independence	Kansas City, MO	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Land Use									
Land use policies define an urban services area.	✓								
Land use policies contain provisions for hazard zone identification.	✓			✓		✓	✓		
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓			✓		✓	✓		
The future land use map in the comprehensive plan clearly identifies natural hazard areas.	✓			✓		✓			
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	✓			✓		✓			
Land use policies require storm water engineering studies prior to development.	✓			✓		✓	✓		
Transportation									
The transportation plan limits access to hazard areas.						✓			
Transportation policy is used to guide future growth to safe locations.	✓					✓	✓		
Movement systems are designed to function under disaster conditions (e.g. evacuation).	✓						✓		
Environmental Management									
Environmental systems that protect development from hazards are identified and mapped.	✓			✓		✓	✓		
Environmental policies maintain and restore protective ecosystems.	✓			✓	✓	✓	✓		
Environmental policies provide incentives to development located outside protective ecosystems.	✓						✓		
Public Safety									
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.	✓			✓			✓		
Safety is explicitly included in the plan's growth and development policies.	✓			✓			✓		
The monitoring and implementation section of the plan covers safe growth objectives.	✓						✓		
Building Codes									
The building code contains provisions to elevate construction to withstand hazard forces.	✓			✓	✓		✓		✓
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓			✓	✓	✓	✓		✓
The code contains safe room or storm shelter requirements.	✓			✓	✓		✓		✓

Table 3.21: Safe Growth Audit Summary for Jackson County	Jackson County	Blue Springs	Grandview	Independence	Kansas City, MO	Lee's Summit	Oak Grove	Raytown	Sni Valley FPD
Zoning Ordinance									
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.	✓			✓	✓	✓	✓		
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.	✓			✓	✓	✓	✓		
The zoning ordinance contains mitigation performance standards.				✓			✓		
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓			✓	✓	✓	✓		
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	✓			✓	✓		✓		
Subdivision Regulations									
Subdivision regulations contain an adopted hazard disclosure.	✓				✓	✓	✓		
The regulations contain a provision for soil report evaluations.	✓			✓	✓		✓		
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.	✓			✓	✓	✓	✓		
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.	✓			✓	✓	✓	✓		
The regulations allow density transfers where hazard exists.	✓			✓	✓	✓			
Capital Improvement Program and Infrastructure Policies									
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.	✓					✓			✓
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.	✓			✓		✓			✓
The capital improvements program provides funding for hazard mitigation projects.	✓			✓		✓	✓		✓
Other									
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.	✓				✓	✓	✓		
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.	✓			✓	✓		✓		✓
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.	✓			✓	✓	✓			

Table 3.22: Safe Growth Audit Summary for Platte County, Part 1	Platte County	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville
Land Use									
Land use policies define an urban services area.	✓								
Land use policies contain provisions for hazard zone identification.	✓					✓			
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓				✓	✓			✓
The future land use map in the comprehensive plan clearly identifies natural hazard areas.	✓				✓	✓			✓
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	✓								✓
Land use policies require storm water engineering studies prior to development.	✓				✓				✓
Transportation									
The transportation plan limits access to hazard areas.	✓					✓			
Transportation policy is used to guide future growth to safe locations.	✓					✓			
Movement systems are designed to function under disaster conditions (e.g. evacuation).	✓							✓	
Environmental Management									
Environmental systems that protect development from hazards are identified and mapped.	✓					✓			
Environmental policies maintain and restore protective ecosystems.	✓								
Environmental policies provide incentives to development located outside protective ecosystems.									
Public Safety									
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.	✓					✓		✓	
Safety is explicitly included in the plan's growth and development policies.	✓					✓		✓	
The monitoring and implementation section of the plan covers safe growth objectives.	✓							✓	
Building Codes									
The building code contains provisions to elevate construction to withstand hazard forces.	✓					✓		✓	✓
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓					✓		✓	✓
The code contains safe room or storm shelter requirements.	✓								

Table 3.22: Safe Growth Audit Summary for Platte County, Part 1	Platte County	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville
Zoning Ordinance									
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.	✓				✓	✓			
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.						✓			
The zoning ordinance contains mitigation performance standards.	✓								
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓				✓	✓			✓
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.						✓			
Subdivision Regulations									
Subdivision regulations contain an adopted hazard disclosure.	✓								
The regulations contain a provision for soil report evaluations.									
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.	✓								
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.	✓								
The regulations allow density transfers where hazard exists.									
Capital Improvement Program and Infrastructure Policies									
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.									
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.	✓					✓			
The capital improvements program provides funding for hazard mitigation projects.	✓								
Other									
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.	✓								
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.	✓								
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.									

Table 3.23: Safe Growth Audit Summary for Platte County, Part 2	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD
Land Use									
Land use policies define an urban services area.		✓						✓	
Land use policies contain provisions for hazard zone identification.							✓		
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓		✓			✓	✓		
The future land use map in the comprehensive plan clearly identifies natural hazard areas.							✓		
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	✓		✓				✓		
Land use policies require storm water engineering studies prior to development.	✓	✓	✓	✓	✓	✓	✓		
Transportation									
The transportation plan limits access to hazard areas.	✓								
Transportation policy is used to guide future growth to safe locations.	✓								
Movement systems are designed to function under disaster conditions (e.g. evacuation).			✓						
Environmental Management									
Environmental systems that protect development from hazards are identified and mapped.	✓						✓		
Environmental policies maintain and restore protective ecosystems.	✓								
Environmental policies provide incentives to development located outside protective ecosystems.	✓								
Public Safety									
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.	✓	✓			✓		✓		
Safety is explicitly included in the plan's growth and development policies.	✓	✓			✓		✓		
The monitoring and implementation section of the plan covers safe growth objectives.	✓				✓	✓	✓		
Building Codes									
The building code contains provisions to elevate construction to withstand hazard forces.	✓	✓			✓	✓			
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓	✓			✓				
The code contains safe room or storm shelter requirements.									

Table 3.23: Safe Growth Audit Summary for Platte County, Part 2	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Northland RAD	Southern Platte FPD	West Platte FPD
Zoning Ordinance									
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.	✓	✓	✓			✓	✓		
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.		✓				✓			
The zoning ordinance contains mitigation performance standards.	✓								
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓					✓			
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	✓					✓			
Subdivision Regulations									
Subdivision regulations contain an adopted hazard disclosure.									
The regulations contain a provision for soil report evaluations.	✓					✓			
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.	✓					✓			
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.	✓		✓		✓	✓			
The regulations allow density transfers where hazard exists.			✓						
Capital Improvement Program and Infrastructure Policies									
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.	✓								
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.	✓								
The capital improvements program provides funding for hazard mitigation projects.	✓		✓						
Other									
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.									
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.		✓				✓			
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.	✓	✓				✓			

Table 3.24: Safe Growth Audit Summary for Ray County	Ray County	Richmond
Land Use		
Land use policies define an urban services area.		✓
Land use policies contain provisions for hazard zone identification.		
Land use policies discourage development and/or redevelopment within natural hazard areas.	✓	
The future land use map in the comprehensive plan clearly identifies natural hazard areas.		✓
The comprehensive plan provides adequate space for expected future growth in areas located outside of natural hazard areas.		✓
Land use policies require storm water engineering studies prior to development.		✓
Transportation		
The transportation plan limits access to hazard areas.		
Transportation policy is used to guide future growth to safe locations.		
Movement systems are designed to function under disaster conditions (e.g. evacuation).		
Environmental Management		
Environmental systems that protect development from hazards are identified and mapped.		
Environmental policies maintain and restore protective ecosystems.		
Environmental policies provide incentives to development located outside protective ecosystems.		
Public Safety		
The goals and policies of the comprehensive plan are related to those of the Hazard Mitigation Plan.		
Safety is explicitly included in the plan's growth and development policies.		
The monitoring and implementation section of the plan covers safe growth objectives.		
Building Codes		
The building code contains provisions to elevate construction to withstand hazard forces.	✓	✓
The code contains wind resistance provisions to strengthen construction to withstand hazard forces.	✓	✓
The code contains safe room or storm shelter requirements.		✓
Zoning Ordinance		
The zoning ordinance conforms to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas.		✓
The ordinance contains natural hazard overlay zones or districts that set conditions for land use within such zones.		
The zoning ordinance contains mitigation performance standards.		
The ordinance prohibits development within, or filling of, wetlands, floodways, and floodplains.	✓	✓
Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	✓	

Table 3.24: Safe Growth Audit Summary for Ray County	Ray County	Richmond
Subdivision Regulations		
Subdivision regulations contain an adopted hazard disclosure.		
The regulations contain a provision for soil report evaluations.	✓	
The regulations restrict the subdivision of land within or adjacent to natural hazard areas.	✓	
The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.	✓	
The regulations allow density transfers where hazard exists.		
Capital Improvement Program and Infrastructure Policies		
The capital improvements program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.		
Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.		
The capital improvements program provides funding for hazard mitigation projects.		
Other		
Small area or corridor plans recognize the need to avoid or mitigate natural hazards.		
An evacuation and shelter plan is adopted to deal with emergencies from natural hazards.		
Economic development and/or redevelopment strategies include provisions for mitigating natural hazards.		

3.3.6 Floodplain Management and NFIP Participation

Nearly all of the jurisdictions participating in the 2015 Plan update are also participants in the National Flood Program. See Table 3.25 for a list of participants. Platte Woods is listed as a participant; however, the city does not have a special flood hazard area. Weatherby Lake is considering participation in 2015.

Table 3.25: National Flood Program (NFIP) Participation

Participant	NFIP Participant	Good Standing	Compliance Issues	CAV (last 5 years)	Reason if not an NFIP Participant
Cass County	X	X			
Belton	X	X			
Harrisonville	X	X		X	
Lake Winnebago	X	X		X	
Peculiar	X	X		X	
Pleasant Hill	X	X			
Raymore	X	X			
Clay County	X	X			
Excelsior Springs	X	X			
Gladstone	X	X			
Kearney	X	X			
Liberty	X	X			
Mosby	X	X			
North Kansas City	X	X		X	
Smithville	X	X			
Jackson County	X	X		X	
Blue Springs	X	X			
Grandview	X	X			
Independence	X	X		X	
Kansas City, Mo.	X	X		X	
Lee's Summit	X	X	X	X	
Oak Grove	X	X		X	
Raytown	X	X			
Platte County	X	X		X	
Dearborn	X	X			
Edgerton	X	X			
Farley	X	X			
Ferrelview	X	X			
Houston Lake	X	X			
Lake Waukomis	X	X			
Northmoor	X	X			
Parkville	X	X			
Platte City	X	X			
Platte Woods	X	X			No SFHA
Riverside	X	X		X	
Tracy	X	X			
Weatherby Lake	No				Plan currently under 2015 review
Weston	X	X		X	
Ray County	X	X		X	
Richmond	X	X			

CAV = Community Assistance Visit Sources: FEMA Community Status Book/Community Profile Survey

NFIP Insurance Status

Table 3.26 provides a summary of policies in force for jurisdictions in the five-county planning area. This information was obtained from the FEMA NFIP online database.

Table 3.26: NFIP Policy Statistics as of 2/28/2015 by Jurisdiction			
Community	**Policies In-force**	**Insurance In-force whole $**	**Written Premium In-force $**
CASS COUNTY	60	11,178,600	59,315
CLAY COUNTY	34	6,062,600	28,690
JACKSON COUNTY	50	10,307,500	41,580
PLATTE COUNTY	125	25,107,600	79,397
RAY COUNTY	53	7,091,000	48,083
LEE'S SUMMIT, CITY OF	131	31,357,200	76,521
ARCHIE, CITY OF	2	490,000	939
BELTON, CITY OF	14	2,946,700	11,204
EAST LYNNE, CITY OF	3	523,700	3,409
FREEMAN, CITY OF	1	190,200	1,193
GARDEN CITY, CITY OF	2	203,000	874
HARRISONVILLE, CITY OF	17	2,571,900	13,390
LAKE ANNETTE, CITY OF	2	198,400	1,746
LAKE WINNEBAGO, CITY OF	10	3,221,900	9,546
PECULIAR, CITY OF	14	2,361,600	12,423
PLEASANT HILL, CITY OF	37	3,286,400	23,206
RAYMORE, CITY OF	27	6,502,000	11,053
RIVERVIEW ESTATES, VILLAGE OF	1	280,000	429
AVONDALE,CITY OF	10	745,300	7,921
CLAYCOMO, VILLAGE OF	19	2,767,700	23,517
EXCELSIOR SPRINGS, CITY OF	22	4,128,400	35,025
GLADSTONE, CITY OF	48	8,725,800	51,896
GLENAIRE, CITY OF	3	230,000	1,135
HOLT, CITY OF	3	456,700	1,505
INDEPENDENCE,CITY OF	199	38,681,100	171,829
KANSAS CITY, CITY OF	766	249,694,500	1,559,337
KEARNEY, CITY OF	2	584,300	905
LAWSON, CITY OF	1	210,000	390
LIBERTY, CITY OF	38	8,512,500	44,065
MISSOURI CITY, CITY OF	13	959,100	8,382
MOSBY, CITY OF	23	2,480,900	24,893
NORTH KANSAS CITY, CITY OF	106	27,009,600	116,454
PLEASANT VALLEY, CITY OF	3	740,600	1,269
PRATHERSVILLE, VILLAGE OF	5	680,200	7,837
RANDOLPH, VILLAGE OF	2	104,200	1,499
SMITHVILLE, CITY OF	97	16,471,900	106,911
SUGAR CREEK, CITY OF	11	1,092,800	11,264
BLUE SPRINGS, CITY OF	34	34	24,322
BUCKNER, CITY OF	16	2,025,900	16,205
GRAIN VALLEY, CITY OF	50	8,004,500	21,882

Table 3.26: NFIP Policy Statistics as of 2/28/2015 by Jurisdiction			
Community	**Policies In-force**	**Insurance In-force whole $**	**Written Premium In-force $**
GRANDVIEW, CITY OF	18	4,252,500	10,540
GREENWOOD, CITY OF	6	2,139,200	12,808
LAKE LOTAWANA, CITY OF	8	2,495,000	6,436
LEETON, CITY OF	1	70,000	269
LEVASY, CITY OF	4	751,900	2,706
OAK GROVE, CITY OF	2	379,500	2,309
RAYTOWN, CITY OF	23	4,967,900	33,965
DEARBORN, CITY OF	5	324,900	2,949
FARLEY, VILLAGE OF	2	950,000	3,340
NORTHMOOR, CITY OF	4	1,881,000	4,993
PARKVILLE, CITY OF	27	7,423,700	33,893
PLATTE CITY, CITY OF	1	56,100	636
RIVERSIDE, CITY OF	44	19,792,600	88,964
TRACY, CITY OF	2	376,400	776
WESTON, CITY OF	3	755,000	1,101
CRYSTAL LAKES	2	101,500	1,097
HARDIN, CITY OF	46	4,363,900	34,770
HENRIETTA, CITY OF	1	30,300	473
ORRICK, CITY OF	44	8,253,100	39,810
RICHMOND, CITY OF	11	1,638,400	7,755
KEARNEY, CITY OF	2	584,300	905
LAWSON, CITY OF	1	210,000	390
LIBERTY, CITY OF	38	8,512,500	44,065
MISSOURI CITY, CITY OF	13	959,100	8,382
MOSBY, CITY OF	23	2,480,900	24,893
NORTH KANSAS CITY, CITY OF	106	27,009,600	116,454
PLEASANT VALLEY, CITY OF	3	740,600	1,269
PRATHERSVILLE, VILLAGE OF	5	680,200	7,837
RANDOLPH, VILLAGE OF	2	104,200	1,499
SMITHVILLE, CITY OF	97	16,471,900	106,911
SUGAR CREEK, CITY OF	11	1,092,800	11,264
BLUE SPRINGS, CITY OF	34	34	24,322
BUCKNER, CITY OF	16	2,025,900	16,205
GRAIN VALLEY, CITY OF	50	8,004,500	21,882
GRANDVIEW, CITY OF	18	4,252,500	10,540
GREENWOOD, CITY OF	6	2,139,200	12,808
LAKE LOTAWANA, CITY OF	8	2,495,000	6,436
LEETON, CITY OF	1	70,000	269
LEVASY, CITY OF	4	751,900	2,706
OAK GROVE, CITY OF	2	379,500	2,309
RAYTOWN, CITY OF	23	4,967,900	33,965
DEARBORN, CITY OF	5	324,900	2,949
FARLEY, VILLAGE OF	2	950,000	3,340
NORTHMOOR, CITY OF	4	1,881,000	4,993

Table 3.26: NFIP Policy Statistics as of 2/28/2015 by Jurisdiction			
Community	**Policies In-force**	**Insurance In-force whole $**	**Written Premium In-force $**
PARKVILLE, CITY OF	27	7,423,700	33,893
PLATTE CITY, CITY OF	1	56,100	636
RIVERSIDE, CITY OF	44	19,792,600	88,964
TRACY, CITY OF	2	376,400	776
WESTON, CITY OF	3	755,000	1,101
CRYSTAL LAKES	2	101,500	1,097
HARDIN, CITY OF	46	4,363,900	34,770
HENRIETTA, CITY OF	1	30,300	473
ORRICK, CITY OF	44	8,253,100	39,810
RICHMOND, CITY OF	11	1,638,400	7,755
TOTAL	**1,986**	**$489,441,934**	**$2,693,966**

Source: http://bsa.nfipstat.fema.gov/reports/1011.htm

Table 3.27 provides a summary of loss statistics in the five-county planning area. This information was obtained from the FEMA NFIP online database.

Table 3.27: NFIP Loss Statistics as of 2/28/2015 by Jurisdiction					
Community	**Total Losses**	**Closed Losses**	**Open Losses**	**CWOP Losses**	**Total Payments**
CASS COUNTY	76	60	0	16	938,013.01
CLAY COUNTY	46	41	0	5	723,954.62
JACKSON COUNTY	42	35	0	7	367,738.00
PLATTE COUNTY	218	192	0	26	5,809,669.29
RAY COUNTY	49	42	0	7	659,427.76
LEE'S SUMMIT, CITY OF	79	63	0	16	849,467.78
BELTON, CITY OF	14	12	0	2	63,896.30
EAST LYNNE, CITY OF	3	2	0	1	27,085.35
FREEMAN, CITY OF	24	21	0	3	283,455.30
HARRISONVILLE, CITY OF	12	9	0	3	270,616.44
LAKE ANNETTE, CITY OF	1	0	0	1	0
LAKE WINNEBAGO, CITY OF	10	7	0	3	241,913.95
PECULIAR, CITY OF	33	28	0	5	390,557.47
PLEASANT HILL, CITY OF	62	54	0	8	352,940.94
RAYMORE, CITY OF	9	7	0	2	63,505.26
AVONDALE,CITY OF	49	46	0	3	356,277.29
BIRMINGHAM, VILLAGE OF	4	4	0	0	46,813.78
CLAYCOMO, VILLAGE OF	96	91	0	5	1,995,562.93
EXCELSIOR SPRINGS, CITY OF	98	81	0	17	1,406,477.31
GLADSTONE, CITY OF	54	40	0	14	284,504.83
GLENAIRE, CITY OF	2	1	0	1	22,253.95
INDEPENDENCE,CITY OF	344	285	0	59	2,312,933.34
KANSAS CITY, CITY OF	1,384	1,102	1	281	33,401,674.12
KEARNEY, CITY OF	1	0	0	1	0

Table 3.27: NFIP Loss Statistics as of 2/28/2015 by Jurisdiction					
Community	**Total Losses**	**Closed Losses**	**Open Losses**	**CWOP Losses**	**Total Payments**
LAWSON, CITY OF	1	1	0	0	452.73
LIBERTY, CITY OF	15	12	0	3	349,945.28
MISSOURI CITY, CITY OF	8	7	0	1	66,890.05
MOSBY, CITY OF	62	51	0	11	767,966.75
NORTH KANSAS CITY, CITY OF	11	6	0	5	82,264.82
OAKVIEW, VILLAGE OF	1	1	0	0	235
PLEASANT VALLEY, CITY OF	1	0	0	1	0
SMITHVILLE, CITY OF	94	89	0	5	609,376.83
SUGAR CREEK, CITY OF	8	5	0	3	91,600.74
BLUE SPRINGS, CITY OF	13	12	0	1	44,745.14
BUCKNER, CITY OF	13	10	0	3	33,874.14
GRAIN VALLEY, CITY OF	3	2	0	1	8,973.06
GRANDVIEW, CITY OF	32	24	0	8	166,870.45
GREENWOOD, CITY OF	1	1	0	0	55,303.51
LAKE LOTAWANA, CITY OF	4	3	0	1	40,511.96
LEVASY, CITY OF	28	21	1	6	338,483.67
OAK GROVE, CITY OF	10	7	0	3	5,116.06
RAYTOWN, CITY OF	119	94	0	25	561,863.62
DEARBORN, CITY OF	2	2	0	0	7,427.44
EDGERTON, CITY OF	17	14	0	3	78,250.08
LAKE WAUKOMIS, CITY OF	1	1	0	0	320
NORTHMOOR, CITY OF	1	1	0	0	80,143.13
PARKVILLE, CITY OF	18	12	0	6	146,500.76
PLATTE CITY, CITY OF	14	13	0	1	107,952.06
RIVERSIDE, CITY OF	81	68	0	13	7,372,561.33
TRACY, CITY OF	9	6	0	3	40,032.91
WESTON, CITY OF	11	8	0	3	105,662.86
HARDIN, CITY OF	98	83	0	15	809,918.92
HENRIETTA, CITY OF	3	3	0	0	42,511.04
ORRICK, CITY OF	30	27	0	3	527,077.82
RICHMOND, CITY OF	3	2	0	1	31,197.29
TOTAL	**2,991**	**2,439**	**2**	**550**	**54,943,965.79**

CWOP = Closed Without Payment Source: http://bsa.nfipstat.fema.gov/reports/1040.htm

Repetitive Loss Properties

The Missouri State Hazard Mitigation Plan summarizes repetitive loss properties (RPL) by county. Due to Privacy Act requirements, supplemental information on repetitive loss properties was not provided by SEMA. Table 3.28 depicts the information provided by SEMA.

Table 3.28: Number of Repetitive Loss Properties by County and Type

County	Number of Repetitive Loss Properties	Number of Losses	Residential	Commercial	Total Building Loss
Cass County	37	122	32	5	$1,475,049.32
Clay County	181	611	338	243	$8,542,687.58
Jackson County	25	71	25	2	$425,914.22
Platte County	16	43	13	3	$723,992.19
Ray County	6	17	5	1	$173,968.50

Source: http://bsa.nfipstat.fema.gov/reports/1040.htm and SEMA

According to the Missouri State Hazard Mitigation Plan, Missouri has 159 Severe Repetitive Loss (SRL) Properties in the state, of which 25 have been mitigated. However, none of those properties were located in the Kansas City planning area. Thirteen of the state's remaining 134 unmitigated properties are located in Cass, Clay, Jackson and Ray Counties. Platte County has no SRL Properties. See Table 3.29: Number of Unmitigated Severe Repetitive Loss Properties.

Table 3.29: Number of Unmitigated Severe Repetitive Loss Properties

Cass County	Clay County	Jackson County	Platte County	Ray County
3	**8**	**1**	**0**	**1**

Floodplain Management Regulations

Table 3.29 briefly summarizes the status of a jurisdiction's regulatory components to maintain compliance with the NFIP requirements.

Table 3.29: NFIP Regulatory Overview by Jurisdiction					
Jurisdiction	**Floodplain Ordinance Adopted**	**NFIP Entry Date**	**FIRMS Format**	**Floodplain Regulations**	**Permitting Process**
Cass County	X	2006	Digital	Exceeds	Apply for permit. County does pre site inspection. After construction another inspection is done to ensure compliance
Belton	X	2006	Digital	Meets	Floodplain development permit must be submitted to the City Engineer and reviewed.
Harrisonville	X		Digital	Meets	Apply, review, accept or reject
Lake Winnebago	X		Paper	Meets	Floodplain management/development Regulation Forms are part of the Building Permit packet information that must be completed for all construction permits.
Peculiar	X	1992	Digital	Meets	An applicant/developer submits our Floodplain Development Permit Application and application fee. The City Engineer then reviews the proposed improvement as to whether or not the property is within the jurisdiction of the City and numbered zone on the FIRM Map.
Pleasant Hill	X			Meets	
Raymore	X	12/27/74	Digital	Meets	Floodplain impacts are identified during the development application process. Developers must submit appropriate floodplain impact studies to FEMA for approval before they may proceed with the development.
Clay County	X	1974	Digital	Meets	
Excelsior Springs	X				
Gladstone					
Kearney	X	1979	Paper	Exceeds	Development in the floodplain requires submittal of a floodplain development permit, which is forwarded for review by the Planning & Zoning Commission and Board of Aldermen. Construction and building plans must meet the city's floodplain ordinance, including certification of compliance from an engineer registered in the State of Missouri.
Liberty	X		Digital	Meets	Must follow UDO Unified Development Ordinance
Mosby	X				
North Kansas City	X	1976	Paper	Meets	
Smithville	X	1972	Paper	Meets	Parcels in a flood zone must have engineered and surveyed drainage and submitted for review.

Table 3.29: NFIP Regulatory Overview by Jurisdiction					
Jurisdiction	**Floodplain Ordinance Adopted**	**NFIP Entry Date**	**FIRMS Format**	**Floodplain Regulations**	**Permitting Process**
Jackson County	X	1979	Digital	Meets	During the building permit process the site is reviewed against current NFIP data. Once the review and corrections or adjustments are made then the building permit is either approved and issued or held for corrections.
Blue Springs	X				
Grandview	X				
Independence	X	1978	Digital	Exceeds	When a building permit comes in, the site plan is checked for location and utilities. If it is close to a floodplain it is checked to see if it is located in the SFHA. If it is, they are notified they need a Floodplain Development permit and an EC before they get a final inspection approval which is required for a CO.
Kansas City, Mo.	X	1979	Paper	Exceeds	Properties checked at time of project submittal for floodplain location, Floodplain Development Permit/Elevation Certificate required for properties in the 100 year floodplain. Floodplain applications reviewed either independent of the construction document building code review or concurrent, at the discretion of the applicant. Floodplain Development Permit issuance required prior to issuance of construction permits.
Lee's Summit	X		Paper	Meets	A floodplain development permit from the City is required for all work within a floodplain as defined on the Flood Insurance Rate Maps (FIRM) issued by FEMA. If work which places fill within the designated floodplain is hydraulically modeled by a registered Professional Engineer, a City of Lee's Summit "No Rise Certification" may be obtained if and only if the work had no impact to the Base Flood Elevation, in addition to the FEMA-requirements for work or placement of fill within a floodplain.
Oak Grove	X	2004	Paper	Meets	Permit application with plot plan showing location. Permit issued depending on compliance with regulations.
Raytown					
Platte County	X	1982	Paper	Exceeds	FIRMs will be adopted by April 2015 and digital available afterwards.
Dearborn	X				
Edgerton	X				

Table 3.29: NFIP Regulatory Overview by Jurisdiction					
Jurisdiction	**Floodplain Ordinance Adopted**	**NFIP Entry Date**	**FIRMS Format**	**Floodplain Regulations**	**Permitting Process**
Farley	X	December 2014	Paper	Meets	Permits can only be obtained following the ordinance requirements.
Ferrelview	X	2010	Digital	Meets	
Houston Lake		2014	Paper	Meets	
Lake Waukomis					
Northmoor					
Parkville	X	1973	Digital	Meets	Floodplain applications, no-rise certification.
Platte City	X	1990	Paper	Meets	
Platte Woods					
Riverside	X	Unknown 1970s	Digital	Meets	Each project within the floodplain is also required to obtain a floodplain permit recommended by the Planning and Zoning Commission and approved by the Board of Aldermen. The City requires projects in the floodplain to provide an elevation certificate indicating that the lowest finished floor is located at least 1 foot above base flood elevation or that the structure is flood-proofed in accordance with the City's adopted floodplain ordinance which is based on the FEMA model ordinance.
Tracy	X		Paper	Meets	
Weatherby Lake	Under Review				
Weston	X	1979	Paper	Meets	
Ray County	X	01-19-83	Paper	Meets	An application is filed and reviewed; the applicant is then contacted with course of action to be taken.
Richmond	X	Unknown	Digital	Exceeds	Plan review committee reviews all plans. Engineering and storm water studies are required to be submitted.

Floodplain Management Staffing

Most NFIP participants have effective programs with regards to staffing levels and effectiveness. See Table 3.30 for an overview on the status administrative functions.

Table 3.30: Status of Staffing Resources for Effective NFIP Administration

Jurisdiction	Dedicated Staff	Auxiliary Function	Permit Review	GIS	Education Outreach	Inspections	Enforcement	Engineering
Cass County	Part time	X	E	E	NI	E	E	E
Belton	Full time	X	E	E	E	E	E	E
Harrisonville	Part time		E	NI	NI	E	E	E
Lake Winnebago	Part time	X	E		E	E	E	E
Peculiar	Full time		E	NI	NI	NI	E	E
Pleasant Hill	Part time	X	E	E	NI	E	E	E
Raymore	Part time	X	E	E	E	E	E	E
Clay County	Full time	X	E	E	E	E	E	E
Excelsior Springs								
Gladstone								
Kearney	Full time	X	E	NI	E	E	E	E
Liberty	Full time	X	E	E	E	E	E	E
Mosby	Part time		E					
N. Kansas City	Full time	X	E	E	E	E	E	E
Smithville	Full time		E	NI	NI	E	E	E
Jackson County	Full time		E	E	E	E	E	E
Blue Springs	Full time	X	E	E	E	E	E	E
Grandview								
Independence	Full time	X	E	E	NI	E	E	E
Kansas City, Mo.	Part time	X	E	E	E	E	E	E
Lee's Summit	Part time	X	E	E	NI	NI	E	E
Oak Grove	Part time	X	E	E	NI	E	E	E
Raytown								
Platte County	Full time	X	E	E/NI	E	E	E	E
Dearborn								
Edgerton								
Farley		X	NI			NI	NI	
Ferrelview	Part time		E	E	E	E	E	E
Houston Lake	Part time		E	E	E	E	E	E
Lake Waukomis								
Northmoor								
Parkville	Full time	X	E	E	NI	E	E	E
Platte City	Full time	X	E	E	E/NI	E	E	E
Platte Woods								
Riverside	Full time	X	E	E	E	E	E	E
Tracy								
Weatherby Lake								
Weston	Full time		E		NI	NI	E	NI
Ray County	Part time	X	NI	NI	NI	NI	NI	NI
Richmond	Part time	X	E/NI	E/NI	E/NI	E/NI	E/NI	E/NI

E = Effective NI = Needs Improvement E/NI = Effective and Needs Improvement

Community Rating System Participants

Three jurisdictions are currently participants in NFIP's voluntary Community Rating System (CRS) incentive program. This program recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. See Table 3.31 for details on current activities.

Table 3.31: Status of Participating Jurisdictions in the CRS Program

CRS ACTIVITIES	Independence	Kansas City, Mo.	Platte County
	Class 7	*Class 9*	*Class 5*
	300 Public Information Activities		
Elevation Certificates	X	X	X
Status			*Scheduled*
Map Information Service	X	X	X
Status	*Scheduled*	*Improved/Scheduled*	*Scheduled*
Outreach Projects	X		X
Status	*Scheduled*		*Scheduled*
Hazard Disclosure		X	X
Status			*Scheduled*
Flood Protection Info	X	X	X
Status	*Scheduled*		*Scheduled*
Flood Protection Asst.			X
Status			*Scheduled*
Flood Insurance Promo			X
Status			*Scheduled*
	400 Mapping & Regulations		
Floodplain Mapping	X		X
Status		*Improved/Scheduled*	*Scheduled*
Open Space Preservation	X	X	X
Status		*Improved/Scheduled*	*Scheduled*
Higher Regulatory Standards	X	X	X
Status		*Improved/Scheduled*	*Scheduled*
Flood Data Maintenance	X	X	X
Status		*Improved/Scheduled*	*Scheduled*
Stormwater Management	X		X
Status			*Scheduled*
	500 Flood Damage Reduction Activities		
Floodplain Management Planning	X	X	X
Status		*Improved/Scheduled*	*Scheduled*
Acquisition and Relocation	X		X
Status		*Improved/Scheduled*	*Scheduled*
Flood Protection	X		X
Status		*Improved/Scheduled*	*Scheduled*
Drainage System Maintenance	X		
Status	*Scheduled*		
	600 Warning and Response		
Flood Warning and Response			X
Status	*Scheduled*		*Scheduled*
Levees			X
Status	*Scheduled*		*Scheduled*
Dams			
Status	*Scheduled*		
Does the HMP effort satisfy CRS requirements?			**Yes**

X = Included

3.3.7 School Profile Survey Findings

Table 3.32: School Plans and Policies Inventory (EVACUATION)					
School Entity	Plan Adopted	Includes Projects Identified for Mitigation Strategy	Used to Implement Mitigation Actions	Reviewed for HMP Update	Measures incorporated into HMP, if applicable
Archie R-V School District	Yes		Yes		
Harrisonville School District	Yes		Yes	Yes	
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District	Yes	Yes	Yes	Yes	
North Kansas City Schools	Yes	Yes	Yes	Yes	
Smithville R-II School District	Yes				
Blue Springs School District	Yes			Yes	
Fort Osage R1 School District	Yes	Yes	Yes	Yes	
Independence School District	Yes				
Kansas City School District	Yes	Yes	Yes	Yes	Safety Program updated all plans in 2014
Kansas City University of Medicine & Biosciences	Yes				
Lee's Summit R-7 School District	Yes	Yes	Yes	Yes	
Metropolitan Community College	Yes		Yes		
Oak Grove R-VI School District	Yes				
North Platte R-1 School District	Yes			Yes	
Park Hill School District	Yes	Yes	Yes	Yes	All buildings have evacuation plan (annual review)
Platte County R-3 School District	Yes	Yes	Yes		
West Platte R-II	Yes				

Table 3.33: School Plans and Policies Inventory (STORM SHELTER)					
School Entity	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Archie R-V School District	Yes		Yes		
Harrisonville School District	Yes		Yes	Yes	
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District	Yes	Yes	Yes	Yes	
North Kansas City Schools	Yes	Yes	Yes	Yes	Reassess sheltering locations with first responders
Smithville R-II School District	Yes				
Blue Springs School District	Yes	Yes	Yes	Yes	
Fort Osage R1 School District	Yes	Yes	Yes	Yes	
Independence School District	Yes				
Kansas City School District	Yes	Yes	Yes	Yes	Tornado and Earthquake drills executed regularly
Kansas City University of Medicine & Biosciences	Yes				
Lee's Summit R-7 School District	Yes	Yes	Yes	Yes	
Metropolitan Community College	Yes		Yes		
Oak Grove R-VI School District	Yes				
North Platte R-1 School District	Yes		Yes	Yes	
Park Hill School District	Yes				
Platte County R-3 School District					
West Platte R-II	Yes				

Table 3.34: School Plans and Policies Inventory (SHELTER-IN-PLACE)					
School Entity	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Archie R-V School District	Yes		Yes		
Harrisonville School District	Yes		Yes	Yes	
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District	Yes	Yes	Yes	Yes	
North Kansas City Schools	Yes		Yes	Yes	Work with MARC to increase training
Smithville R-II School District					
Blue Springs School District	Yes				
Fort Osage R1 School District	Yes	Yes	Yes	Yes	
Independence School District	Yes				
Kansas City School District		Yes	Yes	Yes	Plan is proposed but not adopted by Board
Kansas City University of Medicine & Biosciences	Yes				
Lee's Summit R-7 School District	Yes	Yes	Yes	Yes	
Metropolitan Community College	Yes		Yes		
Oak Grove R-VI School District	Yes				
North Platte R-1 School District					
Park Hill School District	Yes	Yes	Yes	Yes	Improve radio communication
Platte County R-3 School District	Yes	Yes	Yes		
West Platte R-II	Yes				

Table 3.35: School Plans and Policies Inventory (INFECTIOUS DISEASE)					
School Entity	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Archie R-V School District					
Harrisonville School District	Yes		Yes	Yes	
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District					
North Kansas City Schools	Yes	Yes	Yes	Yes	Coordinate with Health Departments
Smithville R-II School District					
Blue Springs School District					
Fort Osage R1 School District	Yes	Yes	Yes	Yes	
Independence School District	Yes				
Kansas City School District	Yes	Yes	Yes	Yes	Procedures are in place using county resources
Kansas City University of Medicine & Biosciences	Yes				
Lee's Summit R-7 School District	Yes	Yes	Yes		
Metropolitan Community College					
Oak Grove R-VI School District					
North Platte R-1 School District	Yes		Yes	Yes	
Park Hill School District	Yes				
Platte County R-3 School District					
West Platte R-II					

Table 3.36: School Plans and Policies Inventory (WATER CONSERVATION MEASURES)					
School Entity	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Archie R-V School District					
Harrisonville School District					
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District	Yes	Yes	Yes	Yes	
North Kansas City Schools					
Smithville R-II School District					
Blue Springs School District					
Fort Osage R1 School District					
Independence School District					
Kansas City School District	Yes	Yes			Proposal prepared awaiting funding
Kansas City University of Medicine & Biosciences					
Lee's Summit R-7 School District					
Metropolitan Community College					
Oak Grove R-VI School District					
North Platte R-1 School District					
Park Hill School District	Yes				
Platte County R-3 School District					
West Platte R-II					

Table 3.37: School Plans and Policies Inventory (SECURITY PLAN -Intruder, Lockdown)					
School Entity	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Archie R-V School District	Yes		Yes		
Harrisonville School District	Yes		Yes	Yes	
Pleasant Hill R-111 School District	Yes				
Raymore-Peculiar School District	Yes	Yes	Yes	Yes	
North Kansas City Schools	Yes	Yes	Yes	Yes	Plan review by first responders & APRS system use
Smithville R-II School District	Yes				
Blue Springs School District	Yes				
Fort Osage R1 School District	Yes	Yes	Yes	Yes	
Independence School District	Yes				
Kansas City School District	Yes	Yes	Yes	Yes	All employees participated in ASIRT training
Kansas City University of Medicine & Biosciences	Yes				
Lee's Summit R-7 School District	Yes	Yes	Yes	Yes	
Metropolitan Community College	Yes		Yes		
Oak Grove R-VI School District	Yes				
North Platte R-1 School District	Yes		Yes	Yes	
Park Hill School District	Yes	Yes	Yes	Yes	Working to update APRS
Platte County R-3 School District	Yes	Yes	Yes		
West Platte R-II	Yes				

Table 3.38: School Plans and Policies Inventory (OTHER PLANS)						
School Entity	**Plan Type**	**Plan Adopted**	**Includes Projects Identified for Mitigation Strategy**	**Used to Implement Mitigation Actions**	**Reviewed for HMP Update**	**Measures incorporated into HMP, if applicable**
Kansas City School District	Bullying and Individual Assaults	Yes				Added curriculum to raise awareness
Kansas City School District	Vandalism	Yes	Yes	Yes	Yes	Implementing integrated security system
Kansas City School District	Active Shooter and/or Intruder	Yes	Yes	Yes	Yes	Bids out for Visitor Management System for 2015
Park Hill School District	Active Shooter Training and Crisis Plan	Yes	Yes	Yes	Yes	Security camera and communication

Table 3.39: School Plans and Policies Inventory (SUPPLEMENTAL INFORMATION)					
School Entity	**Updated Building Codes**	**Provisions to Elevate Construction**	**Strengthen Construction**	**Safe Room Requirements**	**Profile Survey Completed**
Archie R-V School District	Yes	Yes	Yes	Yes	Yes
Harrisonville School District					Yes
Pleasant Hill R-111 School District					Yes
Raymore-Peculiar School District					Yes
North Kansas City Schools					Yes
Smithville R-II School District	Yes	Yes	Yes	Yes	Yes
Blue Springs School District	Yes	Yes	Yes	Yes	Yes
Fort Osage R1 School District	Yes				Yes
Independence School District	Yes	Yes	Yes	Yes	Yes
Kansas City School District					Yes
Kansas City University of Medicine & Biosciences					Yes
Lee's Summit R-7 School District					Yes
Metropolitan Community College	Yes	Yes	Yes		Yes
Oak Grove R-VI School District					Yes
North Platte R-1 School District	Yes			Yes	Yes
Park Hill School District	Yes	Yes			Yes
Platte County R-3 School District	Yes				Yes
West Platte R-II					

3.4 Regional Capabilities

In addition to local capabilities there are regional capabilities that aid in mitigation efforts. These regional capabilities were included in the community profile survey for jurisdictions' consideration as noted above. These capabilities were detailed in the 2010 Plan update and remain available for reference. Where there have been changes in the last five years they have been noted below.

Warning Systems

The planning area still utilizes a variety warning systems discussed in the 2010 Plan update. These include: Project Community Alert; Metropolitan Emergency Radio System (MERS); Kansas City Scout; NWS advisories, watches, warnings; NOAA weather radio; EMWIN; and, if necessary, the Emergency Alert System. River and stream sensors also monitor water level and stream flow in certain flood-prone waterways. The growing use of the Asset Protection and Response System (APRS) helps public safety agencies pre-plan their emergency response working with facility owners and operators and using an all-hazards approach. Local officials use APRS to identify and assess critical infrastructure and key resource (CI/KR) assets throughout the Kansas City metro area. APRS also helps agencies mitigate effects of an incident by assessing threats and vulnerabilities before an incident occurs.

Virtually all of the urban and suburban portions (i.e., major population centers) of the Kansas City metropolitan area have outdoor warning sirens. However, some rural areas and smaller jurisdictions tend to rely on radio and television broadcasts and the Internet. As the use of social media grows, technological advances have created a new layer of complexity in how warnings are received, disseminated and coordinated.

Community Partnerships

As identified in the 2010 Plan update, many community partnerships and organizations enhance the planning area's overall capability to mitigate and recover from disasters. In particular, emergency management committees have matured since the last plan update. Existing efforts strive to preserve these connections and allow for continued coordination and improved community preparedness. For example, the inclusion of faith-based organizations and organizations serving the functionality and accessibility needs of vulnerable populations. Examples of these community partnerships, committees and programs include:

- Metropolitan Emergency Managers Committee
- Mid-America Local Emergency Planning Committee
- Mid-America Regional Council Emergency Rescue Committee
- Metropolitan Official Health Agencies of the Kansas City Area
- Regional Public Information Officers Organization (RAPIO)
- Regional Homeland Security Coordinating Committee
- MEMC Integrated Warning Team
- Regional 9-1-1 System
- SAVE Coalition
- Kansas City Organizations Active in Disaster
- Community Emergency Response Teams
- Medical Reserve Corps of Greater Kansas City

- Successful Small Cities: A Technical Tool Kit
- Water Natural Resource Protection

Safe Shelter Partnership, advanced by the Eastern Jackson County Emergency Management group (Jackson County/Independence), continues to work in conjunction with the Faith-Based Organization Initiative. Efforts have increased the capability of local faith-based organizations to ready congregations, church facilities and surrounding communities to be prepared in advance of a crisis or disaster.

Active Shooter Training, coordinated by the Kansas City, Missouri, Police Department (KCPD), is reviewed and updated annually to build and maintain officers' skills and confidence in response to active shooter situations. Sensitivity to racial issues has been incorporated due to recent events. The training situations are generally associated with school and work place violence; however, flexibility and adaptation of these skills to the hazard risks of civil disobedience (as well as domestic and international threats of violence) have been applied to the training principles. The region also recently completed a Regional Active Shooter Response Framework, which outlines the basic concepts of operations for agencies responding to Active Shooters Incidents.

Core 4 is a new collaborative effort between four of the region's largest jurisdictions: City of Kansas City and Jackson County in Missouri and Johnson and Wyandotte Counties in Kansas. This initiative brings together department directors with city/county managers and department heads on a regular basis to collaborate on specific issues and increase communications. This collaboration was used successfully to increase coordination during winter weather events in the past several years.

The Storm Shelter Model Ordinance included in the 2010 Plan update has not been pursued due to limited resources and other priorities. Although the ordinance has been removed from this plan update, the reference still exists for future consideration.

Media Coverage and Public Awareness

A wide variety of broadcast and print media outlets serve the region. A list of the Kansas City area's television stations, radio stations and newspapers were provided in the 2010 Plan update. The media coverage remains an important venue for information dissemination. Additionally local governments and other stakeholders involved in hazard mitigation conduct outreach and awareness through the Internet and social media communication methods.

3.5 Attachments

Attachment 3.1: Community and School Profile Survey Instruments

MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan Overview

Welcome to the 2015 Regional Multi-Hazard Mitigation Plan Update

In 2010, the Mid-America Regional Council updated the Regional Multi-Hazard Mitigation Plan to assist cities and counties on the Missouri side of the metro area identify possibly measure to reduce risks from possible disaster events. In addition, FEMA expanded its definition of local agencies or organizations eligible to adopt the plan to include school districts, colleges and universities. The 2010 Plan's development and adoption allowed local communities and schools to be eligible for certain FEMA grants. FEMA requires that the plan be updated every five years. The current plan will expire on August 31, 2015.

To become an eligible signatory to the 2015 Regional Multi-Hazard Mitigation Plan, each jurisdiction must satisfactorily participate in the planning process. The Planning Team, composed of representatives from Cass, Clay, Jackson, Platte and Ray Counties, determined that participation requirements, in addition to meeting attendance, include the completion of the following surveys for communities (cities, counties and special districts) and schools (school districts, colleges and universities).

1. Community or School Profile (Web-based survey tool) - **Due January 5, 2015**
2. Mitigation Strategy Survey (Web-based and Excel survey tools) - **Due February 5, 2015**

For more information, please contact Donna Martin at dmartin@marc.org or 816-701-8369.

Thank you for your participation.

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community/School Profile Survey

2015 Community/School Profile Survey

RESOURCES

Community Profile Survey Reference Copy (pdf)

School Profile Survey Reference Copy (pdf)

To become an eligible signatory to the 2015 Regional Multi-Hazard Mitigation Plan, each jurisdiction must satisfactorily participate in the planning process. The 2015 HMP Planning Team, composed of representatives from Cass, Clay, Jackson, Platte and Ray Counties, determined that participation requirements, in addition to meeting attendance, include the completion of the follow surveys for both communities (cities, counties, special districts) and schools (school districts, colleges, universities):

1. Community or School Profile - **Due January 5, 2015**
2. Mitigation Strategy Survey (Web-based and Excel survey tools) **- Due February 5, 2015**

This portal allows for the online completion of the first requirement. To get started, click on the Create New User link below. The profile survey is intended to aid in the hazard mitigation plan update process by collecting information about hazards, local capabilities, land use planning and development, and flood mitigation efforts.

For this plan update, please provide responses to the questions on hazards that could affect your community or school and actions taken to reduce risks. Please review all potential capabilities and any specific actions taken over the past five years to reassess hazards or mitigation measures. Where applicable, please describe how you incorporated these measures into the plan.

Completion of this survey is required to be eligible to adopt the updated Regional Multi-Hazard Mitigation Plan for 2015 as a signatory jurisdiction.

Please complete the profile survey **by January 5, 2015.** To view the questions in advance, download the appropriate .pdf reference document from the Resources bar.

For more information, please contact Donna Martin at dmartin@marc.org or 816-701-8369.

Create New User **Log In To Account**

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community/School Profile > Create a User Account

Create a User Account

Contact information

Name of organization*

School District?* Yes No

Your name*

Title

Phone*

Email*

Organization address*

City*

State* --

Zip code*

INSTRUCTIONS:

If you are filling out the survey for a **school district, college or university,** please make sure to select "Yes" for "School District" when creating a new user.

Please refrain from clicking the **Back button of your browser**. *Using the Back button can result in a loss of the information you typed into the application.*

There is an auto-save feature built into the application. After 20 minutes of idle time, the application will auto-save your data. The application may or may not log you out, depending on your browser settings.

Account information

Username:* (no special characters or spaces)

Password:*

Confirm Password:*

Create Account



MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan
For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community/School Profile > Application Login

Application Login

Username:

Password

Login

Create New User

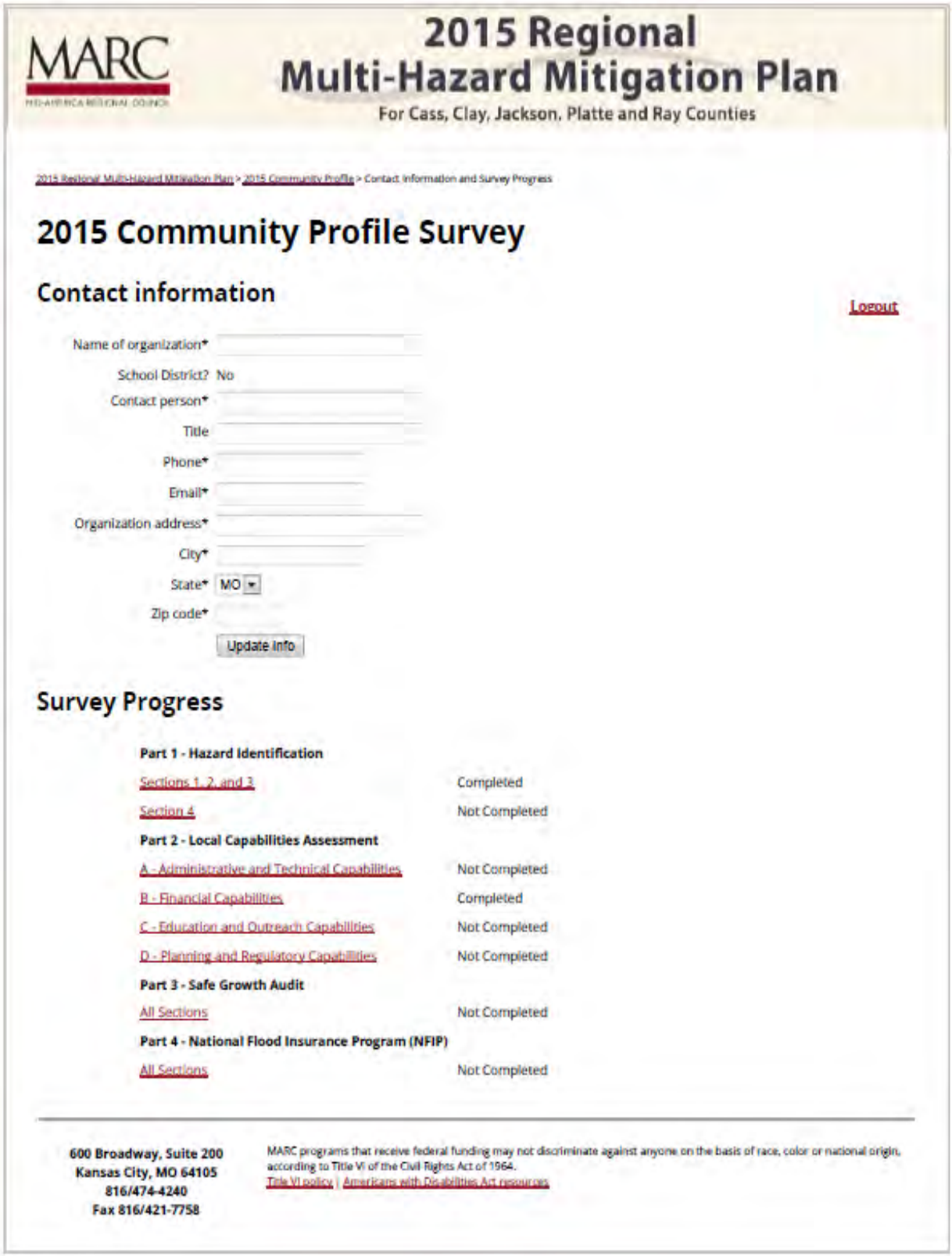
NOTES:

Please refrain from clicking the Back button of your browser. Using the Back button can result in a loss of the information you typed into the application.

There is an auto-save feature built into the application. After 20 minutes of idle time, the application will auto-save your data. The application may or may not log you out, depending on your browser settings.

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Contact Information and Survey Progress

2015 Community Profile Survey

Contact information

Logout

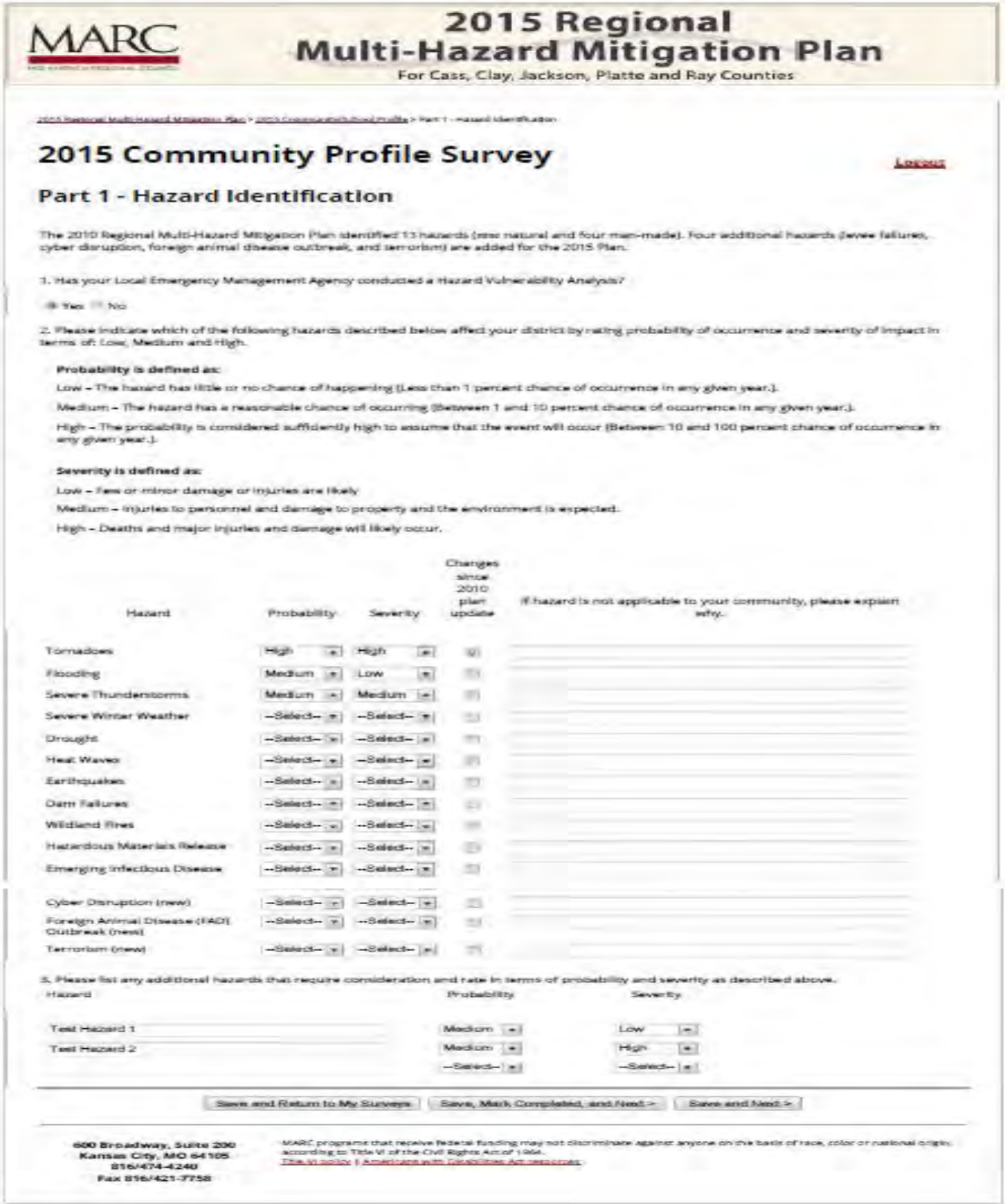
Name of organization*
School District? No
Contact person*
Title
Phone*
Email*
Organization address*
City*
State* MO
Zip code*
Update Info

Survey Progress

Part 1 - Hazard Identification	
Sections 1, 2, and 3	Completed
Section 4	Not Completed
Part 2 - Local Capabilities Assessment	
A - Administrative and Technical Capabilities	Not Completed
B - Financial Capabilities	Completed
C - Education and Outreach Capabilities	Not Completed
D - Planning and Regulatory Capabilities	Not Completed
Part 3 - Safe Growth Audit	
All Sections	Not Completed
Part 4 - National Flood Insurance Program (NFIP)	
All Sections	Not Completed

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 1 - Hazard Identification

2015 Community Profile Survey

Logout

Part 1 - Hazard Identification

The 2010 Regional Multi-Hazard Mitigation Plan identified 13 hazards (nine natural and four man-made). Four additional hazards (levee failures, cyber disruption, foreign animal disease outbreak, and terrorism) are added for the 2015 Plan.

1. Has your Local Emergency Management Agency conducted a Hazard Vulnerability Analysis?

(•) Yes ( ) No

2. Please indicate which of the following hazards described below affect your district by rating probability of occurrence and severity of impact in terms of: Low, Medium and High.

Probability is defined as:

Low – The hazard has little or no chance of happening (Less than 1 percent chance of occurrence in any given year.).

Medium – The hazard has a reasonable chance of occurring (Between 1 and 10 percent chance of occurrence in any given year.).

High – The probability is considered sufficiently high to assume that the event will occur (Between 10 and 100 percent chance of occurrence in any given year.).

Severity is defined as:

Low – Few or minor damage or injuries are likely.

Medium – Injuries to personnel and damage to property and the environment is expected.

High – Deaths and major injuries and damage will likely occur.

Hazard	Probability	Severity	Changes since 2010 plan update	If hazard is not applicable to your community, please explain why.
Tornadoes	High	High	☑	
Flooding	Medium	Low	☐	
Severe Thunderstorms	Medium	Medium	☐	
Severe Winter Weather	--Select--	--Select--	☐	
Drought	--Select--	--Select--	☐	
Heat Waves	--Select--	--Select--	☐	
Earthquakes	--Select--	--Select--	☐	
Dam Failures	--Select--	--Select--	☐	
Wildland fires	--Select--	--Select--	☐	
Hazardous Materials Release	--Select--	--Select--	☐	
Emerging Infectious Disease	--Select--	--Select--	☐	
Cyber Disruption (new)	--Select--	--Select--	☐	
Foreign Animal Disease (FAD) Outbreak (new)	--Select--	--Select--	☐	
Terrorism (new)	--Select--	--Select--	☐	

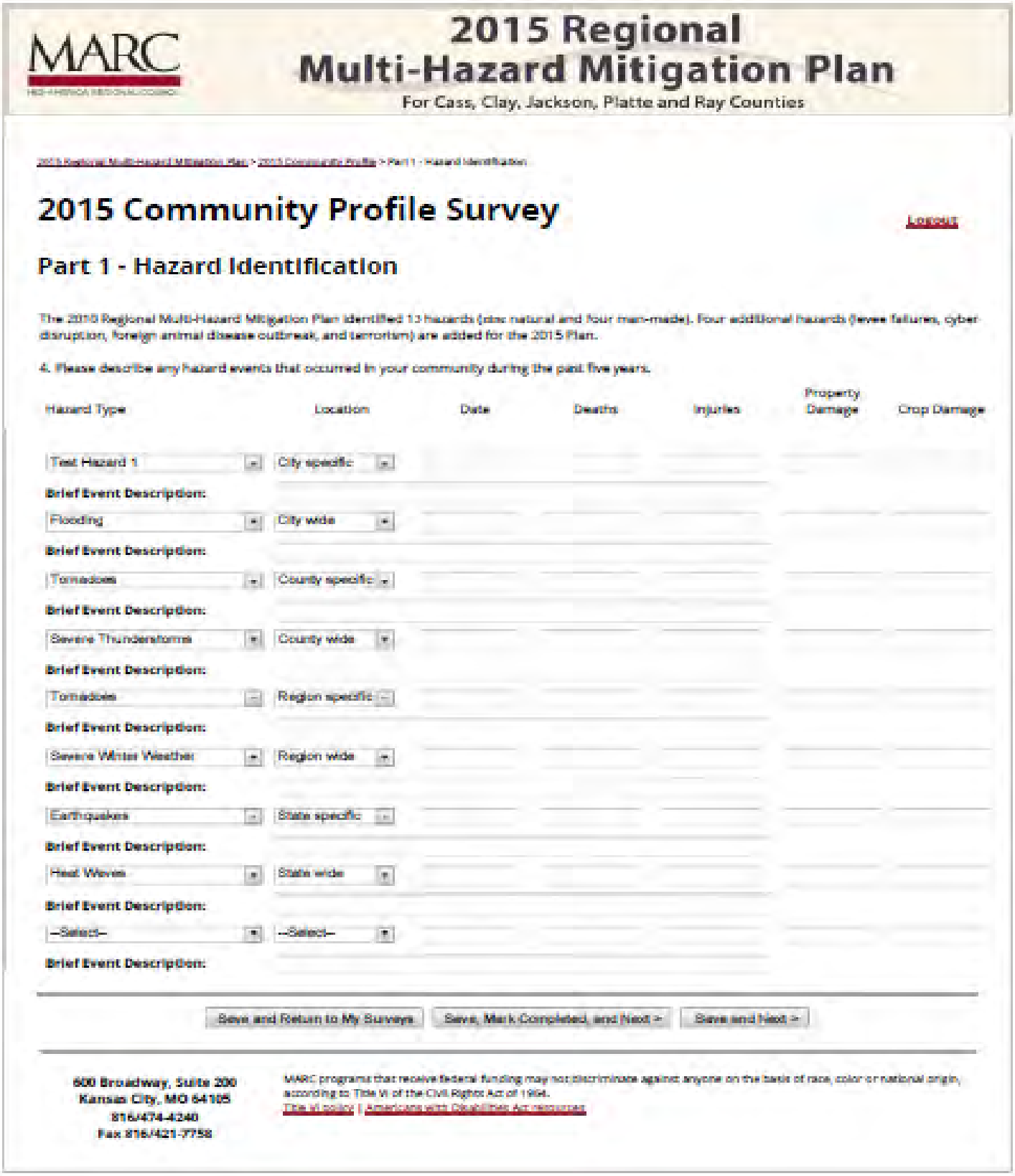
5. Please list any additional hazards that require consideration and rate in terms of probability and severity as described above.

Hazard	Probability	Severity
Test Hazard 1	Medium	Low
Test Hazard 2	Medium	High
	--Select--	--Select--

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 1 - Hazard Identification

2015 Community Profile Survey

Logout

Part 1 - Hazard Identification

The 2010 Regional Multi-Hazard Mitigation Plan identified 13 hazards (nine natural and four man-made). Four additional hazards (levee failures, cyber disruption, foreign animal disease outbreak, and terrorism) are added for the 2015 Plan.

4. Please describe any hazard events that occurred in your community during the past five years.

Hazard Type	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Test Hazard 1	City specific					
Brief Event Description:						
Flooding	City wide					
Brief Event Description:						
Tornadoes	County specific					
Brief Event Description:						
Severe Thunderstorms	County wide					
Brief Event Description:						
Tornadoes	Region specific					
Brief Event Description:						
Severe Winter Weather	Region wide					
Brief Event Description:						
Earthquakes	State specific					
Brief Event Description:						
Heat Waves	State wide					
Brief Event Description:						
--Select--	--Select--					
Brief Event Description:						

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

2015 Community/School Profile Survey

Logout

Part 2 - Local Capabilities Assessment

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete survey questions as completely as possible.

A. Administrative and Technical Capabilities

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local resources, indicate whether public resources at the next higher level of government can provide technical assistance.

1. Please identify administrative resources available to assist your community with mitigation efforts.

Administration	Is this function fulfilled at the local level?	Is assistance available from next level of government?	Is coordination between governments effective for mitigation purposes?	Reviewed for HMP update?
Planning and Zoning Commission	☐	☐	☐	☐
Mitigation Planning Committee	☐	☐	☐	☐
Maintenance program to reduce risk (e.g. tree trimming, clearing drainage system)	☐	☐	☐	☐
Mutual aid agreement	☐	☐	☐	☐
Other	☐	☐	☐	☐

2. Please identify staffing resources available to assist your community with mitigation efforts.

Staff	Is this staff role full-time or part-time at the local level?	Is staffing adequate to enforce regulations?	Trained on hazards and mitigation	Technical assistance available from next level of government?	Coordination between staff and agencies effective?	Reviewed for HMP update?
Chief Building Official	Full time	☐	☐	☐	☐	☐
Floodplain Administrator	Part time	☐	☐	☐	☐	☐
Emergency Manager	--Select--	☐	☐	☐	☐	☐
Community Planner	--Select--	☐	☐	☐	☐	☐
Civil Engineer	--Select--	☐	☐	☐	☐	☐
Public Health Official	--Select--	☐	☐	☐	☐	☐
IT Support	--Select--	☐	☐	☐	☐	☐
GIS Coordinator	--Select--	☐	☐	☐	☐	☐
Other	--Select--	☐	☐	☐	☐	☐

3. Please identify technical resources available to assess and mitigate risk.

Technical	Is tool useful to meet local planning needs?	Has your community used tool to assess/mitigate risk?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
State Hazard Mitigation Plan	☐	☐	☐	
Grant Writing	☐	☐	☐	
Other	☐	☐	☐	

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 2 - Local Capabilities Assessment

2015 Community Profile Survey

Logout

Part 2 - Local Capabilities Assessment

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete survey questions as completely as possible.

B. Financial Capabilities

1. Please indicate whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/ Eligibility	Used in the past 5 years?	Type of mitigation activity funded	Can be used to fund future mitigation?	Reviewed for HMP update?
Capital Improvement Project Funding	☐	☐	Local Plans and Regulations	☐	☐
Authority to levy taxes for specific purpose	☐	☐	Structure and Infrastructure Projects	☐	☐
Fees for water, sewer, gas or electric services	☐	☐	Natural Systems Protection	☐	☐
Impact fees for new development	☐	☐	Education and Awareness Programs	☐	☐
Stormwater utility fee	☐	☐	--Select--	☐	☐
Incur debt through general and/or special tax bonds	☐	☐	--Select--	☐	☐
Incur debt through private activities	☐	☐	--Select--	☐	☐
Community Development Block Grant	☐	☐	--Select--	☐	☐
Flood Mitigation Assistance Program	☐	☐	--Select--	☐	☐
Pre-Disaster Mitigation Program	☐	☐	--Select--	☐	☐
Hazard Mitigation Grant Program	☐	☐	--Select--	☐	☐
Other	☐	☐	--Select--	☐	☐

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

2015 Community Profile Survey

Logout

Part 2 - Local Capabilities Assessment

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete survey questions as completely as possible.

C. Education and Outreach Capabilities

1. Identify access to regional or local education an doutreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Useful to implement mitigation activities	Useful to communicate hazard-related information	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
Existing Warning Systems:				
Storm Sirens	☐	☐	☐	
Mass Notification Systems	☐	☐	☐	
CMAS	☐	☐	☐	
MEMC Project Community Alert	☐	☐	☐	
National Weather Service	☐	☐	☐	
Kansas City Scout	☐	☐	☐	
Community Partnerships:				
Regional Homeland Security Coordinating Committee	☐	☐	☐	
Metropolitan Emergency Managers Committee	☐	☐	☐	
Mid-America Local Emergency Planning Committee	☐	☐	☐	
Mid-America Regional Council Emergency Rescue Committee	☐	☐	☐	
Metropolitan Official Health Agencies of the Kansas City Area	☐	☐	☐	
Regional 9-1-1 System	☐	☐	☐	
SAVE Coalition	☐	☐	☐	
Kansas City Organizations Active in Disaster	☐	☐	☐	
Community Emergency Response Team	☐	☐	☐	
Medical Reserve Corps of Greater Kansas City	☐	☐	☐	
Successful Small Cities: A Technical Tool Kit	☐	☐	☐	
Water Natural Resources Protection (NRI, WRP3)	☐	☐	☐	
Storm Shelter Model Ordinance	☐	☐	☐	
Ongoing public education or information program	☐	☐	☐	
Natural disaster or safety related school program	☐	☐	☐	
StormReady certification	☐	☐	☐	
Firewise Communities certification	☐	☐	☐	
Public-private partnership initiatives (disaster related)	☐	☐	☐	
Media Coverage and Public Awareness	☐	☐	☐	

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

2015 Community Profile Survey

Logout

Part 2 - Local Capabilities Assessment

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete survey questions as completely as possible.

b. Planning and Regulatory Capabilities

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impact of hazards. Please indicate which of the following your jurisdiction has in place.

1. Please identify all plans with relevant measures to complement local mitigation efforts.

Plan	Year last updated or adopted	Does the plan address hazards?	Identifies projects to include in mitigation strategy?	Can be used to implement mitigation actions?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
Comprehensive/Master Plan		☐	☐	☐	☐	
Capital Improvement Plan		☐	☐	☐	☐	
Economic Development Plan		☐	☐	☐	☐	
Local Emergency Operations Plan		☐	☐	☐	☐	
Continuity of Operations Plan		☐	☐	☐	☐	
Public Health Emergency Preparedness Plan		☐	☐	☐	☐	
Transportation Plan		☐	☐	☐	☐	
Stormwater Management Plan		☐	☐	☐	☐	
Community Wildfire Protection Plan		☐	☐	☐	☐	
Brownfields Redevelopment		☐	☐	☐	☐	
Climate Change Adaption		☐	☐	☐	☐	

2. Please identify all building and fire codes your community has adopted by series, version and/or year, applicable ratings or scores, and adequate enforcement.

Code	Series	Year	BCEGS* (ISO) Score	Is the code adequately enforced?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
Building Code	IBC	2013	Class 7	☐	☐	
Fire Code	IFC	2013	Class 5	☐	☐	
Mechanical Code	IMC	2013	--Select--	☐	☐	
Plumbing Code	--Select--		--Select--	☐	☐	
Dangerous Building Code	--Select--		--Select--	☐	☐	
Other	--Select--		--Select--	☐	☐	

* Building Code Effectiveness Grading Schedule.

Codes

IC - International Code
IBC - International Building Code
IFC - International Fire Code
IFGC - International Fuel Gas Code
IMC - International Mechanical Code
IPC - International Plumbing Code
IPMC - International Property Maintenance Code
IRC - International Residential Code
NEC - National Electric Code
NFC - National Fire Code
UBC - Uniform Building Code
UCADB - Uniform Code for Abatement of Dangerous Buildings
UCBC - Uniform Code for Building Construction
UHC - Uniform Housing Code
UMC - Uniform Mechanical Code
UPC - Uniform Plumbing Code
URC - Uniform Residential Code
USC - Uniform Sign Code

3. Please identify all relevant land use planning policies and ordinances and if the ordinance is an effective measure to reduce natural hazard impacts, and if the ordinance is adequately administered and enforced.

Natural Hazard Mitigation Ordinance/Policy	Adopted?	Is measure an effective tool to mitigate hazard?	Are resources available to adequately administer?	Is ordinance adequately enforced?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
Stream setback ordinances	☐	☐	☐	☐	☐	
Floodplain management ordinances	☐	☐	☐	☐	☐	
Soil and erosion ordinances	☐	☐	☐	☐	☐	
Burn ordinance (i.e., farmland, prairie, etc.)	☐	☐	☐	☐	☐	
Stormwater runoff ordinances	☐	☐	☐	☐	☐	
Water conservation measures	☐	☐	☐	☐	☐	
Open space aquisition/dedication	☐	☐	☐	☐	☐	
Flood buyout	☐	☐	☐	☐	☐	
Site plan review requirements	☐	☐	☐	☐	☐	
Other	☐	☐	☐	☐	☐	

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI notice | Americans with Disabilities Act resources

MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 3 - Safe Growth Audit

2015 Community Profile Survey

Logout

Part 3 - Safe Growth Audit

Identify gaps in your community's growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

Please answer all nine sections (A-I) to the best of your ability.

Comprehensive Plan Components:

A. Land Use

1. Do the land use policies define an urban services area?

Yes No

2. Do the land use policies contain provisions for hazard zone identification?

Yes No

3. Do the land use policies discourage development or redevelopment within natural hazard areas?

Yes No

4. Does the future land use map clearly identify natural hazard areas?

Yes No

5. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?

Yes No

6. Do the land use policies require storm water engineering studies prior to development?

Yes No

7. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

B. Transportation

1. Does the transportation plan limit access to hazard areas?

Yes No

2. Is transportation policy used to guide growth to safe locations?

Yes No

3. Are movement systems designed to function under disaster conditions (e.g., evacuation)?

○ Yes ◉ No

4. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

C. Environmental Management

1. Are environmental systems that protect development from hazards identified and mapped?

○ Yes ◉ No

2. Do environmental policies maintain and restore protective ecosystems?

○ Yes ◉ No

3. Do environmental policies provide incentives to development located outside protective ecosystems?

○ Yes ◉ No

4. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

D. Public Safety

1. Are the goals and policies of the comprehensive plan related to those of the HMP?

○ Yes ◉ No

2. Is safety explicitly included in the plan's growth and development policies?

○ Yes ◉ No

3. Does the monitoring and implementation section of the plan cover safe growth objectives?

○ Yes ◉ No

4. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

E. Building Codes

1. Does the building code contain provisions to elevate construction to withstand hazard forces?

○ Yes ◉ No

2. Does the building code contain wind resistance provisions to strengthen construction to withstand hazard forces?

○ Yes ◉ No

3. Does the building code contain safe room or storm shelter requirements?

○ Yes ◉ No

4. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

F. Zoning Ordinance

1. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?

Yes No

2. Does the ordinance contain natural hazard overlay zones or districts that set conditions for land use within such zones?

Yes No

3. Does the zoning ordinance contain mitigation performance standards?

Yes No

4. Does the ordinance prohibit development within, or filling of, wetlands, floodways, and floodplains?

Yes No

5. Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?

Yes No

6. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

G. Subdivision Regulations

1. Do the subdivision regulations contain an adopted hazard disclosure?

Yes No

2. Do subdivision regulations contain a provision for soil report evaluations?

Yes No

3. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?

Yes No

4. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?

Yes No

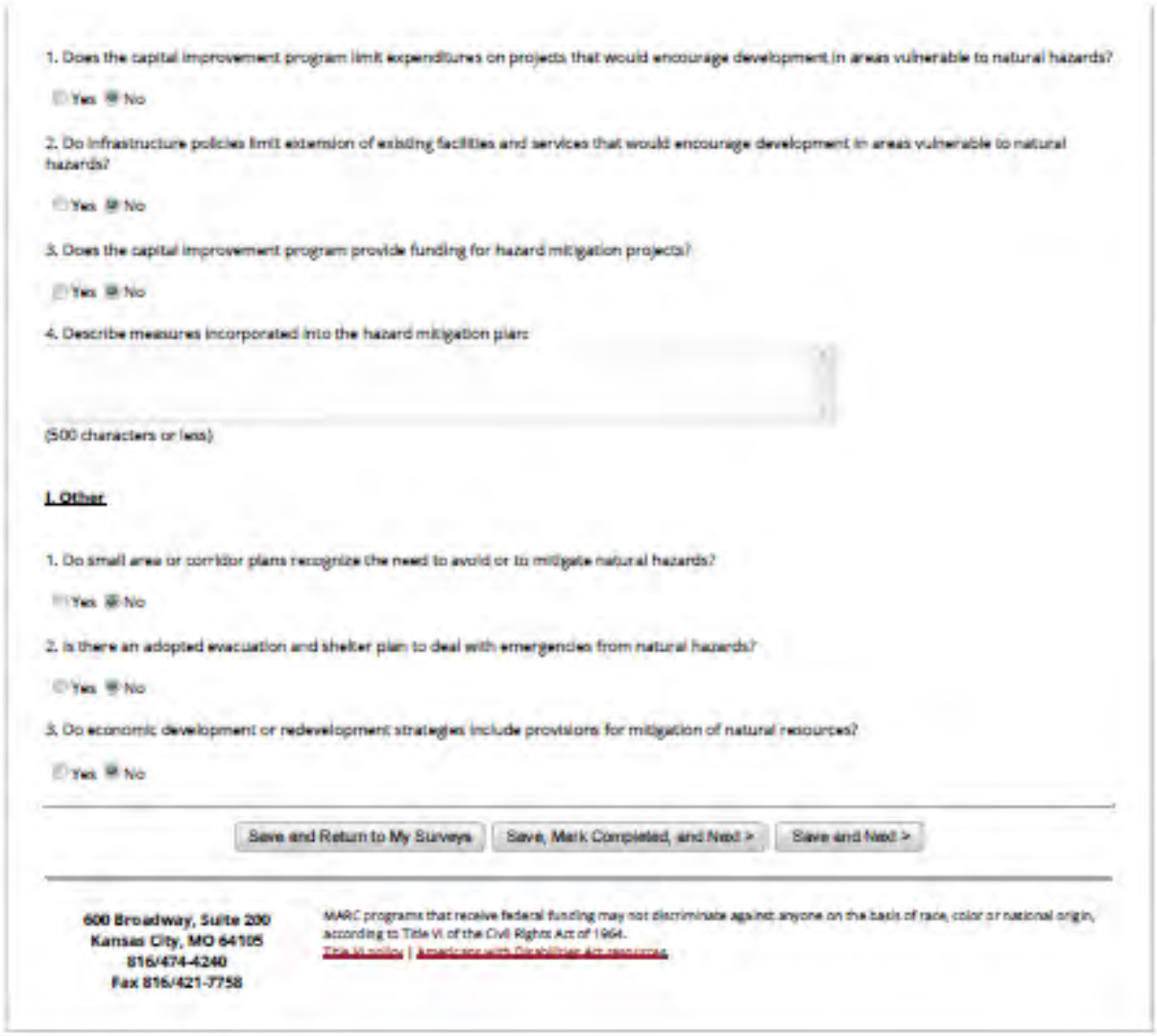
5. Do the regulations allow density transfers where hazards exist?

Yes No

6. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

H. Capital Improvement Program and Infrastructure Policies



1. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?

○ Yes ◉ No

2. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?

○ Yes ◉ No

3. Does the capital improvement program provide funding for hazard mitigation projects?

○ Yes ◉ No

4. Describe measures incorporated into the hazard mitigation plan:

(500 characters or less)

J. Other

1. Do small area or corridor plans recognize the need to avoid or to mitigate natural hazards?

○ Yes ◉ No

2. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?

○ Yes ◉ No

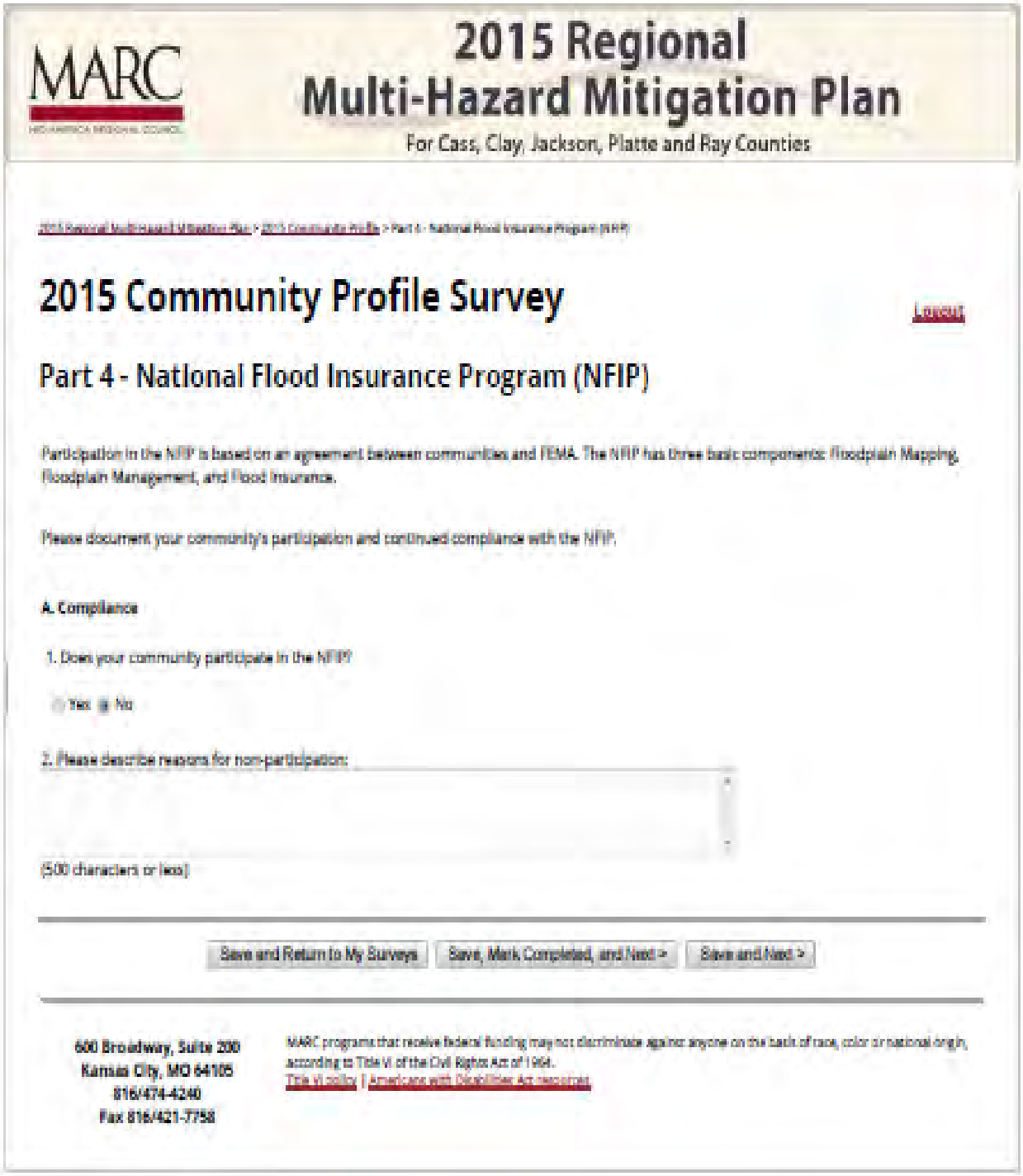
3. Do economic development or redevelopment strategies include provisions for mitigation of natural resources?

○ Yes ◉ No

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC

MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 4 - National Flood Insurance Program (NFIP)

2015 Community Profile Survey

Logout

Part 4 - National Flood Insurance Program (NFIP)

Participation in the NFIP is based on an agreement between communities and FEMA. The NFIP has three basic components: Floodplain Mapping, Floodplain Management, and Flood Insurance.

Please document your community's participation and continued compliance with the NFIP.

A. Compliance

1. Does your community participate in the NFIP?

○ Yes ◉ No

2. Please describe reasons for non-participation:

(500 characters or less)

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 Community Profile > Part 4 - National Flood Insurance Program (NFIP)

2015 Community Profile Survey

Logout

Part 4 - National Flood Insurance Program (NFIP)

Participation in the NFIP is based on an agreement between communities and FEMA. The NFIP has three basic components: Floodplain Mapping, Floodplain Management, and Flood Insurance.

Please document your community's participation and continued compliance with the NFIP.

A. Compliance

1. Does your community participate in the NFIP?

◉ Yes ○ No

2. Is your community in good standing with the NFIP?

○ Yes ◉ No

3. Are there any outstanding compliance issues (i.e., current violations)?

○ Yes ◉ No

4. Have you had a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) in the past five years?

○ Yes ◉ No

B. Staff Resources

1. Does your community have dedicated staff to manage your NFIP participation? --Select--

2. Is floodplain management an auxiliary (additional, supplemental) function?

○ Yes ◉ No

3. Indicate your community's NFIP administration services in terms of effectiveness for the following functions:

NFIP Administrative Service	Effective	Needs Improvement
Permit Review	☐	☐
GIS	☐	☐
Education/Outreach	☐	☐
Inspections	☐	☐
Enforcement	☐	☐
Engineering	☐	☐

C. Regulatory

1. When did your community enter the NFIP?

2. Are the FIRMs digital or paper? --Select--

3. Do floodplain development regulations meet or exceed FEMA or State minimum requirements? --Select--

4. Briefly explain the permitting process:

(500 characters or less)

D. Insurance Summary

1. How many NFIP policies are in your community, if known?
2. How many claims have been paid in your community, if known?
3. What is the total amount of paid claims, if known?
4. How many of the claims were for substantial damage, if known?
5. How many structures are exposed to flood risk within your community?

6. Do any areas of flood risk in your community have limited NFIP policy coverage?

○ Yes ◉ No

7. If yes, are these areas of flood risk clearly marked or documented?

○ Yes ◉ No

E. Community Rating System (this section applies to current CRS participants, including Kansas City, Independence and Platte County.

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

1. Does your community participate in CRS?

◉ Yes ○ No

2. What is your community's current CRS Class Rating? --Select--

3. Please identify activities included in your community's current CRS Class Rating and indicate those activities recently improved and/or scheduled to be improved within the next five years.

Action	Included	Improved	Scheduled
300 Public Information Activities			
310 Elevation Certificates	☐	☐	☐
320 Map Information Service	☐	☐	☐
330 Outreach Projects	☐	☐	☐
340 Hazard Disclosure	☐	☐	☐
350 Flood Protection Information	☐	☐	☐
360 Flood Protection Assistance	☐	☐	☐
370 Flood Insurance Promotion	☐	☐	☐
400 Mapping & Regulations			
410 Floodplain Mapping	☐	☐	☐
420 Open Space Preservation	☐	☐	☐
430 Higher Regulatory Standards	☐	☐	☐
440 Flood Data Maintenance	☐	☐	☐
450 Stormwater Management	☐	☐	☐
500 Flood Damage Reduction Activities			
510 Floodplain Mgmt. Planning	☐	☐	☐
520 Acquisition and Relocation	☐	☐	☐
530 Flood Protection	☐	☐	☐
540 Drainage System Maintenance	☐	☐	☐
600 Warning and Response			
610 Flood Warning and Response	☐	☐	☐
620 Levees	☐	☐	☐
630 Dams	☐	☐	☐

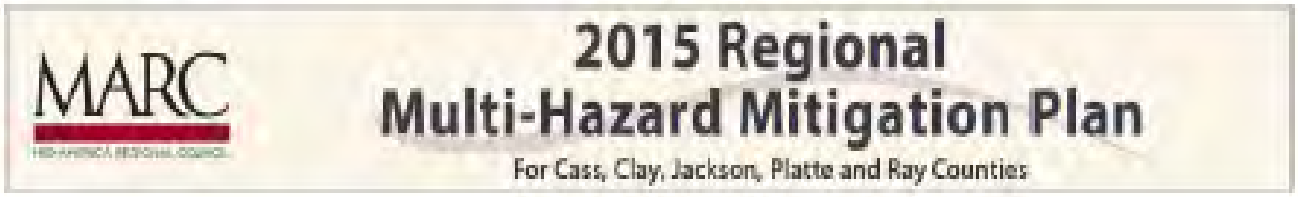
4. Does your community's multi-hazard mitigation planning effort satisfy the CRS planning requirements?

○ Yes ◉ No

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan Overview

Welcome to the 2015 Regional Multi-Hazard Mitigation Plan Update

In 2010, the Mid-America Regional Council updated the Regional Multi-Hazard Mitigation Plan to assist cities and counties on the Missouri side of the metro area identify possibly measure to reduce risks from possible disaster events. In addition, FEMA expanded its definition of local agencies or organizations eligible to adopt the plan to include school districts, colleges and universities. The 2010 Plan's development and adoption allowed local communities and schools to be eligible for certain FEMA grants. FEMA requires that the plan be updated every five years. The current plan will expire on August 31, 2015.

To become an eligible signatory to the 2015 Regional Multi-Hazard Mitigation Plan, each jurisdiction must satisfactorily participate in the planning process. The Planning Team, composed of representatives from Cass, Clay, Jackson, Platte and Ray Counties, determined that participation requirements, in addition to meeting attendance, include the completion of the following surveys for communities (cities, counties and special districts) and schools (school districts, colleges and universities).

1. Community or School Profile (Web-based survey tool) - **Due January 5, 2015**
2. Mitigation Strategy Survey (Web-based and Excel survey tools) - **Due February 5, 2015**

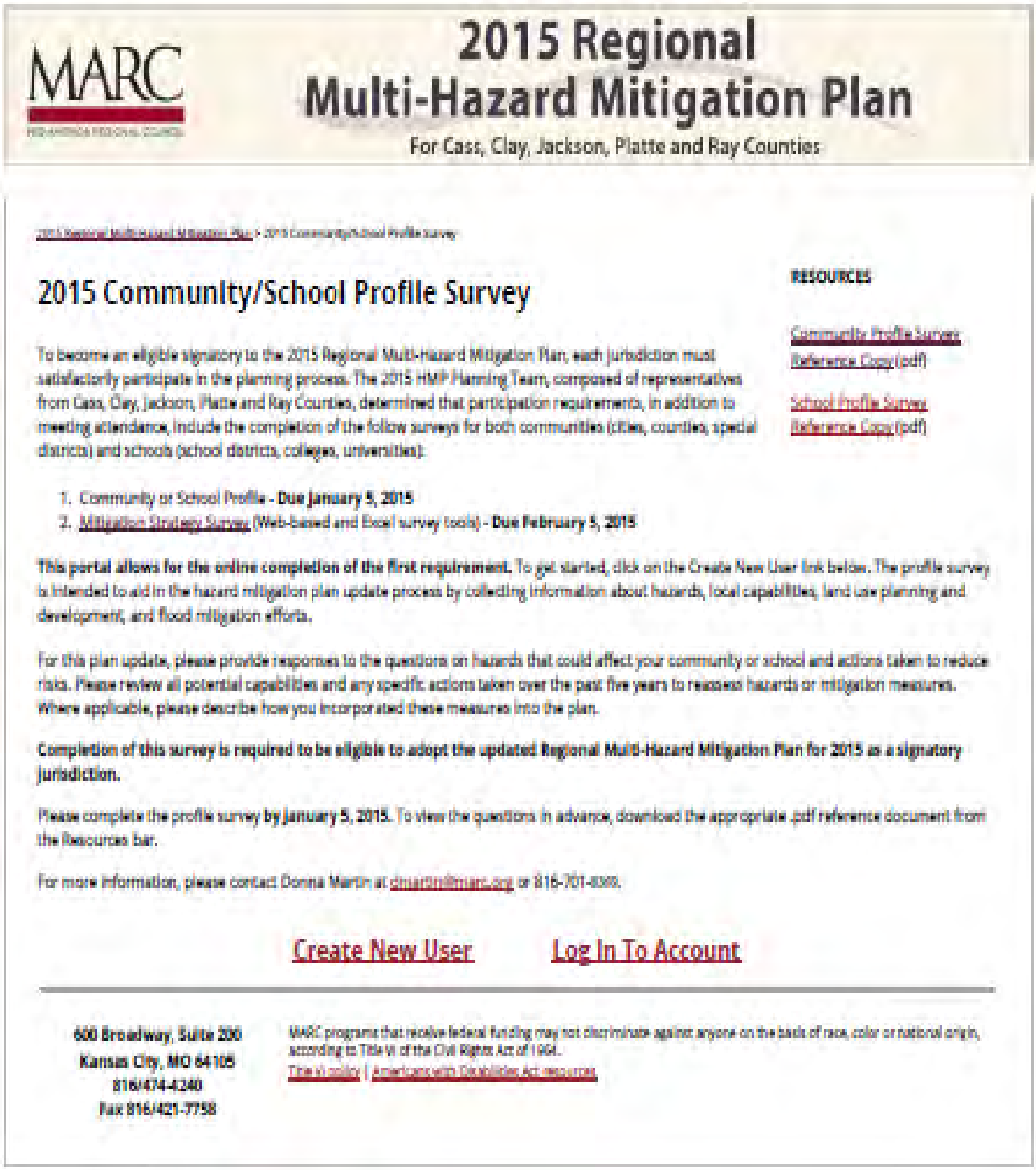
For more information, please contact Donna Martin at dmartin@marc.org or 816-701-8305.

Thank you for your participation.

---

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan › 2015 Community/School Profile Survey

2015 Community/School Profile Survey

RESOURCES

Community Profile Survey Reference Copy (pdf)

School Profile Survey Reference Copy (pdf)

To become an eligible signatory to the 2015 Regional Multi-Hazard Mitigation Plan, each jurisdiction must satisfactorily participate in the planning process. The 2015 HMP Planning Team, composed of representatives from Cass, Clay, Jackson, Platte and Ray Counties, determined that participation requirements, in addition to meeting attendance, include the completion of the follow surveys for both communities (cities, counties, special districts) and schools (school districts, colleges, universities):

1. Community or School Profile - **Due January 5, 2015**
2. Mitigation Strategy Survey (Web-based and Excel survey tools) - **Due February 5, 2015**

This portal allows for the online completion of the first requirement. To get started, click on the Create New User link below. The profile survey is intended to aid in the hazard mitigation plan update process by collecting information about hazards, local capabilities, land use planning and development, and flood mitigation efforts.

For this plan update, please provide responses to the questions on hazards that could affect your community or school and actions taken to reduce risks. Please review all potential capabilities and any specific actions taken over the past five years to reassess hazards or mitigation measures. Where applicable, please describe how you incorporated these measures into the plan.

Completion of this survey is required to be eligible to adopt the updated Regional Multi-Hazard Mitigation Plan for 2015 as a signatory jurisdiction.

Please complete the profile survey **by January 5, 2015.** To view the questions in advance, download the appropriate .pdf reference document from the Resources bar.

For more information, please contact Donna Martin at dmartin@marc.org or 816-701-8309.

Create New User Log In To Account

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 School Profile > Part 1 - Hazard Identification

2015 School Profile Survey

Logout

Part 1 - Hazard Identification

The 2010 Regional Multi-Hazard Mitigation Plan identified 13 hazards (nine natural and four man-made). Four additional hazards (levee failures, cyber disruption, foreign animal disease outbreak and terrorism) are added for the 2015 Plan. School-specific hazards can be included in Question 3.

1. Has your district/facility conducted a Hazard Vulnerability Analysis?

○ Yes ◉ No

2. Please indicate which of the hazards described below affect your district/facility by rating probability of occurrence and severity of impact in terms of: Low, Medium and High.

Probability is defined as:

Low – The hazard has little or no chance of happening (Less than 1 percent chance of occurrence in any given year.).

Medium – The hazard has a reasonable chance of occurring (Between 1 and 10 percent chance of occurrence in any given year.).

High – The probability is considered sufficiently high to assume that the event will occur (Between 10 and 100 percent chance of occurrence in any given year.).

Severity is defined as:

Low – Few or minor damage or injuries are likely

Medium – Injuries to personnel and damage to property and the environment is expected.

High – Deaths and major injuries and damage will likely occur.

Hazard	Probability	Severity	Changes since last plan update
Tornadoes	--Select--	--Select--	☐
Flooding	--Select--	--Select--	☐
Severe Thunderstorms	--Select--	--Select--	☐
Severe Winter Weather	--Select--	--Select--	☐
Drought	--Select--	--Select--	☐
Heat Waves	--Select--	--Select--	☐
Earthquakes	--Select--	--Select--	☐
Dam Failures	--Select--	--Select--	☐
Wildland fires	--Select--	--Select--	☐
Hazardous Materials Release	--Select--	--Select--	☐
Emerging Infectious Disease	--Select--	--Select--	☐
Civil Disorder	--Select--	--Select--	☐
Mass Transportation Accidents	--Select--	--Select--	☐
Levee Failures (new)	--Select--	--Select--	☐
Cyber Disruption (new)	--Select--	--Select--	☐
Foreign Animal Disease (FAD) Outbreak (new)	--Select--	--Select--	☐
Terrorism (new)	--Select--	--Select--	☐

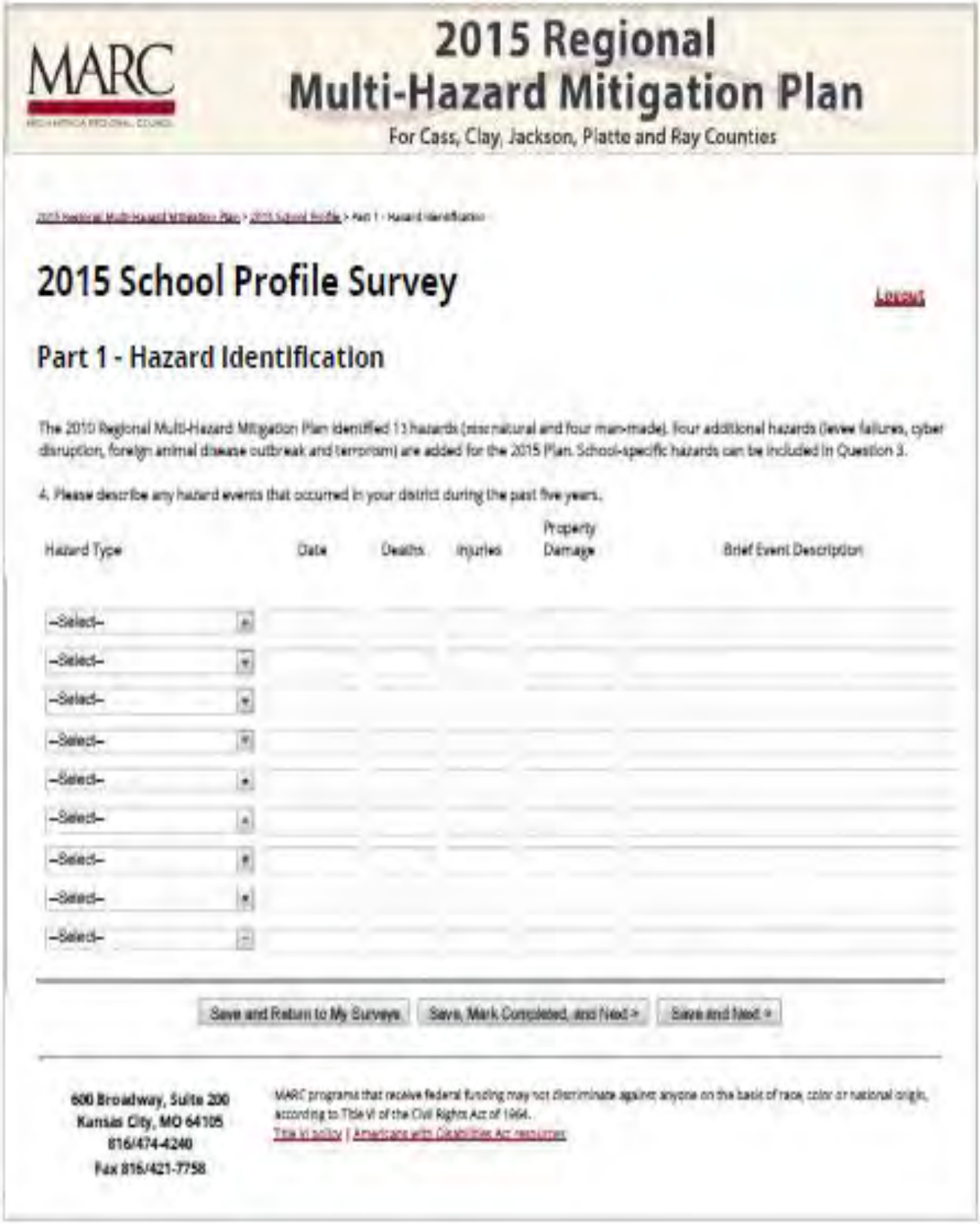
3. Please list any additional school-specific hazards that require consideration and rate in terms of probability and severity as described above.

Hazard	Probability	Severity
	--Select--	--Select--
	--Select--	--Select--
	--Select--	--Select--

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 School Profile Survey

Logout

Part 1 - Hazard Identification

The 2010 Regional Multi-Hazard Mitigation Plan identified 13 hazards (nine natural and four man-made). four additional hazards (levee failures, cyber disruption, foreign animal disease outbreak and terrorism) are added for the 2015 Plan. School-specific hazards can be included in Question 3.

4. Please describe any hazard events that occurred in your district during the past five years.

Hazard Type	Date	Deaths	Injuries	Property Damage	Brief Event Description
--Select--					
--Select--					
--Select--					
--Select--					
--Select--					
--Select--					
--Select--					
--Select--					
--Select--					

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources

MARC
MID-AMERICA REGIONAL COUNCIL

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 School Profile > Part 2 - Plans Related to Hazard Mitigation

2015 School Profile Survey

Logout

Part 2 - Plans Related to Hazard Mitigation

Plans, policies or codes that prevent and reduce the impacts of hazards.

1. Has your district/facility adopted any of the following plans related to hazard mitigation? Add other plans or policies, if applicable.

Plan	Have you adopted the plan?	Identifies projects to include in mitigation strategy?	Can be used to implement mitigation actions?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
Evacuation Plans (fire, flooding, etc.)	☐	☐	☐	☐	
Storm Sheltering Plan	☐	☐	☐	☐	
Shelter-In-Place Plan	☐	☐	☐	☐	
Infectious Disease Plan	☐	☐	☐	☐	
Water Conservation Measures	☐	☐	☐	☐	
Security Plan (intruder, lockdown, etc.)	☑	☑	☑	☑	
Other Plans (Please describe)					
	☐	☐	☐	☐	
	☐	☐	☐	☐	
	☐	☐	☐	☐	

2. Has your district/facility updated your building codes?

Yes No

3. Does the building code contain provisions to elevate construction to withstand hazard forces?

Yes No

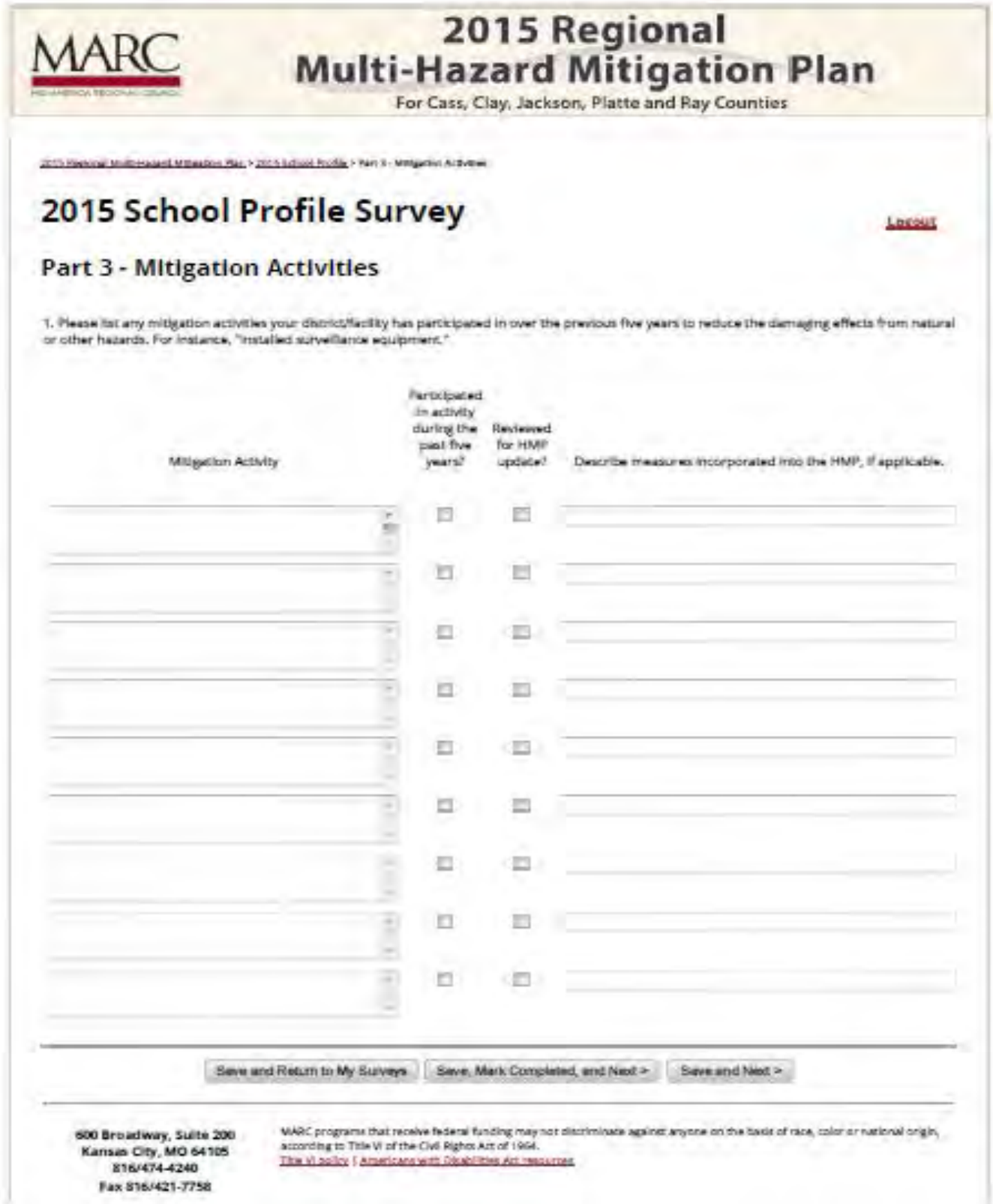
4. Does the building code contain wind resistance provisions to strengthen construction to withstand hazard forces?

Yes No

5. Does the building code contain safe room or storm shelter requirements?

Yes No

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >



MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 School Profile > Part 3 - Mitigation Activities

2015 School Profile Survey

Logout

Part 3 - Mitigation Activities

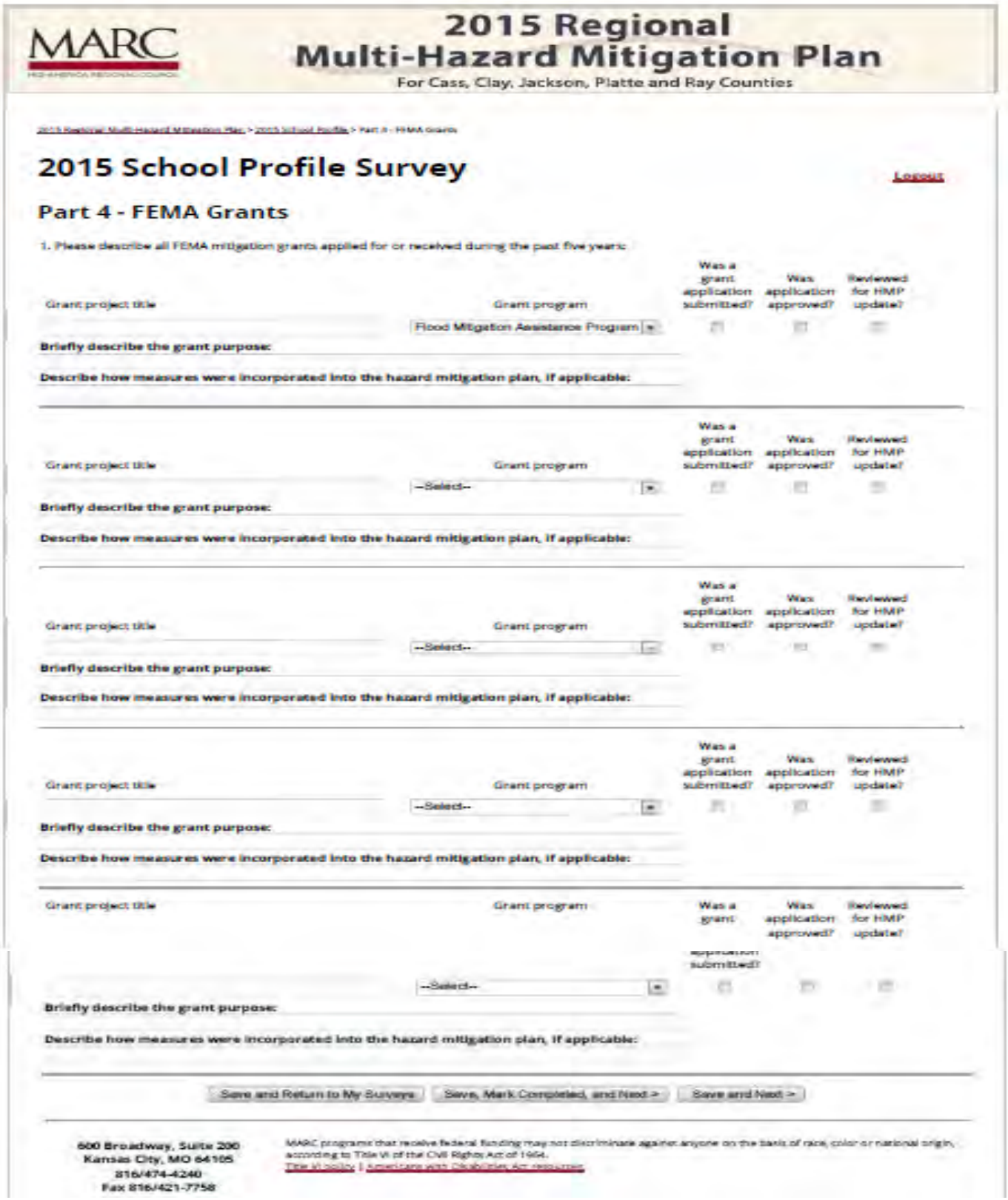
1. Please list any mitigation activities your district/facility has participated in over the previous five years to reduce the damaging effects from natural or other hazards. For instance, "installed surveillance equipment."

Mitigation Activity	Participated in activity during the past five years?	Reviewed for HMP update?	Describe measures incorporated into the HMP, if applicable.
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources



MARC

2015 Regional Multi-Hazard Mitigation Plan

For Cass, Clay, Jackson, Platte and Ray Counties

2015 Regional Multi-Hazard Mitigation Plan > 2015 School Profile > Part 4 - FEMA Grants

2015 School Profile Survey

Logout

Part 4 - FEMA Grants

1. Please describe all FEMA mitigation grants applied for or received during the past five years:

Grant project title	Grant program	Was a grant application submitted?	Was application approved?	Reviewed for HMP update?
	Flood Mitigation Assistance Program			

Briefly describe the grant purpose:

Describe how measures were incorporated into the hazard mitigation plan, if applicable:

Grant project title	Grant program	Was a grant application submitted?	Was application approved?	Reviewed for HMP update?
	--Select--			

Briefly describe the grant purpose:

Describe how measures were incorporated into the hazard mitigation plan, if applicable:

Grant project title	Grant program	Was a grant application submitted?	Was application approved?	Reviewed for HMP update?
	--Select--			

Briefly describe the grant purpose:

Describe how measures were incorporated into the hazard mitigation plan, if applicable:

Grant project title	Grant program	Was a grant application submitted?	Was application approved?	Reviewed for HMP update?
	--Select--			

Briefly describe the grant purpose:

Describe how measures were incorporated into the hazard mitigation plan, if applicable:

Grant project title	Grant program	Was a grant application submitted?	Was application approved?	Reviewed for HMP update?
	--Select--			

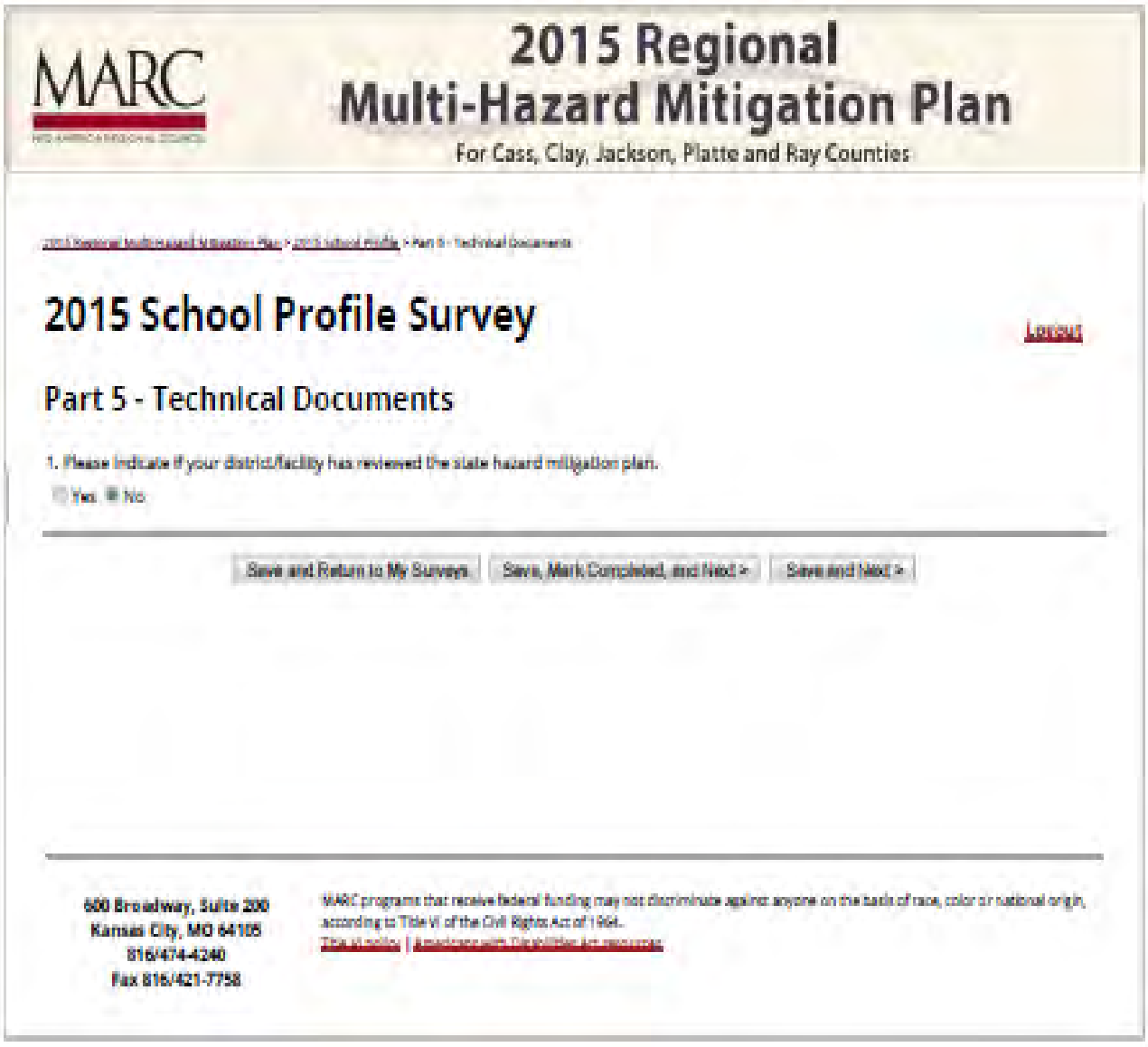
Briefly describe the grant purpose:

Describe how measures were incorporated into the hazard mitigation plan, if applicable:

Save and Return to My Surveys | Save, Mark Completed, and Next > | Save and Next >

600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758

MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.
Title VI policy | Americans with Disabilities Act resources


MARC
2015 Regional
Multi-Hazard Mitigation Plan
For Cass, Clay, Jackson, Platte and Ray Counties
2015 School Profile Survey
Logout
Part 5 - Technical Documents
1. Please indicate if your district/facility has reviewed the state hazard mitigation plan.
Yes
No
Save and Return to My Surveys
Save, Mark Completed, and Next >
Save and Next >
600 Broadway, Suite 200
Kansas City, MO 64105
816/474-4240
Fax 816/421-7758
MARC programs that receive federal funding may not discriminate against anyone on the basis of race, color or national origin, according to Title VI of the Civil Rights Act of 1964.

Attachment 3.2: Supplemental Community Profile Survey Responses

PLANNING AND REGULATORY CAPABILITIES (PART 2D)	SUPPLEMENTAL INFORMATION
Plans and Regulations *(Question 1)*	Year plan adopted or last updated Does plan addresses hazards Identifies projects to include in the mitigation strategy Plans reviewed as part of the HMP update
Ordinances and Policies *(Question 3)*	Tools effective to mitigate hazards Resources available to adequately administer Ordinance adequately enforced Ordinances or policies reviewed as part of the HMP update
ADMINISTRATIVE AND TECHNICAL CAPABILITIES (PART 2A)	**SUPPLEMENTAL INFORMATION**
Administrative Resources *(Question 1)*	Assistance available at the next level of government Coordination between governments effective for mitigation purposes Functions reviewed as part of the HMP update
Staffing Resources *(Question 2)*	Staffing adequate to enforce regulations Staff trained on hazard mitigation Technical assistance available at the next higher level of government Effective coordination between staff and agencies Staffing resources reviewed as part of the HMP update
Technical Resources *(Question 3)*	Community used the tool to assess and/or mitigate risk Technical resources reviewed as part of the HMP update
FINANCIAL CAPABILITIES (PART 2B)	**SUPPLEMENTAL INFORMATION**
Funding Resources *(Question 1)*	Funding resource used in the last five years Funding resource could be used for future mitigation Type of mitigation activity funded Funding resource reviewed as part of the HMP update
EDUCATION AND OUTREACH CAPABILITIES (PART 2C)	**SUPPLEMENTAL INFORMATION**
Programs and Organizations *(Question 1)*	Method useful for communication Method reviewed as part of the HMP update
SAFE GROWTH AUDIT (PART 3)	**SUPPLEMENTAL INFORMATION**
Safe Growth Audit Components	Description of relevant measures incorporated into the HMP

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations A. Comprehensive or Master Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton	1992	Yes		Yes	Yes
Harrisonville	2002				Yes
Lake Winnebago	2014	Yes	Yes	Yes	Yes
Peculiar	2008				
Pleasant Hill					
Raymore	2014	Yes	Yes	Yes	Yes
Clay County	2008				
Excelsior Springs	2009				Yes
Gladstone	2014	Yes	Yes	Yes	Yes
Kearney	2004	Yes		Yes	Yes
Liberty					
Mosby	2013	Yes			
North Kansas City	2003				
Smithville	2005				
Fishing River FPD					
Jackson County	2014	Yes	Yes	Yes	Yes
Blue Springs	2002	Yes			Yes
Grandview	2002	Yes			
Independence					
Kansas City, Mo.	n/a				
Lee's Summit	2005		Yes	Yes	
Oak Grove	2000	Yes		Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	2010	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview	2013	Yes			
Houston Lake					
Lake Waukomis					
Northmoor	2010	Yes	Yes	Yes	Yes
Parkville	2009	Yes	Yes	Yes	Yes
Platte City	2012	Yes		Yes	Yes
Platte Woods					
Riverside	2010	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake	2010	Yes	Yes	Yes	Yes
Weston	2003			Yes	
Northland RAD	2014				
Southern Platte FPD	2014	Yes			
West Platte FPD					
Ray County	1998				
Richmond	2000	Yes	Yes	Yes	

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations B. Capital Improvements Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton	2014	Yes		Yes	
Harrisonville	2014				Yes
Lake Winnebago	2014	Yes	Yes	Yes	Yes
Peculiar	2014				Yes
Pleasant Hill	2015		Yes	Yes	Yes
Raymore	2014	Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs					
Gladstone	2014	Yes	Yes	Yes	Yes
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville	2014				
Fishing River FPD					
Jackson County	2010	Yes	Yes		
Blue Springs	2014				Yes
Grandview	2014	Yes	Yes	Yes	
Independence	2015	Yes	Yes	Yes	Yes
Kansas City, Mo.	2014	Yes	Yes	Yes	
Lee's Summit	2014	Yes	Yes	Yes	
Oak Grove	2014		Yes	Yes	
Raytown					
Sni Valley FPD					
Platte County	2010	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	2015	Yes	Yes	Yes	Yes
Platte City	2015	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	2014	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston	2014			Yes	
Northland RAD	2014				
Southern Platte FPD	2014	Yes			
West Platte FPD					
Ray County					
Richmond	2014	Yes	Yes	Yes	

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations C. Economic Development Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County	2012				
Belton	1992				
Harrisonville					Yes
Lake Winnebago					
Peculiar	2014				
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs					
Gladstone					
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville	2015				
Fishing River FPD					
Jackson County	2014	Yes	Yes	Yes	Yes
Blue Springs					
Grandview					
Independence	2015				Yes
Kansas City, Mo.	N/A				
Lee's Summit	2014	Yes	Yes	Yes	
Oak Grove	No				
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	2011	Yes	Yes	Yes	Yes
Platte City	2010				Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD	2014				
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond	2014	Yes	Yes	Yes	

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations D. Local Emergency Operations Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County	2014	Yes	Yes	Yes	
Belton	2014	Yes	Yes	Yes	Yes
Harrisonville	2014	Yes	Yes	Yes	Yes
Lake Winnebago	2014	Yes	Yes	Yes	Yes
Peculiar	2014	Yes	Yes	Yes	Yes
Pleasant Hill	2012	Yes	Yes	Yes	Yes
Raymore	2014	Yes		Yes	Yes
Clay County	2014	Yes	Yes	Yes	Yes
Excelsior Springs	2004	Yes	Yes	Yes	Yes
Gladstone	2014	Yes	Yes	Yes	Yes
Kearney	2009	Yes		Yes	Yes
Liberty	2012	Yes		Yes	
Mosby					
North Kansas City	2005	Yes		Yes	Yes
Smithville					
Fishing River FPD					
Jackson County	2014	Yes	Yes	Yes	Yes
Blue Springs	2014	Yes	Yes	Yes	Yes
Grandview	2013	Yes			
Independence	2015	Yes		Yes	Yes
Kansas City, Mo.	2014	Yes		Yes	
Lee's Summit	2004	Yes	Yes	Yes	
Oak Grove	2007	Yes	Yes	Yes	Yes
Raytown	2014	Yes		Yes	Yes
Sni Valley FPD	2007	Yes	Yes	Yes	
Platte County	2014	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview	2013	Yes			
Houston Lake	2011				
Lake Waukomis					
Northmoor	2010	Yes	Yes	Yes	Yes
Parkville	2014	Yes	Yes	Yes	Yes
Platte City	2014	Yes	Yes	Yes	Yes
Platte Woods	2010	Yes	Yes	Yes	Yes
Riverside					
Tracy					
Weatherby Lake	2012	Yes	Yes	Yes	Yes
Weston	2010	Yes	Yes	Yes	Yes
Northland RAD	2014	Yes	Yes	Yes	Yes
Southern Platte FPD	2014	Yes			
West Platte FPD					
Ray County	2014	Yes	Yes	Yes	Yes
Richmond	1999	Yes	Yes	Yes	

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations E. Continuity of Operations Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County	2010	Yes			
Belton	2014				
Harrisonville	2014				Yes
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore		Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs					
Gladstone	2014	Yes	Yes	Yes	Yes
Kearney	2009	Yes		Yes	Yes
Liberty	2012	Yes		Yes	
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	2012	Yes	Yes	Yes	Yes
Blue Springs					
Grandview					
Independence	2015				Yes
Kansas City, Mo.	2012	Yes	Yes	Yes	
Lee's Summit	N/A				
Oak Grove	No				
Raytown		Yes		Yes	
Sni Valley FPD					
Platte County	2010	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake	2014				
Lake Waukomis					
Northmoor					
Parkville					
Platte City		Yes	Yes	Yes	Yes
Platte Woods	2011	Yes	Yes	Yes	Yes
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations F. Public Health Emergency Preparedness Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County	2014	Yes	Yes	Yes	
Belton					
Harrisonville					Yes
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore	2014	Yes	Yes	Yes	Yes
Clay County	2014	Yes	Yes	Yes	Yes
Excelsior Springs					
Gladstone	2014	Yes	Yes	Yes	Yes
Kearney					
Liberty					
Mosby					
North Kansas City	2012				
Smithville					
Fishing River FPD					
Jackson County	2013	Yes	Yes	Yes	Yes
Blue Springs					
Grandview					
Independence	2012	Yes		Yes	Yes
Kansas City, Mo.	2014	Yes	Yes	Yes	
Lee's Summit	n/a				
Oak Grove	No				
Raytown					
Sni Valley FPD					
Platte County	2010	Yes	Yes	Yes	Yes
Dearborn	2012	Yes	Yes	Yes	Yes
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City	2012	Yes	Yes	Yes	Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake	2012	Yes	Yes	Yes	Yes
Weston					
Northland RAD	2014	Yes	Yes	Yes	Yes
Southern Platte FPD					
West Platte FPD					
Ray County	2014	Yes		Yes	
Richmond					

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations G. Transportation Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville	2002				Yes
Lake Winnebago					
Peculiar	2004				
Pleasant Hill					
Raymore	2010	Yes		Yes	Yes
Clay County					
Excelsior Springs					
Gladstone					
Kearney					
Liberty	2012	Yes		Yes	
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	2012	Yes	Yes	Yes	Yes
Blue Springs		Yes			Yes
Grandview	2002				
Independence					
Kansas City, Mo.	2011				
Lee's Summit	2014	Yes	Yes	Yes	
Oak Grove	2005		Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	2002	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	2009	Yes	Yes	Yes	Yes
Platte City	2012	Yes	Yes	Yes	Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations H. Stormwater Management Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton	2011	Yes	Yes	Yes	Yes
Harrisonville					Yes
Lake Winnebago	2014	Yes	Yes	Yes	
Peculiar	2013				
Pleasant Hill					
Raymore	2002	Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs	2013				Yes
Gladstone					
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville	2013	Yes			
Fishing River FPD					
Jackson County	2013	Yes	Yes	Yes	Yes
Blue Springs		Yes			Yes
Grandview	2014	Yes		Yes	
Independence		Yes			Yes
Kansas City, Mo.	2014	Yes	Yes	Yes	
Lee's Summit	2014	Yes	Yes	Yes	
Oak Grove	2013	Yes			
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	2014	Yes	Yes	Yes	Yes
Platte City	2012	Yes	Yes	Yes	Yes
Platte Woods	2010	Yes	Yes	Yes	Yes
Riverside	2014	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond	1999	Yes	Yes	Yes	

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations I. Community Wildfire Protection Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville					
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs					
Gladstone					
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	N/A				
Blue Springs					
Grandview					
Independence					
Kansas City, Mo.	N/A				
Lee's Summit	N/A				
Oak Grove	No				
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City					
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations J. Brownfields Redevelopment Plan				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville					Yes
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs					
Gladstone					
Kearney					
Liberty					
Mosby					
North Kansas City	2015				
Smithville					
Fishing River FPD					
Jackson County	N/A				
Blue Springs					
Grandview					
Independence					
Kansas City, Mo.	2013				
Lee's Summit	N/A				
Oak Grove	No				
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City	2013	Yes	Yes	Yes	Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 1	Planning and Regulatory Capabilities: Plans and Regulations K. Climate Change Adaptation				
Jurisdiction	**Year Adopted or Updated**	**Addresses Hazards**	**Identifies projects to include in the mitigation strategy**	**Can be used to implement actions**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville					Yes
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs					
Gladstone					
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	N/A				
Blue Springs					
Grandview					
Independence					
Kansas City, Mo.	N/A				
Lee's Summit	N/A				
Oak Grove	No				
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City					
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies A. Stream Setback Ordinance				
Jurisdiction	**Year Adopted**	**Addresses Hazards**	**Resources available to adequately**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County	Yes		Yes	Yes	
Belton	Yes	Yes	Yes	Yes	
Harrisonville					
Lake Winnebago					
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes				
Excelsior Springs	Yes				
Gladstone					
Kearney					
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes	Yes	Yes
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes	Yes
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County	Yes				
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies B. Floodplain Management Ordinance				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP**
Cass County	Yes		Yes	Yes	
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill	Yes	Yes	Yes	Yes	Yes
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes				
Excelsior Springs	Yes				
Gladstone		Yes	Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby	Yes	Yes	Yes		
North Kansas City	Yes	Yes	Yes	Yes	
Smithville	Yes	Yes	Yes	Yes	
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes	Yes	Yes
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes	Yes
Edgerton					Yes
Farley	Yes	Yes	Yes	Yes	
Ferrelview	Yes	Yes	Yes	Yes	
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy	Yes				
Weatherby Lake					
Weston	Yes	Yes	Yes	Yes	Yes
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County	Yes				
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies C. Soil and Erosion Ordinance				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County					
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes				
Excelsior Springs	Yes				
Gladstone		Yes	Yes	Yes	Yes
Kearney					
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City	Yes	Yes	Yes	Yes	
Smithville	Yes	Yes	Yes	Yes	
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy	Yes				
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County	Yes				
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies D. Burn Ordinance				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County	Yes	Yes			
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago					
Peculiar	Yes	Yes	Yes	Yes	
Pleasant Hill					
Raymore					Yes
Clay County					
Excelsior Springs	Yes	Yes	Yes	Yes	Yes
Gladstone		Yes	Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City					
Smithville					
Fishing River FPD	Yes	Yes			
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes		Yes
Grandview					
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD	Yes	Yes	Yes	Yes	
Platte County					
Dearborn	Yes				
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake	Yes	Yes	Yes	Yes	Yes
Lake Waukomis					
Northmoor					
Parkville					
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes	Yes	Yes	Yes
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy	Yes				
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston	Yes	Yes	Yes	Yes	
Northland RAD					
Southern Platte FPD	Yes	Yes	Yes	Yes	
West Platte FPD					
Ray County					
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies E. Stormwater Runoff Ordinance				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County					
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill	Yes	Yes	Yes	Yes	Yes
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes				
Excelsior Springs	Yes				
Gladstone					
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City	Yes	Yes	Yes	Yes	
Smithville	Yes	Yes	Yes	Yes	
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes	Yes	Yes
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn	Yes				
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor	Yes	Yes	Yes		Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes	Yes	Yes	Yes
Riverside	Yes	Yes	Yes	Yes	
Tracy	Yes				
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County	Yes				
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies F. Water Conservation Measures				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville					
Lake Winnebago					
Peculiar	Yes				
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs	Yes				
Gladstone					
Kearney					
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes	Yes	Yes
Grandview					
Independence					
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit					
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes		Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston	Yes	Yes	Yes	Yes	
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies G. Open Space Acquisition/Dedication				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County					
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago					
Peculiar	Yes				
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes				
Excelsior Springs	Yes				
Gladstone					
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City					
Smithville	Yes	Yes	Yes	Yes	
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes				
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit		Yes			
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside					
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies H. Flood Buyout				
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville	Yes				
Lake Winnebago					
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs	Yes				
Gladstone					
Kearney					
Liberty	Yes	Yes	Yes	Yes	
Mosby	Yes	Yes	Yes	Yes	
North Kansas City					
Smithville					
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs					
Grandview					
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove					Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor					
Parkville					
Platte City					
Platte Woods					
Riverside					
Tracy	Yes				
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies I. Site Plan Review Requirements				
Jurisdiction	**Adopted**	**Effective measure to mitigate**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP**
Cass County	Yes	Yes	Yes	Yes	
Belton	Yes	Yes	Yes	Yes	
Harrisonville	Yes				
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill	Yes	Yes	Yes	Yes	Yes
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs	Yes		Yes	Yes	Yes
Gladstone	Yes	Yes	Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby					
North Kansas City	Yes	Yes	Yes	Yes	
Smithville	Yes	Yes	Yes	Yes	
Fishing River FPD					
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes	Yes	Yes	Yes
Grandview	Yes		Yes	Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	Yes
Oak Grove	Yes	Yes	Yes	Yes	Yes
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn	Yes				
Edgerton					Yes
Farley					
Ferrelview	Yes		Yes	Yes	
Houston Lake	Yes	Yes	Yes	Yes	
Lake Waukomis					
Northmoor					
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy	Yes				
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston	Yes	Yes	Yes	Yes	
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond	Yes	Yes	Yes	Yes	

Part 2D, Question 3	Planning and Regulatory Capabilities: Ordinances and Policies J. Other Ordinances or Policies					
Jurisdiction	**Adopted**	**Effective measure to mitigate hazard**	**Resources available to adequately administer**	**Ordinance adequately enforced**	**Reviewed for HMP**	**Incorporated Measures**
Cass County						
Belton						
Harrisonville						
Lake Winnebago						
Peculiar						
Pleasant Hill						
Raymore						
Clay County						
Excelsior Springs						
Gladstone						
Kearney						
Liberty						
Mosby						
North Kansas City						
Smithville						
Fishing River FPD						
Jackson County						
Blue Springs						
Grandview						
Independence						
Kansas City, Mo.						
Lee's Summit						
Oak Grove						
Raytown						
Sni Valley FPD						
Platte County						
Dearborn						
Edgerton					Yes	
Farley						
Ferrelview						
Houston Lake						
Lake Waukomis						
Northmoor						
Parkville						
Platte City						
Platte Woods						
Riverside						
Tracy						
Weatherby Lake						
Weston						
Northland RAD						
Southern Platte FPD						
West Platte FPD						
Ray County						
Richmond	Yes	Yes	Yes	Yes		

Part 2A, Question 1	Administrative and Technical Capabilities: Administrative Resources A. Planning and Zoning Commission		
Jurisdiction	**Assistance available at next level of government**	**Coordination between governments is effective for mitigation purposes**	**Reviewed for HMP Update**
Cass County		Yes	
Belton	Yes	Yes	Yes
Harrisonville	Yes	Yes	Yes
Lake Winnebago			
Peculiar	Yes	Yes	
Pleasant Hill			
Raymore	Yes	Yes	Yes
Clay County	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	Yes
Gladstone	Yes	Yes	Yes
Kearney	Yes	Yes	Yes
Liberty			
Mosby	Yes		
North Kansas City			
Smithville			
Fishing River FPD	Yes		
Jackson County	Yes	Yes	Yes
Blue Springs			
Grandview		Yes	
Independence			Yes
Kansas City, Mo.	Yes		
Lee's Summit	Yes		
Oak Grove	Yes	Yes	
Raytown	Yes	Yes	Yes
Sni Valley FPD	Yes	Yes	
Platte County		Yes	Yes
Dearborn	Yes	Yes	Yes
Edgerton			Yes
Farley	Yes	Yes	Yes
Ferrelview	Yes		
Houston Lake			
Lake Waukomis			
Northmoor	Yes		Yes
Parkville	Yes	Yes	Yes
Platte City		Yes	Yes
Platte Woods	Yes	Yes	Yes
Riverside	Yes	Yes	Yes
Tracy			
Weatherby Lake		Yes	
Weston	Yes		
Northland RAD	Yes	Yes	
Southern Platte FPD	Yes	Yes	
West Platte FPD			
Ray County	Yes	Yes	Yes
Richmond	Yes	Yes	

Part 2A, Question 1	Administrative and Technical Capabilities: Administrative Resources B. Mitigation Planning Committee		
Jurisdiction	**Assistance available at next level of government**	**Coordination between governments is effective for mitigation purposes**	**Reviewed for HMP Update**
Cass County			
Belton			
Harrisonville	Yes	Yes	Yes
Lake Winnebago	Yes		
Peculiar	Yes	Yes	Yes
Pleasant Hill			
Raymore	Yes	Yes	Yes
Clay County	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	
Gladstone	Yes	Yes	Yes
Kearney		Yes	
Liberty			
Mosby	Yes	Yes	
North Kansas City	Yes		
Smithville	Yes		
Fishing River FPD	Yes		
Jackson County	Yes		
Blue Springs	Yes		
Grandview			
Independence			
Kansas City, Mo.			
Lee's Summit			
Oak Grove	Yes	Yes	
Raytown	Yes	Yes	Yes
Sni Valley FPD	Yes	Yes	
Platte County	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes
Edgerton			Yes
Farley	Yes		
Ferrelview			
Houston Lake			
Lake Waukomis			
Northmoor	Yes		Yes
Parkville			
Platte City			Yes
Platte Woods	Yes		Yes
Riverside			
Tracy			
Weatherby Lake			
Weston	Yes		
Northland RAD	Yes	Yes	
Southern Platte FPD	Yes	Yes	
West Platte FPD			
Ray County			
Richmond			

Part 2A, Question 1	Administrative and Technical Capabilities: Administrative Resources C. Maintenance program to reduce risk		
Jurisdiction	**Assistance available at next level of government**	**Coordination between governments is effective for mitigation purposes**	**Reviewed for HMP Update**
Cass County		Yes	
Belton		Yes	Yes
Harrisonville			Yes
Lake Winnebago			
Peculiar	Yes	Yes	
Pleasant Hill			Yes
Raymore	Yes	Yes	Yes
Clay County	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	Yes
Gladstone	Yes	Yes	Yes
Kearney			Yes
Liberty			
Mosby			
North Kansas City			
Smithville			
Fishing River FPD	Yes		
Jackson County	Yes	Yes	Yes
Blue Springs			
Grandview		Yes	
Independence			Yes
Kansas City, Mo.	Yes	Yes	
Lee's Summit		Yes	Yes
Oak Grove			
Raytown			
Sni Valley FPD		Yes	
Platte County	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes
Edgerton			Yes
Farley	Yes		
Ferrelview			
Houston Lake			
Lake Waukomis			
Northmoor			Yes
Parkville	Yes	Yes	Yes
Platte City	Yes	Yes	Yes
Platte Woods			Yes
Riverside	Yes	Yes	
Tracy			
Weatherby Lake	Yes	Yes	Yes
Weston			
Northland RAD		Yes	
Southern Platte FPD	Yes	Yes	
West Platte FPD			
Ray County	Yes	Yes	Yes
Richmond	Yes	Yes	

Part 2A, Question 1	Administrative and Technical Capabilities: Administrative Resources D. Mutual Aid Agreement		
Jurisdiction	**Assistance available at next level of**	**Coordination between governments is effective for mitigation purposes**	**Reviewed for HMP Update**
Cass County			
Belton	Yes	Yes	Yes
Harrisonville			Yes
Lake Winnebago	Yes	Yes	
Peculiar	Yes	Yes	Yes
Pleasant Hill			
Raymore	Yes	Yes	Yes
Clay County	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	Yes
Gladstone	Yes	Yes	Yes
Kearney	Yes	Yes	Yes
Liberty			
Mosby	Yes	Yes	
North Kansas City			
Smithville			
Fishing River FPD	Yes		
Jackson County	Yes	Yes	Yes
Blue Springs			
Grandview		Yes	
Independence			Yes
Kansas City, Mo.	Yes	Yes	
Lee's Summit	Yes	Yes	Yes
Oak Grove			
Raytown	Yes	Yes	Yes
Sni Valley FPD	Yes		
Platte County	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes
Edgerton	Yes	Yes	Yes
Farley			
Ferrelview			
Houston Lake			
Lake Waukomis			
Northmoor			Yes
Parkville	Yes	Yes	Yes
Platte City	Yes	Yes	Yes
Platte Woods			Yes
Riverside	Yes	Yes	Yes
Tracy			
Weatherby Lake	Yes	Yes	Yes
Weston			
Northland RAD	Yes	Yes	
Southern Platte FPD		Yes	
West Platte FPD			
Ray County	Yes	Yes	Yes
Richmond	Yes	Yes	

Part 2A, Question 1	Administrative and Technical Capabilities: Administrative Resources E. Other Administrative Function		
Jurisdiction	**Assistance available at next level of government**	**Coordination between governments is effective for mitigation purposes**	**Reviewed for HMP Update**
Cass County			
Belton			
Harrisonville			
Lake Winnebago			
Peculiar			
Pleasant Hill			
Raymore			
Clay County			
Excelsior Springs			
Gladstone		Yes	Yes
Kearney			
Liberty			
Mosby			
North Kansas City			
Smithville			
Fishing River FPD			
Jackson County			
Blue Springs			
Grandview			
Independence			
Kansas City, Mo.			
Lee's Summit			
Oak Grove			
Raytown			
Sni Valley FPD			
Platte County			
Dearborn	Yes	Yes	Yes
Edgerton			Yes
Farley			
Ferrelview			
Houston Lake			
Lake Waukomis			
Northmoor			Yes
Parkville			
Platte City			
Platte Woods			
Riverside			
Tracy			
Weatherby Lake			
Weston			
Northland RAD			
Southern Platte FPD			
West Platte FPD			
Ray County			
Richmond	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources A. Chief Building Official				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes	Yes	Yes	Yes	
Belton	Yes	Yes	Yes	Yes	Yes
Harrisonville		Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes		Yes	Yes	
Pleasant Hill	Yes	Yes		Yes	
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	Yes	Yes	Yes
Gladstone	Yes	Yes	Yes	Yes	Yes
Kearney			Yes	Yes	Yes
Liberty	Yes	Yes		Yes	
Mosby	Yes	Yes	Yes	Yes	
North Kansas City	Yes				
Smithville	Yes				
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes	Yes		Yes	
Independence	Yes	Yes		Yes	Yes
Kansas City, Mo.	Yes	Yes			
Lee's Summit	Yes	Yes		Yes	
Oak Grove	Yes	Yes		Yes	
Raytown		Yes	Yes	Yes	Yes
Sni Valley FPD	Yes	Yes	Yes	Yes	
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton			Yes		Yes
Farley					
Ferrelview	Yes				
Houston Lake	Yes	Yes			
Lake Waukomis					
Northmoor	Yes	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods	Yes		Yes	Yes	Yes
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston	Yes		Yes		
Northland RAD					
Southern Platte FPD	Yes	Yes	Yes	Yes	
West Platte FPD					
Ray County			Yes		
Richmond	Yes	Yes	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources B. Floodplain Administrator				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes				
Belton	Yes		Yes	Yes	Yes
Harrisonville		Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs			Yes		
Gladstone			Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes		Yes	
Mosby	Yes	Yes	Yes	Yes	
North Kansas City	Yes				
Smithville			Yes		
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes	Yes	Yes	Yes	
Independence	Yes				Yes
Kansas City, Mo.					
Lee's Summit	Yes	Yes	Yes	Yes	Yes
Oak Grove	Yes	Yes	Yes	Yes	
Raytown		Yes	Yes	Yes	Yes
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn			Yes	Yes	Yes
Edgerton			Yes		Yes
Farley					
Ferrelview	Yes				
Houston Lake	Yes	Yes	Yes	Yes	
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston	Yes	Yes	Yes	Yes	
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County		Yes	Yes	Yes	
Richmond	Yes	Yes	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources C. Emergency Manager				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes	Yes	Yes	Yes	
Belton	Yes	Yes	Yes	Yes	Yes
Harrisonville		Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes	Yes
Pleasant Hill	Yes				Yes
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs			Yes		
Gladstone		Yes	Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes	Yes	Yes	
Mosby	Yes	Yes	Yes	Yes	
North Kansas City	Yes				
Smithville	Yes				
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes	Yes	Yes	Yes	
Independence		Yes	Yes	Yes	Yes
Kansas City, Mo.		Yes	Yes	Yes	
Lee's Summit	Yes		Yes	Yes	Yes
Oak Grove	Yes	Yes	Yes	Yes	
Raytown		Yes	Yes	Yes	Yes
Sni Valley FPD	Yes	Yes	Yes	Yes	
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn			Yes	Yes	Yes
Edgerton	Yes	Yes	Yes	Yes	Yes
Farley					
Ferrelview	Yes	Yes			
Houston Lake	Yes	Yes	Yes	Yes	
Lake Waukomis					
Northmoor	Yes	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods	Yes		Yes	Yes	Yes
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston	Yes	Yes	Yes	Yes	Yes
Northland RAD					
Southern Platte FPD	Yes	Yes	Yes	Yes	
West Platte FPD					
Ray County					
Richmond		Yes	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources D. Community Planner				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes				
Belton	Yes	Yes	Yes	Yes	Yes
Harrisonville	Yes	Yes	Yes	Yes	Yes
Lake Winnebago	Yes				
Peculiar	Yes		Yes	Yes	
Pleasant Hill	Yes				
Raymore	Yes		Yes		Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs			Yes		
Gladstone	Yes		Yes	Yes	Yes
Kearney	Yes	Yes	Yes	Yes	Yes
Liberty	Yes	Yes		Yes	
Mosby	Yes	Yes	Yes	Yes	
North Kansas City	Yes				
Smithville	Yes				
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	
Blue Springs	Yes	Yes			
Grandview	Yes	Yes		Yes	
Independence	Yes		Yes	Yes	Yes
Kansas City, Mo.					
Lee's Summit	Yes	Yes		Yes	
Oak Grove				Yes	
Raytown					
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond		Yes	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources E. Civil Engineer				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes				
Belton	Yes	Yes	Yes	Yes	Yes
Harrisonville	Yes	Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes		
Pleasant Hill					
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County					
Excelsior Springs			Yes		
Gladstone	Yes		Yes	Yes	Yes
Kearney	Yes	Yes			Yes
Liberty	Yes	Yes		Yes	
Mosby	Yes	Yes		Yes	
North Kansas City	Yes				
Smithville			Yes		
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes			Yes	
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes		
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove	Yes	Yes	Yes	Yes	
Raytown		Yes	Yes	Yes	Yes
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville	Yes		Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources F. Public Health Official				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes	Yes	Yes	Yes	
Belton					
Harrisonville					
Lake Winnebago			Yes		
Peculiar					
Pleasant Hill					
Raymore		Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs			Yes		
Gladstone	Yes	Yes	Yes	Yes	Yes
Kearney			Yes	Yes	Yes
Liberty			Yes	Yes	
Mosby					
North Kansas City					
Smithville			Yes		
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs			Yes	Yes	
Grandview			Yes		
Independence	Yes	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes	Yes	Yes	Yes	
Lee's Summit	Yes	Yes	Yes	Yes	
Oak Grove			Yes		
Raytown			Yes		
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton			Yes	Yes	Yes
Farley					
Ferrelview	Yes				
Houston Lake			Yes		
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside			Yes		
Tracy					
Weatherby Lake	Yes	Yes	Yes	Yes	Yes
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County		Yes	Yes	Yes	Yes
Richmond					

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources G. IT Support				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes			Yes	
Belton	Yes		Yes	Yes	Yes
Harrisonville		Yes	Yes	Yes	Yes
Lake Winnebago				Yes	
Peculiar	Yes		Yes	Yes	
Pleasant Hill	Yes				
Raymore	Yes	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs			Yes		
Gladstone	Yes		Yes	Yes	Yes
Kearney	Yes				Yes
Liberty	Yes	Yes		Yes	
Mosby	Yes	Yes			
North Kansas City	Yes				
Smithville	Yes				
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes				
Independence					Yes
Kansas City, Mo.					
Lee's Summit	Yes			Yes	
Oak Grove	Yes	Yes			
Raytown		Yes	Yes		Yes
Sni Valley FPD					
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton					Yes
Farley					
Ferrelview	Yes				
Houston Lake	Yes				
Lake Waukomis					
Northmoor	Yes	Yes	Yes	Yes	Yes
Parkville				Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes	Yes	Yes	Yes
Riverside	Yes	Yes			
Tracy					
Weatherby Lake	Yes	Yes		Yes	Yes
Weston	Yes	Yes	Yes		
Northland RAD	Yes				
Southern Platte FPD	Yes	Yes	Yes	Yes	
West Platte FPD					
Ray County					
Richmond					

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources H. GIS Coordinator				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County	Yes			Yes	
Belton	Yes		Yes	Yes	Yes
Harrisonville					
Lake Winnebago					
Peculiar			Yes	Yes	
Pleasant Hill	Yes				
Raymore	Yes		Yes		
Clay County	Yes	Yes	Yes	Yes	Yes
Excelsior Springs	Yes	Yes	Yes	Yes	Yes
Gladstone	Yes		Yes	Yes	Yes
Kearney			Yes	Yes	Yes
Liberty	Yes	Yes		Yes	
Mosby					
North Kansas City	Yes				
Smithville			Yes		
Fishing River FPD			Yes		
Jackson County	Yes	Yes	Yes	Yes	Yes
Blue Springs	Yes	Yes			
Grandview	Yes			Yes	
Independence					Yes
Kansas City, Mo.	Yes		Yes	Yes	
Lee's Summit	Yes			Yes	
Oak Grove	Yes		Yes	Yes	
Raytown			Yes		Yes
Sni Valley FPD	Yes	Yes	Yes	Yes	
Platte County	Yes	Yes	Yes	Yes	Yes
Dearborn					
Edgerton			Yes		Yes
Farley					
Ferrelview	Yes				
Houston Lake					
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville		Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes	Yes
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					

Richmond		Yes	Yes	Yes	

Part 2A, Question 2	Administrative and Technical Capabilities: Staffing Resources I. Other Staffing				
Jurisdiction	**Staffing adequate to enforce regulations**	**Staff trained on hazards and mitigation**	**Technical assistance available from next level of government**	**Coordination between staff and agencies is effective**	**Reviewed for HMP Update**
Cass County					
Belton					
Harrisonville					
Lake Winnebago					
Peculiar					
Pleasant Hill					
Raymore					
Clay County					
Excelsior Springs					
Gladstone			Yes	Yes	Yes
Kearney					
Liberty					
Mosby					
North Kansas City					
Smithville					
Fishing River FPD			Yes		
Jackson County					
Blue Springs					
Grandview					
Independence					
Kansas City, Mo.					
Lee's Summit					
Oak Grove					
Raytown					
Sni Valley FPD					
Platte County					
Dearborn					
Edgerton					Yes
Farley					
Ferrelview					
Houston Lake					
Lake Waukomis					
Northmoor			Yes	Yes	Yes
Parkville					
Platte City					
Platte Woods					
Riverside	Yes	Yes	Yes	Yes	Yes
Tracy					
Weatherby Lake					
Weston					
Northland RAD					
Southern Platte FPD					
West Platte FPD					
Ray County					
Richmond					

Part 2A, Question 3	Administrative and Technical Capabilities: Technical Resources			
	A. Warning System/Services		B. Hazard Data and Information	
Jurisdiction	Community used tool to assess/mitigate risk	Reviewed for HMP Update	Community used tool to assess/mitigate risk	Reviewed for HMP Update
Cass County	Yes		Yes	
Belton	Yes	Yes	Yes	Yes
Harrisonville				
Lake Winnebago		Yes		
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill			Yes	Yes
Raymore	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs	Yes	Yes		
Gladstone	Yes	Yes		
Kearney	Yes	Yes		
Liberty	Yes			
Mosby	Yes			
North Kansas City				
Smithville				Yes
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs	Yes			
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.			Yes	
Lee's Summit	Yes		Yes	
Oak Grove		Yes	Yes	Yes
Raytown	Yes	Yes	Yes	Yes
Sni Valley FPD	Yes	Yes	Yes	Yes
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes		
Edgerton	Yes	Yes	Yes	Yes
Farley	Yes			
Ferrelview				
Houston Lake	Yes			
Lake Waukomis				
Northmoor	Yes	Yes		
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes		Yes
Platte Woods		Yes	Yes	Yes
Riverside	Yes	Yes		
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston	Yes	Yes		
Northland RAD	Yes		Yes	Yes
Southern Platte FPD			Yes	
West Platte FPD				
Ray County	Yes	Yes		
Richmond	Yes		Yes	

Part 2A, Question 3	Administrative and Technical Capabilities: Technical Resources			
	C. Critical Facility Map/ APRS		D. HAZUS Analysis	
Jurisdiction	Community used tool to assess/mitigate risk	Reviewed for HMP Update	Community used tool to assess/mitigate risk	Reviewed for HMP Update
Cass County				
Belton	Yes	Yes		
Harrisonville				
Lake Winnebago				
Peculiar				
Pleasant Hill				
Raymore		Yes		
Clay County	Yes	Yes		
Excelsior Springs				
Gladstone	Yes	Yes		Yes
Kearney				
Liberty				
Mosby				
North Kansas City				
Smithville		Yes		Yes
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs	Yes			
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes		Yes	
Lee's Summit				
Oak Grove	Yes	Yes		
Raytown	Yes	Yes		
Sni Valley FPD	Yes	Yes		Yes
Platte County	Yes	Yes	Yes	Yes
Dearborn				
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville				
Platte City	Yes	Yes		
Platte Woods				
Riverside	Yes			
Tracy				
Weatherby Lake		Yes		
Weston				
Northland RAD	Yes	Yes		
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2A, Question 3	Administrative and Technical Capabilities: Technical Resources			
	E. Existing Land Use Maps		F. Future Land Use Maps	
Jurisdiction	Community used tool to assess/mitigate risk	Reviewed for HMP Update	Community used tool to assess/mitigate risk	Reviewed for HMP Update
Cass County				
Belton	Yes	Yes	Yes	Yes
Harrisonville				
Lake Winnebago				
Peculiar	Yes		Yes	
Pleasant Hill	Yes		Yes	Yes
Raymore	Yes	Yes		Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs				
Gladstone	Yes	Yes	Yes	Yes
Kearney		Yes	Yes	Yes
Liberty	Yes			
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes		Yes	
Lee's Summit	Yes		Yes	
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes		Yes	
Sni Valley FPD	Yes	Yes		Yes
Platte County	Yes	Yes	Yes	Yes
Dearborn				
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor	Yes			
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes		
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD	Yes			
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond	Yes		Yes	

Part 2A, Question 3	Administrative and Technical Capabilities: Technical Resources			
	G. State Hazard Mitigation Plan		H. Grant Writing	
Jurisdiction	Community used tool to assess/mitigate risk	Reviewed for HMP Update	Community used tool to assess/mitigate risk	Reviewed for HMP Update
Cass County				
Belton			Yes	Yes
Harrisonville				
Lake Winnebago				
Peculiar	Yes		Yes	
Pleasant Hill				
Raymore	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs				
Gladstone	Yes	Yes	Yes	Yes
Kearney				
Liberty				
Mosby	Yes		Yes	
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview			Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes			
Lee's Summit				
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes			
Sni Valley FPD	Yes	Yes	Yes	Yes
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes		Yes
Farley				
Ferrelview				
Houston Lake	Yes		Yes	
Lake Waukomis				
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes		
Riverside			Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD			Yes	
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond			Yes	

Part 2B, Question 1	Financial Capabilities: Funding Resources A. Capital Improvement Project Funding			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Structure and Infrastructure Projects	Yes	Yes
Harrisonville				Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects	Yes	
Peculiar	Yes	Structure and Infrastructure Projects	Yes	Yes
Pleasant Hill	Yes	Structure and Infrastructure Projects	Yes	Yes
Raymore	Yes	Structure and Infrastructure Projects	Yes	Yes
Clay County	Yes	Structure and Infrastructure Projects	Yes	Yes
Excelsior Springs	Yes	Structure and Infrastructure Projects	Yes	Yes
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty	Yes	Structure and Infrastructure Projects	Yes	
Mosby				
North Kansas City	Yes	Natural Systems Protection	Yes	
Smithville			Yes	Yes
Fishing River FPD				
Jackson County	Yes	Structure and Infrastructure Projects	Yes	Yes
Blue Springs	Yes	Local Plans and Regulations		
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit	Yes	Structure and Infrastructure Projects	Yes	Yes
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County	Yes	Local Plans and Regulations	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake	Yes	Structure and Infrastructure Projects	Yes	
Lake Waukomis				
Northmoor				
Parkville	Yes	Local Plans and Regulations	Yes	Yes
Platte City	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte Woods		Local Plans and Regulations	Yes	Yes
Riverside	Yes	Local Plans and Regulations		Yes
Tracy				
Weatherby Lake	Yes	Structure and Infrastructure Projects	Yes	Yes
Weston	Yes	Structure and Infrastructure Projects	Yes	
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond	Yes	Structure and Infrastructure Projects	Yes	

Part 2B, Question 1	Financial Capabilities: Funding Resources B. Authority to Levy Taxes for Specific Purpose			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton		Structure and Infrastructure Projects	Yes	Yes
Harrisonville				Yes
Lake Winnebago		Structure and Infrastructure Projects	Yes	
Peculiar	Yes	Structure and Infrastructure Projects		
Pleasant Hill				
Raymore				Yes
Clay County	Yes	Structure and Infrastructure Projects	Yes	Yes
Excelsior Springs				
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty				
Mosby				
North Kansas City				
Smithville			Yes	
Fishing River FPD				
Jackson County	Yes	Local Plans and Regulations		
Blue Springs	Yes	Structure and Infrastructure Projects		
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit		Structure and Infrastructure Projects	Yes	
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County	Yes	Structure and Infrastructure Projects	Yes	Yes
Dearborn			Yes	
Edgerton				Yes
Farley				
Ferrelview		Structure and Infrastructure Projects		
Houston Lake		Structure and Infrastructure Projects		
Lake Waukomis	Yes	Local Plans and Regulations		
Northmoor				
Parkville	Yes	Natural Systems Protection	Yes	Yes
Platte City	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte Woods		Structure and Infrastructure Projects	Yes	Yes
Riverside		Local Plans and Regulations		Yes
Tracy				
Weatherby Lake	Yes	Structure and Infrastructure Projects	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond	Yes	Structure and Infrastructure Projects		

Part 2B, Question 1	**Financial Capabilities: Funding Resources C. Fees for Water, Sewer, Gas or Electric Services**			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Local Plans and Regulations	Yes	Yes
Harrisonville				Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects		
Peculiar	Yes	Structure and Infrastructure Projects		
Pleasant Hill				
Raymore				Yes
Clay County				
Excelsior Springs			Yes	Yes
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty	Yes	Structure and Infrastructure Projects	Yes	
Mosby				
North Kansas City		Structure and Infrastructure Projects	Yes	
Smithville	Yes		Yes	
Fishing River FPD				
Jackson County	Yes	Structure and Infrastructure Projects	Yes	
Blue Springs		Local Plans and Regulations		
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit	Yes	Structure and Infrastructure Projects	Yes	
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County	Yes	Local Plans and Regulations	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville		Structure and Infrastructure Projects	Yes	Yes
Platte City	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte Woods	Yes	Structure and Infrastructure Projects	Yes	Yes
Riverside		Local Plans and Regulations		Yes
Tracy				
Weatherby Lake	Yes	Structure and Infrastructure Projects	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County	Yes	Local Plans and Regulations		
Richmond	Yes	Structure and Infrastructure Projects		

Part 2B, Question 1	Financial Capabilities: Funding Resources D. Impact Fees for New Development			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Local Plans and Regulations	Yes	Yes
Harrisonville				Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects	Yes	
Peculiar	Yes	Local Plans and Regulations		
Pleasant Hill				
Raymore				Yes
Clay County				
Excelsior Springs				
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty	Yes	Structure and Infrastructure Projects	Yes	
Mosby				
North Kansas City				
Smithville	Yes	Structure and Infrastructure Projects		
Fishing River FPD				
Jackson County	Yes	Structure and Infrastructure Projects	Yes	
Blue Springs				
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes	Structure and Infrastructure Projects	Yes	Yes
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County				
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville		Structure and Infrastructure Projects	Yes	Yes
Platte City	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte Woods				
Riverside				
Tracy				
Weatherby Lake		Structure and Infrastructure Projects	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County	Yes	Local Plans and Regulations		
Richmond	Yes	Local Plans and Regulations		

Part 2B, Question 1	Financial Capabilities: Funding Resources E. Stormwater Utility Fee			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton				
Harrisonville				Yes
Lake Winnebago				
Peculiar	Yes	Local Plans and Regulations	Yes	Yes
Pleasant Hill				
Raymore	Yes	Structure and Infrastructure Projects	Yes	Yes
Clay County				
Excelsior Springs			Yes	Yes
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty	Yes	Structure and Infrastructure Projects	Yes	
Mosby				
North Kansas City				
Smithville		Local Plans and Regulations	Yes	
Fishing River FPD				
Jackson County	Yes	Local Plans and Regulations	Yes	Yes
Blue Springs				
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.				
Lee's Summit				
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects		
Platte County				
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville		Structure and Infrastructure Projects	Yes	Yes
Platte City				
Platte Woods				
Riverside				
Tracy				
Weatherby Lake				
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2B, Question 1	**Financial Capabilities: Funding Resources** **F. Incur Debt through General Revenue and/or Special Use Bonds**			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Structure and Infrastructure Projects	Yes	Yes
Harrisonville				Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects	Yes	
Peculiar		Local Plans and Regulations		
Pleasant Hill				
Raymore			Yes	Yes
Clay County				
Excelsior Springs				
Gladstone	Yes	Structure and Infrastructure Projects		Yes
Kearney			Yes	Yes
Liberty	Yes	Structure and Infrastructure Projects	Yes	
Mosby				
North Kansas City		Structure and Infrastructure Projects	Yes	
Smithville			Yes	
Fishing River FPD				
Jackson County		Natural Systems Protection	Yes	Yes
Blue Springs		Structure and Infrastructure Projects		
Grandview				
Independence			Yes	Yes
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit	Yes	Structure and Infrastructure Projects	Yes	Yes
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County	Yes	Structure and Infrastructure Projects	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville		Structure and Infrastructure Projects	Yes	Yes
Platte City	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte Woods				
Riverside		Local Plans and Regulations		Yes
Tracy				
Weatherby Lake	Yes	Structure and Infrastructure Projects	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County			Yes	
Richmond	Yes	Structure and Infrastructure Projects		

Part 2B, Question 1	Financial Capabilities: Funding Resources G. Incur Debt through Private Activities			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton				
Harrisonville				Yes
Lake Winnebago				
Peculiar				
Pleasant Hill				
Raymore			Yes	Yes
Clay County				
Excelsior Springs				
Gladstone				
Kearney			Yes	Yes
Liberty				
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County				
Blue Springs				
Grandview				
Independence	Yes	Structure and Infrastructure Projects	Yes	Yes
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit				
Oak Grove				
Raytown				
Sni Valley FPD				
Platte County				
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville				
Platte City				
Platte Woods				
Riverside				
Tracy				
Weatherby Lake				
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County	Yes	Structure and Infrastructure Projects	Yes	
Richmond				

Part 2B, Question 1	**Financial Capabilities: Funding Resources H. Community Development Block Grant**			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Structure and Infrastructure Projects	Yes	Yes
Harrisonville				Yes
Lake Winnebago				
Peculiar		Local Plans and Regulations		
Pleasant Hill				
Raymore				Yes
Clay County				
Excelsior Springs			Yes	Yes
Gladstone				
Kearney			Yes	Yes
Liberty				
Mosby				
North Kansas City		Local Plans and Regulations	Yes	
Smithville				
Fishing River FPD				
Jackson County				
Blue Springs		Structure and Infrastructure Projects		
Grandview				
Independence	Yes	Local Plans and Regulations	Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes	Local Plans and Regulations		
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD				
Platte County	Yes	Local Plans and Regulations	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville				
Platte City				
Platte Woods				
Riverside		Local Plans and Regulations		Yes
Tracy				
Weatherby Lake	Yes	Education and Awareness Programs	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County	Yes	Structure and Infrastructure Projects	Yes	Yes
Richmond	Yes	Structure and Infrastructure Projects		

Part 2B, Question 1	Financial Capabilities: Funding Resources I. Flood Mitigation Assistance Program			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton	Yes	Structure and Infrastructure Projects	Yes	Yes
Harrisonville		Structure and Infrastructure Projects		Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects	Yes	
Peculiar	Yes	Structure and Infrastructure Projects	Yes	Yes
Pleasant Hill				
Raymore				Yes
Clay County		Local Plans and Regulations	Yes	Yes
Excelsior Springs				
Gladstone				
Kearney			Yes	Yes
Liberty				
Mosby			Yes	
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Natural Systems Protection	Yes	Yes
Blue Springs				
Grandview				
Independence			Yes	Yes
Kansas City, Mo.				
Lee's Summit				
Oak Grove				Yes
Raytown				
Sni Valley FPD				
Platte County	Yes	Education and Awareness Programs	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake		Natural Systems Protection		
Lake Waukomis				
Northmoor				
Parkville	Yes	Natural Systems Protection	Yes	Yes
Platte City				
Platte Woods				
Riverside		Local Plans and Regulations		Yes
Tracy				
Weatherby Lake		Structure and Infrastructure Projects	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2B, Question 1	**Financial Capabilities: Funding Resources J. Pre-Disaster Mitigation Program**			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton				
Harrisonville				Yes
Lake Winnebago	Yes	Structure and Infrastructure Projects	Yes	
Peculiar		Local Plans and Regulations		
Pleasant Hill				
Raymore				Yes
Clay County	Yes	Local Plans and Regulations	Yes	Yes
Excelsior Springs				
Gladstone		Local Plans and Regulations		Yes
Kearney			Yes	Yes
Liberty				
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Structure and Infrastructure Projects	Yes	Yes
Blue Springs		Education and Awareness Programs		
Grandview				
Independence			Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes	Structure and Infrastructure Projects		
Oak Grove				Yes
Raytown				
Sni Valley FPD			Yes	Yes
Platte County	Yes	Education and Awareness Programs	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake		Local Plans and Regulations		
Lake Waukomis				
Northmoor				
Parkville				
Platte City				
Platte Woods				
Riverside				
Tracy				
Weatherby Lake	Yes	Local Plans and Regulations	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2B, Question 1	Financial Capabilities: Funding Resources K. Hazard Mitigation Grant Program			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton				
Harrisonville				Yes
Lake Winnebago	Yes	Local Plans and Regulations		
Peculiar	Yes	Structure and Infrastructure Projects	Yes	Yes
Pleasant Hill				
Raymore				Yes
Clay County		Local Plans and Regulations		
Excelsior Springs				
Gladstone		Local Plans and Regulations		Yes
Kearney			Yes	Yes
Liberty				
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Structure and Infrastructure Projects	Yes	Yes
Blue Springs		Education and Awareness Programs		
Grandview				
Independence			Yes	Yes
Kansas City, Mo.			Yes	
Lee's Summit				
Oak Grove				Yes
Raytown				
Sni Valley FPD			Yes	Yes
Platte County	Yes	Structure and Infrastructure Projects	Yes	Yes
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville				
Platte City				
Platte Woods				
Riverside				
Tracy				
Weatherby Lake	Yes	Local Plans and Regulations	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2B, Question 1	Financial Capabilities: Funding Resources L. Other Funding Resource			
Jurisdiction	**Used in the past five years**	**Type of mitigation activity funded**	**Can be used to fund future mitigation**	**Reviewed for HMP Update**
Cass County				
Belton				
Harrisonville				
Lake Winnebago				
Peculiar				
Pleasant Hill				
Raymore				Yes
Clay County				
Excelsior Springs				
Gladstone				
Kearney				
Liberty				
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County				
Blue Springs				
Grandview				
Independence				
Kansas City, Mo.	Yes	Structure and Infrastructure Projects	Yes	
Lee's Summit				
Oak Grove	Yes	Structure and Infrastructure Projects	Yes	Yes
Raytown				
Sni Valley FPD	Yes	Structure and Infrastructure Projects	Yes	Yes
Platte County				
Dearborn				
Edgerton				Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor				
Parkville				
Platte City				
Platte Woods				
Riverside				
Tracy				
Weatherby Lake				
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County	Yes	Structure and Infrastructure Projects	Yes	Yes
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	A. Storm Sirens		B. Mass Notification Systems	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County			Yes	
Belton	Yes		Yes	
Harrisonville	Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill	Yes	Yes	Yes	
Raymore	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs	Yes	Yes		
Gladstone	Yes	Yes		
Kearney	Yes	Yes	Yes	Yes
Liberty	Yes		Yes	
Mosby	Yes			
North Kansas City	Yes		Yes	
Smithville	Yes			
Fishing River FPD	Yes			
Jackson County	Yes	Yes	Yes	Yes
Blue Springs	Yes		Yes	
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes		Yes	
Lee's Summit	Yes			
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes	Yes		
Sni Valley FPD	Yes		Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes		Yes
Farley	Yes			
Ferrelview				
Houston Lake	Yes		Yes	Yes
Lake Waukomis	Yes	Yes		
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes	Yes	Yes
Riverside	Yes	Yes	Yes	Yes
Tracy	Yes			
Weatherby Lake	Yes		Yes	Yes
Weston	Yes	Yes	Yes	
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD			Yes	
West Platte FPD				
Ray County			Yes	Yes
Richmond	Yes			

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	C. CMAS		D. MEMC Project Community Alert	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County			Yes	
Belton				
Harrisonville				
Lake Winnebago			Yes	
Peculiar			Yes	Yes
Pleasant Hill				
Raymore				
Clay County			Yes	Yes
Excelsior Springs				
Gladstone			Yes	Yes
Kearney		Yes		
Liberty	Yes		Yes	
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes		Yes	Yes
Blue Springs				
Grandview				
Independence			Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes		Yes	
Oak Grove	Yes	Yes		Yes
Raytown			Yes	Yes
Sni Valley FPD	Yes		Yes	
Platte County			Yes	Yes
Dearborn		Yes	Yes	Yes
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis			Yes	Yes
Northmoor				
Parkville			Yes	Yes
Platte City			Yes	Yes
Platte Woods				
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD			Yes	Yes
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	E. National Weather Service		F. Kansas City Scout	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County	Yes		Yes	
Belton	Yes		Yes	
Harrisonville	Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes		
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill	Yes			
Raymore	Yes	Yes		
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs	Yes	Yes		
Gladstone	Yes	Yes		
Kearney	Yes	Yes		Yes
Liberty	Yes		Yes	
Mosby	Yes		Yes	
North Kansas City	Yes			
Smithville	Yes			
Fishing River FPD	Yes			
Jackson County	Yes	Yes	Yes	Yes
Blue Springs	Yes		Yes	
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes		Yes	
Lee's Summit	Yes		Yes	
Oak Grove		Yes		Yes
Raytown	Yes	Yes	Yes	Yes
Sni Valley FPD	Yes		Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes		Yes
Farley				
Ferrelview				
Houston Lake	Yes	Yes		
Lake Waukomis	Yes	Yes		
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes		
Platte City	Yes	Yes	Yes	Yes
Platte Woods	Yes	Yes		
Riverside	Yes	Yes	Yes	Yes
Tracy	Yes			
Weatherby Lake	Yes	Yes	Yes	Yes
Weston	Yes			
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD	Yes		Yes	
West Platte FPD				
Ray County	Yes	Yes		
Richmond	Yes			

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	G. RHSCC		H. MEMC	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton			Yes	
Harrisonville				
Lake Winnebago	Yes	Yes	Yes	Yes
Peculiar			Yes	Yes
Pleasant Hill				
Raymore			Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs			Yes	
Gladstone			Yes	Yes
Kearney	Yes	Yes		
Liberty	Yes		Yes	
Mosby				
North Kansas City	Yes			
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview			Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes		Yes	
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes	Yes	Yes	Yes
Sni Valley FPD	Yes		Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes	Yes	Yes
Farley				
Ferrelview				
Houston Lake			Yes	Yes
Lake Waukomis	Yes			
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods			Yes	Yes
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD	Yes			
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	I. LEPC		J. MARCER	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton	Yes		Yes	
Harrisonville	Yes	Yes	Yes	Yes
Lake Winnebago	Yes	Yes	Yes	Yes
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill				
Raymore	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs	Yes		Yes	
Gladstone	Yes	Yes	Yes	Yes
Kearney				
Liberty	Yes		Yes	
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview	Yes		Yes	
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.				
Lee's Summit	Yes		Yes	
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes	Yes		
Sni Valley FPD	Yes		Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes	Yes	Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods				
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD	Yes		Yes	
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	K. MOHAKCA		L. Regional 9-1-1 System	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton			Yes	
Harrisonville				Yes
Lake Winnebago	Yes	Yes	Yes	Yes
Peculiar			Yes	Yes
Pleasant Hill			Yes	
Raymore			Yes	Yes
Clay County			Yes	Yes
Excelsior Springs			Yes	
Gladstone	Yes	Yes	Yes	Yes
Kearney			Yes	Yes
Liberty	Yes		Yes	
Mosby			Yes	
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview				
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.			Yes	
Lee's Summit			Yes	
Oak Grove	Yes		Yes	
Raytown	Yes		Yes	Yes
Sni Valley FPD			Yes	
Platte County			Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton		Yes	Yes	Yes
Farley				
Ferrelview			Yes	
Houston Lake				
Lake Waukomis			Yes	Yes
Northmoor	Yes	Yes	Yes	Yes
Parkville			Yes	Yes
Platte City			Yes	Yes
Platte Woods			Yes	Yes
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston			Yes	
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD				
West Platte FPD				
Ray County	Yes			
Richmond			Yes	

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	M. SAVE Coalition		N. KCOAID	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton				
Harrisonville				
Lake Winnebago	Yes		Yes	Yes
Peculiar				
Pleasant Hill			Yes	
Raymore		Yes		
Clay County				
Excelsior Springs				
Gladstone				
Kearney		Yes		
Liberty				
Mosby				
North Kansas City	Yes			
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview				
Independence			Yes	
Kansas City, Mo.			Yes	
Lee's Summit				
Oak Grove	Yes	Yes	Yes	Yes
Raytown	Yes		Yes	Yes
Sni Valley FPD	Yes		Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake	Yes	Yes		
Lake Waukomis			Yes	Yes
Northmoor	Yes	Yes	Yes	Yes
Parkville			Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods				
Riverside	Yes			
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	O. CERT		P. MRCGKC	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton	Yes			
Harrisonville	Yes	Yes		
Lake Winnebago	Yes		Yes	Yes
Peculiar	Yes	Yes		
Pleasant Hill				
Raymore	Yes	Yes	Yes	Yes
Clay County	Yes	Yes	Yes	Yes
Excelsior Springs				
Gladstone	Yes		Yes	Yes
Kearney		Yes		
Liberty	Yes		Yes	
Mosby	Yes			
North Kansas City	Yes			
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview				
Independence	Yes	Yes	Yes	Yes
Kansas City, Mo.	Yes			
Lee's Summit	Yes			
Oak Grove	Yes	Yes		Yes
Raytown	Yes	Yes	Yes	
Sni Valley FPD	Yes			
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton	Yes	Yes		Yes
Farley				
Ferrelview	Yes			
Houston Lake	Yes	Yes		
Lake Waukomis	Yes	Yes	Yes	Yes
Northmoor	Yes	Yes	Yes	Yes
Parkville	Yes	Yes	Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods				
Riverside	Yes	Yes	Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD	Yes	Yes	Yes	Yes
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	Q. Successful Small Cities		R. Water Natural Resources Protection	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton	Yes			
Harrisonville		Yes		Yes
Lake Winnebago			Yes	
Peculiar				
Pleasant Hill				
Raymore	Yes	Yes	Yes	Yes
Clay County			Yes	Yes
Excelsior Springs				
Gladstone				
Kearney				
Liberty				
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview				
Independence				
Kansas City, Mo.				
Lee's Summit				
Oak Grove		Yes		
Raytown				
Sni Valley FPD		Yes		Yes
Platte County			Yes	Yes
Dearborn				
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor	Yes	Yes	Yes	Yes
Parkville				
Platte City				
Platte Woods				
Riverside			Yes	Yes
Tracy				
Weatherby Lake			Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD				
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	S. Storm Shelter Model Ordinance		T. Ongoing Public Education/Information	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton	Yes	Yes	Yes	Yes
Harrisonville		Yes		
Lake Winnebago			Yes	Yes
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill	Yes	Yes		
Raymore			Yes	Yes
Clay County			Yes	Yes
Excelsior Springs				
Gladstone			Yes	Yes
Kearney				
Liberty				
Mosby				
North Kansas City			Yes	
Smithville				
Fishing River FPD				
Jackson County			Yes	Yes
Blue Springs				
Grandview				
Independence			Yes	Yes
Kansas City, Mo.			Yes	
Lee's Summit			Yes	
Oak Grove		Yes	Yes	Yes
Raytown			Yes	Yes
Sni Valley FPD	Yes	Yes	Yes	
Platte County	Yes	Yes	Yes	Yes
Dearborn			Yes	Yes
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake			Yes	Yes
Lake Waukomis				
Northmoor	Yes	Yes	Yes	Yes
Parkville			Yes	Yes
Platte City			Yes	Yes
Platte Woods			Yes	Yes
Riverside			Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD			Yes	
West Platte FPD				
Ray County				
Richmond	Yes		Yes	

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	U. Natural Disaster/Safety School Program		V. StormReady Certification	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton	Yes	Yes	Yes	Yes
Harrisonville				Yes
Lake Winnebago				
Peculiar	Yes	Yes	Yes	Yes
Pleasant Hill	Yes			
Raymore	Yes	Yes	Yes	Yes
Clay County			Yes	Yes
Excelsior Springs				
Gladstone			Yes	Yes
Kearney		Yes		Yes
Liberty	Yes		Yes	
Mosby				
North Kansas City				
Smithville				Yes
Fishing River FPD			Yes	
Jackson County	Yes	Yes	Yes	Yes
Blue Springs				
Grandview				
Independence			Yes	Yes
Kansas City, Mo.	Yes			
Lee's Summit	Yes		Yes	
Oak Grove	Yes	Yes		Yes
Raytown	Yes	Yes		
Sni Valley FPD	Yes			Yes
Platte County	Yes	Yes	Yes	Yes
Dearborn	Yes	Yes	Yes	Yes
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis			Yes	Yes
Northmoor			Yes	Yes
Parkville			Yes	Yes
Platte City	Yes	Yes	Yes	Yes
Platte Woods				
Riverside			Yes	Yes
Tracy				
Weatherby Lake	Yes	Yes	Yes	Yes
Weston				
Northland RAD				
Southern Platte FPD	Yes			
West Platte FPD				
Ray County				
Richmond	Yes			

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations			
	W. Firewise Communities Certification		X. Public-Private Partnership Initiatives	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County				
Belton			Yes	
Harrisonville				
Lake Winnebago			Yes	Yes
Peculiar	Yes	Yes		
Pleasant Hill			Yes	Yes
Raymore			Yes	Yes
Clay County			Yes	Yes
Excelsior Springs				
Gladstone				
Kearney		Yes		
Liberty	Yes		Yes	
Mosby				
North Kansas City				
Smithville				
Fishing River FPD				
Jackson County			Yes	Yes
Blue Springs				
Grandview				
Independence				
Kansas City, Mo.			Yes	
Lee's Summit				
Oak Grove				
Raytown				
Sni Valley FPD		Yes		
Platte County				
Dearborn				
Edgerton		Yes		Yes
Farley				
Ferrelview				
Houston Lake				
Lake Waukomis				
Northmoor	Yes	Yes	Yes	Yes
Parkville			Yes	Yes
Platte City				
Platte Woods				
Riverside			Yes	Yes
Tracy				
Weatherby Lake				
Weston				
Northland RAD			Yes	Yes
Southern Platte FPD	Yes			
West Platte FPD				
Ray County				
Richmond				

Part 2C, Question 1	Education and Outreach Capabilities: Programs and Organizations	
	Y. Media Coverage/Public Awareness	
Jurisdiction	Useful to communicate hazard-related information	Reviewed for HMP Update
Cass County	Yes	
Belton	Yes	Yes
Harrisonville	Yes	Yes
Lake Winnebago		
Peculiar	Yes	Yes
Pleasant Hill	Yes	
Raymore	Yes	Yes
Clay County	Yes	Yes
Excelsior Springs		
Gladstone	Yes	Yes
Kearney	Yes	Yes
Liberty	Yes	
Mosby		
North Kansas City		
Smithville		
Fishing River FPD	Yes	
Jackson County	Yes	Yes
Blue Springs		
Grandview		
Independence	Yes	Yes
Kansas City, Mo.	Yes	
Lee's Summit	Yes	
Oak Grove	Yes	Yes
Raytown	Yes	Yes
Sni Valley FPD	Yes	Yes
Platte County	Yes	Yes
Dearborn	Yes	Yes
Edgerton		Yes
Farley		
Ferrelview		
Houston Lake	Yes	Yes
Lake Waukomis		
Northmoor	Yes	Yes
Parkville	Yes	Yes
Platte City	Yes	Yes
Platte Woods	Yes	Yes
Riverside	Yes	Yes
Tracy		
Weatherby Lake	Yes	Yes
Weston		
Northland RAD	Yes	Yes
Southern Platte FPD	Yes	
West Platte FPD		
Ray County		
Richmond	Yes	

Part 3: Safe Growth Audit Component
A. Land Use **Q7. Describe measures incorporated into the hazard mitigation plan**
Cass County
Peculiar: City has emergency sirens installed with a hearing radius of 1 mile and gates installed at our low water bridge crossings. City also requires storm water permits and land erosion and sediment control permits.
Clay County
Kearney: The City's Comprehensive Plan identifies floodplain areas and encourages those areas be used for open space and parkland. City Codes require development address stormwater drainage through the use of stormwater reports and detention.
Jackson County
Jackson County: Emergency Operations Plan Annex A-Direction and Control, Annex B-Communication & Warning, Annex I-Public Works.
Kansas City, Mo.: City does not have Land Use plan, and mapping is handled primarily by MARC.
Lee's Summit: The City's Comprehensive Plan identifies certain hazard areas for development including floodplains and steep slopes, abandoned gas wells, etc. The Unified Development Ordinance (UDO) has regulations for development and redevelopment review including subdivision and land development regulations designed to identify and address hazards.
Oak Grove: Development is regulated by the city's Uniform Development Code (UDC), which incorporates floodplain, land use, environmental safety, transportation, zoning, and public safety.
Sni Valley FPD: Land use regulations are not part of Fire District legal authority.
Platte County
Platte County: Planning and Zoning continues to work on land use projects and updates plans accordingly.
Houston Lake: Land use policies have been defined since 1960s. Very little, if any, land left for any future development within this community.
Platte Woods: No vacant land in city, require existing entities (churches, business) to file before construction permit issued.
Weatherby Lake: The city does not have any natural hazard areas in the city limits.
B. Transportation **Q4. Describe measures incorporated into the hazard mitigation plan**
Cass County
Peculiar: City has had a traffic study completed in 2004 for C Hwy. and just recently awarded a TEAP grant by MoDOT to perform additional studies along C Hwy.
Jackson County
Jackson County: Emergency Operations Plan Annex H-Hazardous Material Release, Appendix 10-Regional Coordination Guide , Appendix 3-Response Agencies , Annex J-Evacuation Special Facilities, Staging Areas, Hazardous Material Event Evacuation
Lee's Summit: The City adopted a Transportation Level of Service (LOS) "C". By having a higher level of service, the design of roads within the City normally exceeds the necessary capacity to meet normal traffic demand and peak fluctuations in traffic that may be related to incident management, evacuations, detours, concentrated trip generation/events, or similar situations.
Oak Grove: Seeks routes for additional north-south major routes to reduce traffic on Broadway.
Sni Valley FPD: Transportation Plans are not part of Fire District legal authority.
Platte County
Platte County: Planning and Zoning along with Missouri Department of Transportation work hand in hand on county to state roads for safety and continuity.
Houston Lake: Transportation evacuation plan being formally developed. Completed by end of 2015.
Weatherby Lake: N/A

Part 3: Safe Growth Audit Component
C. Environmental Management **Q4. Describe measures incorporated into the hazard mitigation plan**
Cass County
Peculiar: City has incorporated the 2013 floodplain maps into our city wide GIS.
Raymore: The City has identified potential hotspots and hazards and will continue to develop plans to address these hazards. Recently adopted a stormwater treatment ordinance that protects ecosystems and contains incentives for Brownfield redevelopment projects.
Clay County
Kearney: The Zoning Order allows for cluster development which be used to focus development outside of protected or hazardous areas.
Jackson County
Jackson County: Natural Hazard Mitigation Ordinances are used to describe local capabilities with County overview.
Lee's Summit: Programs and requirements incorporated into the development review process are designed to improve downstream water quality through best management practices, such as bio-swales and rain gardens.
Oak Grove: UDC follows development standards of federal regulations on wetlands and earth disturbance; flood insurance standards on requirements for development in flood prone areas.
Sni Valley FPD: Environmental planning is not part of Fire District legal authority.
Platte County
Platte County: Planning and Zoning along with Missouri Department of Transportation work hand-in-hand on county to state roads for safety and continuity.
Weatherby Lake: N/A
D. Public Safety **Q4. Describe measures incorporated into the hazard mitigation plan**
Cass County
Raymore: Public Safety agencies routinely communicate on issues impacting the community. These include major road construction or community wide events. Potential hazards are identified and strategies used to try and mitigate any problems.
Jackson County
Jackson County: Public Safety Ordinances are used to describe local input and to describe local capabilities as well as Jackson County Public Works and Economic Development.
Lee's Summit: Although not specifically mentioned, all of the City's development processes look at hazard mitigation through land use; identification of existing hazards; and to access for emergency response and evacuation.
Sni Valley FPD: Land use planning is not part of Fire District legal authority.
Platte County
Platte County: Planning and Zoning and the county elected officials work to maintain the plans.
Weatherby Lake: Through education and updates.
E. Building Code **Q4. Describe measures incorporated into the hazard mitigation plan**
Cass County
Peculiar: City has recently passed several ordinances that pertain to each of the above [building code questions].
Pleasant Hill: Mandatory safe room ordinance.
Clay County
Kearney: The City recently adopted the 2012 building codes which includes requirements for wind loads, snow loads, hurricane force winds, provisions for safe rooms, construction standards for non-residential structures in floodplains.
Liberty: Section 423 of the IBC defers to ICC-500 for construction standards.
Jackson County
Jackson County: Building codes and zoning ordinances are used to describe local capabilities but are also reviewed and incorporated into Planning and Zoning plans at the County level.

Part 3: Safe Growth Audit Component
Independence: There are guidelines that designated HOW safe rooms or storm shelters should be built (ANSI 500 referred to in the building code). However, safe rooms and shelters are not required for developments.
Kansas City, Mo.: Safe rooms/storm shelters are required for mobile home parks only.
Lee's Summit: The City has adopted the 2012 International Building Code (IBC) and the 2012 International Residential Codes which include wind and snow load design standards. Although not specifically adopted, the IBC does reference ICC/NSSA 500-2008 for the design of storm shelters.
Platte County
Platte County: The storm shelter and safe room is in the code but is voluntary.
Houston Lake: IRC building code needs to be reviewed for building provisions to withstand hazard forces. The use of hazard building provisions has been voluntary and only for any new construction. The majority of existing construction (1920-1940s) was completed BEFORE adoption of IRC code.
Parkville: Incorporated into floodplain ordinance.
Weatherby Lake: The codes are in effect used and the safe room or storm shelter is not totally enforced.
F. Zoning Ordinance **Q6. Describe measures incorporated into the hazard mitigation plan**
Cass County
Peculiar: Buffer zones and prohibit development within the floodplain.
Clay County
Kearney: The Zoning Ordinance includes an Aquifer Protection district, floodplain ordinance, and zoning districts that provide for cluster development.
Jackson County
Jackson County: Building codes and zoning ordinances are used to describe local capabilities but are also reviewed and incorporated into Planning and Zoning plans at the County level and local jurisdiction level.
Kansas City, Mo.: N/A
Lee's Summit: The Unified Development Ordinance(UDO) has regulations for development and redevelopment review including subdivision and land development regulations designed to address hazards such as floodplains, stormwater runoff, erosion control, etc. The City encourages "best practice" techniques including the use of pervious pavement, rain gardens and bio-swales where possible to slow erosion and preserve natural features.
Sni Valley FPD: Zoning is not part of Fire District legal authority.
Platte County
Platte County: Flood zones are set to elevate the project and not to affect any other project in place.
Houston Lake: Land use has not changed significantly in the past 40 years in this community.
Parkville: Incorporated into floodplain ordinance.
Weatherby Lake: The city does not have any high level hazard areas that are affected within the city limits.
G. Subdivision Regulations **Q6. Describe measures incorporated into the hazard mitigation plan**
Clay County
Kearney: The subdivision regulations include a land suitability clause indicating that land subject to flooding, improper drainage or erosion, extreme topography or for other reasons is unsuitable for development shall not be platted/developed, except for areas and development that comply with the adopted floodplain ordinance.
Liberty: The city has ordinances dealing with this issue.
Jackson County
Jackson County: Subdivision regulations are used to describe local capabilities at the jurisdictional level.
Kansas City, Mo.: Access and use of land is regulated.
Lee's Summit: The Unified Development Ordinance (UDO) has regulations for development and redevelopment review including subdivision and land development regulations designed to address hazards such as floodplains, stormwater runoff, erosion control, etc. The City encourages "best practice" techniques including the use of pervious pavement, rain gardens and bio-swales where possible to slow erosion and preserve natural features.
Sni Valley FPD: Subdivision regulations are not part of Fire District legal authority.

Part 3: Safe Growth Audit Component
Platte County
Platte County: Planning and Zoning work with builders and property owners.
Houston Lake: This community does not have any subdivisions. N/A.
Weatherby Lake: There is certain area set aside for green space in newer developments only.
H. Capital Improvement Plan and Infrastructure Policies **Q4. Describe measures incorporated into the hazard mitigation plan**
Cass County
Belton: Establishment of regional retention area for stormwater runoff.
Peculiar: City's 2006 Storm Water Master Plan identifies CIP projects related to flooding.
Jackson County
Jackson County: Mitigation goals and actions regarding Capital improvement and Infrastructure are incorporated into Growth Management and Capital Improvement plans at the local jurisdiction level and the Jackson County Economic Development level.
Lee's Summit: The City's Comprehensive Plan identifies certain hazard areas for development including floodplains and steep slopes. In order for permitting to occur within a flood plain no adverse impact has to be proven through engineering analysis.
Platte County
Platte County: storm water, roads taxes are part of the Master Land Use Plan
Weatherby Lake: N/A

This page intentionally left blank.

Section 4: Risk and Vulnerability Assessment

Requirement §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

4.1 Overview and Changes from 2010 Plan

This portion of the plan contains detailed analyses of 18 hazards that may potentially affect the Kansas City area. To better meet the intent of the Disaster Mitigation Act of 2000, the Planning Team separated these hazards into two categories: Primary Natural Hazards – which includes tornadoes, severe thunderstorms, severe winter weather, flooding, drought, heat waves, wildland fires, earthquakes, dam failures and levee failures – and Secondary Natural, Technological and Human Caused Hazards, which includes emerging infectious disease, trans-boundary animal disease, hazardous materials incidents, mass transportation accidents, cyber disruption, public mass shooter incidents, civil disorder and terrorism.

For this 2015 Plan update, tornadoes and severe thunderstorms are presented as distinct hazards. Five new hazards were added: levee failure, cyber disruption, trans-boundary animal disease, public mass shooter incidents and terrorism. The Planning Team had originally identified only 17 hazards to profile, but after reviewing the results of the community surveys determined to add public mass shooter incidents, as they were identified as high concern threats by the majority of school districts. However, this hazard wasn't specifically identified on the survey, therefore the cities and counties did not rate their overall risk to it.

This section has also been reformatted from the 2010 Plan and combines the previous *Section 3: Risk Assessment* and *Section 3.3: Vulnerability Assessment* into one comprehensive *Risk and Vulnerability Assessment.*

Each hazard is profiled similar to the 2010 Plan and includes:

- **Description** of the potential hazard
- **Probable Location** of the hazard or the geographic areas that may be affected
- **Extent** of a hazard based on *severity and magnitude* of hazard events
- **Previous (historical) occurrences** of hazard events in the region
- **Probability of future events** based on the likelihood of the hazard occurring

The initial hazard profile is then immediately followed by a *Vulnerability Assessment and Potential Loss Estimates* section that includes an expanded narrative on potential impacts and overall summary of each jurisdiction's vulnerability to the identified hazards. The vulnerability assessment for each hazard addresses:

- **Vulnerable Assets** impacted by the potential hazard including population, structures and critical facilities (both existing and future, when known), and other community assets determined to have value and susceptible to damage and loss from hazard events
- **Potential Impacts** identified as consequences or effects on a community and its vulnerable assets

- **Loss Estimates** based on a jurisdiction's building stock or other hazard-specific disaster impacts
- **Problem statements** for each jurisdiction to clearly describe a its greatest vulnerabilities to be addressed in the mitigation strategy

Where possible, the locations or geographic areas that may be affected by the hazards are mapped. The areas that may be affected by weather-related natural hazards are far more difficult to identify. Tornadoes, for example, may affect any part of the Kansas City metropolitan area. Severe thunderstorms, severe winter weather, drought, heat waves and even earthquakes (though not a weather-related phenomenon) are usually widespread weather events that affect the entire region, although certain locations — because of specific characteristics of the built environment, socio-economic conditions or a combination of these elements — may be more susceptible to these natural hazards. These specific conditions are described in the hazard analyses, as applicable.

Many sources were researched for data and information relating to hazards in the Kansas City metropolitan area. Principal sources of all-hazard information include FEMA and SEMA. The National Climate Data Center (NCDC), National Oceanic and Atmospheric Administration (NOAA) and National Weather Service (NWS) were primary sources of information and statistics on weather and/or climate-related hazards. The U.S. Geological Survey (USGS), Center for Earthquake Research and Information (CERI) and the Central United States Earthquake Consortium (CUSEC) were major sources for information on earthquakes and seismic activity in the Midwest and the Kansas City region. SEMA and the Missouri Department of Conservation (MDC) were major sources of fire information related to the Kansas City metropolitan area.

The primary sources of information on dams and dam safety were the Missouri Department of Natural Resources (MDNR) Dam Safety Division and the U.S. Army Corps of Engineers' (USACE) National Inventory of Dams (NID).

Other sources of information include MARC Research Services Department; city and county Web sites and officials; existing county, regional and state plans, reports and documents; newspaper and news organization Web sites, articles and accounts of natural disasters; other state and federal agencies, such as the U.S. Census Bureau and Missouri Census Data Center (MCDC); and colleges and universities, especially the University of Missouri and University of Missouri Extension. References are noted at the end of each hazard profile with a bibliography of research sources in Appendix C: Maps and References.

Several data deficiencies noted in the 2010 Plan have been corrected or new sources of information identified. These are noted where applicable.

4.2 Hazards Not Included in the Plan and Reasons for Elimination

Landslides, land subsidence, debris flows and expansive soils are not included as separate natural hazards in this plan because they are generally not likely to occur within much of the region due to the topography, types of soils and substructures in west-central Missouri. Landslides, however, may be a cascading hazard resulting from a sufficiently powerful earthquake or flood/heavy precipitation, since these natural hazard events may trigger landslides in steep loess bluffs along the Missouri River in portions of Clay, Jackson, Platte and Ray counties. Even these areas, however, are only categorized as moderately susceptible/low incidence[iii]. Other natural hazards, such as coastal storms, coastal erosion, hurricanes, tsunamis, avalanches and volcanic activity are not addressed in this plan because the Kansas

City metropolitan area is not at risk from these natural hazards, due to the region's geographic location, soil profile and geologic structure.

Additionally, each jurisdiction re-assessed its risks from the 12 hazards identified in the 2010 Plan as well as the six added hazards. Hazards were then re-prioritized or deleted based on these assessments. *Section 4.3.1* below discusses in greater detail individual jurisdiction assessments.

Disasters affecting the Kansas City metropolitan area can precipitate "cascading" hazards, i.e., those hazards resulting from a natural disaster. Table 4.1 shows the relationship between the region's identified disasters and categories of possible cascading hazards. Any of these cascading hazards alone or in combination with the direct adverse effects of a disaster can potentially impact emergency response operations in affected communities.

Table 4.1: Cascading Hazards Resulting From Disasters

Natural Disaster	Power and Communications Interruption	Water Supply Interruption	Business Interruption	Computer Failure and/or Loss of Records	Transportation Interruption	Health and/or Environmental Hazards
Tornado	X	X	X	X	X	X
Severe Thunderstorms	X		X	X		
Severe Winter Weather	X	X	X	X	X	X
Flood	X	X	X	X	X	X
Levee Failure	X	X	X	X	X	X
Dam Failure	X	X	X	X	X	X
Drought		X	X			X
Heat Wave			X			X
Wildland Fire	X	X				X
Earthquake	X	X	X	X	X	X
Emerging Infectious Disease			X			X
Trans-boundary Animal Disease			X			X
HAZMAT Incidents			X		X	X
Mass Transportation Accidents					X	
Mass Public Shooter Incident						X
Cyber Disruption	X	X	X	X	X	
Civil Disorder	X		X		X	X
Terrorism	X	X	X	X	X	X

X = 50 percent or greater chance of cascading effect resulting from disaster

4.3 Identifying Hazards and Risk Assessment

Requirement §201.6(c)(2)(i): *[The risk assessment shall include a] description of the type … of all natural hazards that can affect the jurisdiction.*

4.3.1 Overall Risk Determination

As part of the Community Profile Survey, participants were asked to re-evaluate hazards affecting their jurisdictions, noting the overall risk each hazard posed to their governance. If a hazard was not of concern, the jurisdiction was asked to describe why it was eliminated. Risk is "the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets."[iv] This same definition also applies to technological and human-caused hazards. As in the 2010 Plan, to determine overall risk, communities were asked to consider two factors as part of the hazard prioritization process: probability of an event occurring and severity of that event.

Probability was drawn from historic occurrences and rated low, medium or high. These ratings were defined as:

- **Low**—Hazard has little or no chance of happening (less than 1 percent chance of occurrence in any given year).
- **Medium**—Hazard has a reasonable probability of occurring (between 1 and 10 percent chance of occurrence in any given year).
- **High**—Probability is considered sufficiently high to assume that the event will occur (between 10 and 100 percent chance of occurrence in any given year).

Severity was determined as the potential number of deaths, injuries, or amount of damage (property or environmental) that could result from the hazard. When calculating severity, jurisdictions took into account the likely locations for each hazard. These were also ranked low, medium and high, defined as:

- **Low**—Few or minor damage or injuries are likely.
- **Medium**—Injuries to personnel and damage to property and the environment is expected.
- **High**—Deaths and major injuries and damage will likely occur.

Overall risk was then calculated by averaging probability with severity. For ease of calculation, simple numeric values were assigned to the rankings of low, medium or high: Low = 1, Medium = 2, High = 3. For example, if a tornado has a high probability (High = 3) of occurring with a high severity (High = 3), then the overall risk is high ((3 + 3) ⁄ 2 = 3). However, if a town has a high probability of flooding, but due to mitigation measures only a low severity, then the overall risk is medium ((3 + 1) ⁄ 2 = 2). Based on the assumption that it was better to overestimate risk rather than underestimate it, all fractions were rounded up to the next whole number. Figure 4.1 graphically depicts this overall risk algorithm.

		Probability		
		High=3	Medium=2	Low=1
Severity	High=3	H=3	H=3	M=2
	Medium=2	H=(2.5)3	M=2	M=(1.5)2
	Low=1	M=2	M=(1.5)2	L=1

Figure 4.1: Overall Risk Algorithm

Table 4.3 and Table 4.4 below are the hazards identified by participating jurisdictions and their assigned ratings for the Primary Natural Hazards and Secondary Natural, Technological and Human-caused Hazards. The tables are presented with the weighted rankings already applied where 1 = Low, 2 = Medium and 3 = High. Three ranking categories are listed below each hazard: P = Probability; S = Severity and R = Overall Risk (calculated using above methodology). The Overall Risk is highlighted to quickly show the differences between low, medium and high.

As in the 2010 Plan, Overall Risk, on an individual jurisdiction level, is synonymous with overall vulnerability and is best characterized as a damage estimate for potential loss to structures in the hazard area and defined as follows:

- **Low**—Minor damage to less than 5 percent of the jurisdiction anticipated.
- **Medium**—Partial damage to 5-10 percent of the jurisdiction anticipated.
- **High**—Destructive damage to more than 10 percent of the jurisdiction anticipated.

More information about vulnerability analysis is found in *Section 4.5*.

Several jurisdictions identified one or more hazards not applicable to their jurisdiction and eliminated them from consideration. Table 4.2 below lists these jurisdictions along with the eliminated hazards and the corresponding reasoning.

Table 4.2: Jurisdictional Eliminated Hazards

Jurisdiction	Hazard(s) Eliminated	Reason for Elimination
Harrisonville School District	TAD outbreak, Cyber disruption, Mass Transportation Accident, Terrorism	No applicable to school districts
Gladstone	Levee failure; TAD outbreak	No levees or livestock located within or near jurisdiction
Kearney	Levee failure	No levees located within or near jurisdiction
Smithville	Levee failure	No levees located within or near jurisdiction
Lee's Summit	Levee failure	No levees located within or near jurisdiction
Oak Grove	Levee failure	No levees located within or near jurisdiction
Sni Valley FPD	Levee failure	No levees located within or near jurisdiction
Oak Grove R-VI School District	Levee failure	No levees located within or near jurisdiction
Ferrelview	Dam failures, wildland fires, levee failures; TAD Outbreak; Emerging Infectious Disease; Hazardous Materials Release; Civil Disorder; Mass Transportation Accidents; Cyber Disruption; Terrorism	No [levees or] dams located in service area; Ferrelview is a small community with limited infrastructure that could be impacted by the remaining hazards.
Houston Lake	Levee failure	No levees located within or near jurisdiction
West Platte FPD	Dam failure, mass transportation accidents	No dams or mass transit mechanisms located within or near service area
Richmond	Dam failures, levee failures	No levees or dams located within or near jurisdiction

Table 4.3: Overall Risk from Primary Natural Hazards

Jurisdiction	Tornadoes			Flooding			Severe Thunderstorms			Severe Winter Weather			Drought			Heat Waves			Earthquakes			Dam Failures			Wildland Fires			Levee Failures		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Cass County	3	1	2	3	1	2	2	1	2	2	1	2	1	1	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1
Belton	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1
Harrisonville	2	2	2	2	1	2	3	2	3	1	2	2	2	1	2	2	1	2	2	2	2	1	3	2	1	1	1	1	1	1
Lake Winnebago	1	2	2	1	2	2	3	1	2	3	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Peculiar	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1
Pleasant Hill	3	3	3	3	1	2	3	2	3	2	1	2	2	2	2	2	1	2	1	1	1	1	1	1	2	1	2	1	1	1
Raymore	1	3	2	1	1	1	3	1	2	2	2	2	1	1	1	2	2	2	1	2	2	1	2	2	1	1	1	1	1	1
Archie R-V School District	3	3	3	1	1	1	3	2	3	2	2	2	3	3	3	3	3	3	1	1	1	1	1	1	2	2	2	1	1	1
Harrisonville School District	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1
Pleasant Hill R-III School District	3	3	3	3	2	3	3	2	3	3	2	3	2	1	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1
Raymore-Peculiar School District	1	3	2	1	1	1	3	1	3	2	2	2	1	1	1	2	2	2	1	2	2	1	2	2	1	1	1	1	1	1
Clay County	2	3	3	2	1	2	3	2	3	2	2	2	1	2	2	1	1	1	1	3	2	2	3	3	1	1	1	2	3	3
Excelsior Springs	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	3	1	1	1	2	2	2	1	1	1
Gladstone	3	3	3	1	1	1	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	NA		
Kearney	2	3	3	1	1	1	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	NA		
Liberty	3	3	3	2	2	2	3	2	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mosby	2	3	3	3	1	2	3	1	2	2	1	2	1	1	1	1	1	1	1	3	2	2	3	3	1	3	2	1	2	2
North Kansas City	1	3	2	2	2	2	3	2	3	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3
Smithville	2	3	3	2	2	2	3	2	3	3	2	3	2	2	2	2	2	2	1	3	2	1	3	2	2	2	2	NA		
Fishing River Fire	3	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	2	2	1	3	2	1	1	1	3	3	3	3	2	3
North Kansas City School District	3	2	3	1	2	2	3	2	3	3	1	2	2	1	2	3	1	2	2	1	2	1	1	1	1	1	1	1	3	2

Table 4.3: Overall Risk from Primary Natural Hazards

Jurisdiction	Tornadoes			Flooding			Severe Thunderstorms			Severe Winter Weather			Drought			Heat Waves			Earthquakes			Dam Failures			Wildland Fires			Levee Failures		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Smithville R-II School District	3	3	3	2	2	2	3	3	3	2	2	2	1	2	2	1	1	1	1	1	1	2	3	2	1	1	1	1	1	1
Jackson County	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	2	3	1	1	1	1	1	1	1	1	1	1	2	2
Blue Springs	3	3	3	1	1	1	3	3	3	3	3	3	3	1	2	3	1	2	1	1	1	1	2	2	1	1	1	1	1	1
Grandview	3	3	3	2	1	2	3	2	3	3	3	3	2	2	2	3	3	3	1	1	1	1	1	1	2	2	2	1	1	1
Independence	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1
Kansas City, MO	2	3	3	3	3	3	3	1	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2	1	1	1	2	3	3
Lee's Summit	3	3	3	2	2	2	3	2	3	2	1	2	2	1	2	2	2	2	1	1	1	1	3	2	1	2	2	NA		
Oak Grove	2	3	3	3	1	2	3	2	3	3	2	3	2	1	2	3	2	3	2	3	3	2	1	2	3	1	2	NA		
Raytown	2	3	3	1	1	1	2	2	2	2	2	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Sni Valley FPD	2	3	3	3	1	2	3	2	3	3	2	3	2	1	2	3	2	3	2	3	3	2	1	2	3	1	2	NA		
Blue Springs School District	2	3	3	1	1	1	2	1	2	2	1	2	2	2	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1
Fort Osage R1 School District	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3	3	1	1	1	1	1	1	1	1	1	2	2	2
Independence Sc3ool District	2	3	3	1	3	2	2	1	2	2	2	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Kansas City MO #33 School District	3	3	3	2	3	3	3	3	3	3	3	3	2	1	2	2	1	2	1	1	1	1	1	1	2	3	3	1	1	1
Lee's Summit R-7 School District	3	3	3	1	1	1	3	3	3	3	3	3	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Oak Grove R-VI School District	2	3	3	1	1	1	3	2	3	3	2	3	2	1	2	3	1	2	2	2	2	1	1	1	2	1	2	NA		
Kansas City University of Medicine and Biosciences	2	3	3	1	1	1	3	1	3	3	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Metropolitan Community Colleges	3	2	3	2	1	2	3	1	3	3	1	2	2	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Platte County	2	2	2	3	2	3	3	2	3	3	3	3	2	1	2	2	1	2	1	1	1	2	1	2	1	1	1	3	3	3
Dearborn	3	3	3	1	1	1	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
Edgerton	2	2	2	3	2	2	3	2	3	3	3	3	3	1	2	2	1	2	1	1	1	1	2	2	1	1	1	2	2	2

Table 4.3: Overall Risk from Primary Natural Hazards

Jurisdiction	Tornadoes			Flooding			Severe Thunderstorms			Severe Winter Weather			Drought			Heat Waves			Earthquakes			Dam Failures			Wildland Fires			Levee Failures		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Farley	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	2	2	2	2	1	1	1	3	3	3
Ferrelview	2	2	2	2	1	2	2	1	2	2	1	2	1	1	1	2	1	2	1	1	1	NA			NA			NA		
Houston Lake	2	2	2	1	1	1	2	2	2	2	2	2	1	1	1	2	1	2	1	1	1	1	2	2	1	1	1	NA		
Lake Waukomis	2	2	2	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1
Northmoor	3	3	3	2	1	2	3	2	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Parkville	3	2	3	3	2	3	2	1	2	2	1	2	2	1	2	2	1	2	1	1	1	1	1	1	1	1	1	2	2	2
Platte City	2	2	2	2	1	2	3	1	2	2	2	2	2	1	2	3	2	3	1	2	2	1	1	1	2	1	2	1	1	1
Platte Woods	2	2	2	1	1	1	2	2	2	3	2	3	1	1	1	2	2	2	2	2	2	1	1	1	2	2	2	1	1	1
Riverside	3	3	3	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	3	2	1	1	1	1	2	2
Tracy	2	1	2	3	2	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Weatherby Lake	3	3	3	2	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1
Weston	2	3	3	3	2	3	3	1	2	3	2	3	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	3	2	3
Northland RAD	3	2	3	2	2	2	3	2	3	2	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2
West Platte FPD	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	NA			2	2	2	2	2	2
North Platte R-1 School District	3	3	3	2	2	2	2	3	3	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Park Hill School District	2	2	2	1	1	1	2	1	2	2	1	2	1	1	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1
Platte County R-3 School District	2	3	3	2	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
West Platte R-II School District	1	1	1	1	1	1	2	1	2	3	1	2	2	1	2	2	1	2	1	3	2	1	1	1	1	1	1	1	1	1
Park University	2	3	3	2	2	2	3	1	2	3	1	2	1	1	1	3	1	2	1	1	1	1	1	1	1	3	2	1	1	1
Ray County	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2	1	2	1	1	1	1	1	1	1	1	1	2	3	3
Richmond	3	3	3	1	1	1	3	3	3	2	2	2	2	1	2	1	1	1	1	1	1	NA			1	1	1	NA		

Table 4.4: Overall Risk to Secondary Natural, Technological and Human-Caused Hazards

Jurisdiction	Emerging Infectious Disease			TAD Outbreak			Hazardous Materials Release			Civil Disorder			Mass Transportation Accidents			Cyber Disruption			Terrorism		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Cass County	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Belton	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1
Harrisonville	1	1	1	1	1	1	2	1	2	1	1	1	1	2	2	1	2	2	1	1	1
Lake Winnebago	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Peculiar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2
Pleasant Hill	1	2	2	1	2	2	2	2	2	1	2	2	2	3	3	1	2	2	1	3	2
Raymore	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
Archie R-V School District	2	2	2	2	2	2	2	3	3	1	1	1	1	1	1	2	1	2	1	1	1
Harrisonville School District	2	3	3	NA			3	3	3	1	1	1	NA			NA			NA		
Pleasant Hill R-III School District	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Raymore-Peculiar School District	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	3	2
Clay County	1	2	2	1	2	2	2	2	2	1	2	2	1	1	1	1	2	2	1	2	2
Excelsior Springs	3	3	3	1	1	1	3	3	3	1	1	1	2	2	2	1	1	1	1	1	1
Gladstone	2	2	2	NA			1	1	1	1	2	2	1	1	1	2	2	2	1	1	1
Kearney	1	3	2	1	3	2	1	2	2	1	1	1	1	2	2	2	2	2	1	2	2
Liberty	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1
Mosby	1	2	2	1	1	1	2	2	2	1	1	1	2	3	3	1	1	1	1	2	2
North Kansas City	2	3	3	1	1	1	2	2	2	1	1	1	2	2	2	1	3	2	1	1	1
Smithville	2	2	2	2	2	2	2	3	3	1	2	2	2	2	2	2	2	2	1	2	2
Fishing River Fire	2	2	2	2	2	2	3	2	3	2	2	2	3	3	3	2	2	2	2	3	3
North Kansas City School District	2	1	2	1	1	1	2	3	3	1	2	2	2	3	3	1	2	2	1	3	2

Table 4.4: Overall Risk to Secondary Natural, Technological and Human-Caused Hazards

Jurisdiction	Emerging Infectious Disease			TAD Outbreak			Hazardous Materials Release			Civil Disorder			Mass Transportation Accidents			Cyber Disruption			Terrorism		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Smithville R-II School District	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1
Jackson County	3	2	3	1	2	2	3	3	3	1	1	1	1	1	1	2	3	3	2	3	3
Blue Springs	2	3	3	1	1	1	2	3	3	1	3	2	1	1	1	2	2	2	1	1	1
Grandview	1	1	1	1	1	1	3	2	3	2	2	2	3	3	3	2	2	2	2	3	3
Independence	3	2	3	1	1	1	3	3	3	1	1	1	3	2	3	1	1	1	1	1	1
Kansas City, MO	3	3	3	1	1	1	2	2	2	1	1	1	2	2	2	2	3	3	1	1	1
Lee's Summit	1	2	2	1	1	1	2	2	2	1	2	2	2	2	2	1	2	2	1	2	2
Oak Grove	2	2	2	1	2	2	3	2	3	1	1	1	2	2	2	3	1	2	1	2	2
Raytown	2	1	2	1	1	1	2	1	2	1	2	2	1	1	1	2	2	2	1	2	2
Sni Valley FPD	2	2	2	1	2	2	3	2	3	1	1	1	2	2	2	3	1	2	1	2	2
Blue Springs School District	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	2	1	3	2
Fort Osage R1 School District	2	2	2	1	1	1	2	3	3	1	2	2	2	2	2	3	2	3	2	3	3
Independence School District	2	3	3	1	1	1	2	3	3	1	1	1	2	1	2	2	2	2	1	3	2
Kansas City MO #33 School District	3	3	3	1	1	1	3	3	3	3	3	3	2	3	3	3	3	3	3	3	2
Lee's Summit R-7 School District	2	2	2	2	3	3	2	2	2	2	2	2	3	2	3	2	1	2	1	3	2
Oak Grove R-VI School District	2	2	2	1	2	2	2	2	2	1	1	1	2	2	2	2	1	2	1	2	2
Kansas City University of Medicine and Biosciences	1	2	2	1	1	1	1	2	2	2	2	2	1	1	1	2	2	2	1	3	2
Metropolitan Community Colleges	1	1	1	1	1	1	2	1	2	2	1	2	1	1	1	2	1	2	1	1	1
Platte County	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	3	3	3	2	1	2
Dearborn	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Edgerton	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Farley	1	1	1	1	1	1	1	2	2	1	1	1	3	3	3	1	1	1	2	2	2

Table 4.4: Overall Risk to Secondary Natural, Technological and Human-Caused Hazards

Jurisdiction	Emerging Infectious Disease			TAD Outbreak			Hazardous Materials Release			Civil Disorder			Mass Transportation Accidents			Cyber Disruption			Terrorism		
	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R	P	S	R
Ferrelview	NA			NA			NA			NA			NA			NA			NA		
Houston Lake	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lake Waukomis	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1	2	1	1	1
Northmoor	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1
Parkville	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platte City	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	2	1	2	1	3	2
Platte Woods	2	2	2	1	1	1	3	3	3	1	1	1	2	2	2	2	2	2	2	2	2
Riverside	2	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	1	2	2	3	3
Tracy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Weatherby Lake	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1
Weston	1	1	1	1	1	1	3	2	3	1	1	1	1	1	1	2	2	2	2	2	2
Northland RAD	1	2	2	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2
West Platte FPD	2	2	2	1	1	1	2	3	3	1	1	1	NA			1	1	1	2	2	2
North Platte R-1 School District	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	2	1	1	1
Park Hill School District	1	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	2	1	1	1
Platte County R-3 School District	2	2	2	1	1	1	2	1	2	1	1	1	1	1	1	2	2	2	1	2	2
West Platte R-II School District	2	3	3	1	2	2	2	2	2	1	2	2	1	1	1	2	1	2	1	3	2
Park University	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Ray County	2	3	3	1	3	2	2	3	3	1	1	1	1	1	1	3	3	3	2	2	2
Richmond	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Kansas City, MO	3	3	3	1	1	1	2	2	2	1	1	1	2	2	2	2	3	3	1	1	1

In addition to the 18 Primary and Secondary Hazards, the Community Profile Survey asked jurisdictions to identify other hazards of concern. Some of these additionally identified hazards could be categorized into one of the 18 Primary and Secondary Hazards (for instance, train derailment with a hazardous materials release was as an additional hazard of concern identified by a few jurisdictions. However, this hazard could fall under both Hazardous Materials Incident and Mass Transportation Accident). Where these identified hazards could be included in the larger categories, they were accounted for where appropriate. For those hazards that couldn't be classified as one of the 18 hazards, they were noted in Table 4.5.

Table 4.5: Other Identified Hazards

Jurisdiction	Hazard	Ranking			Hazard	Ranking			Hazard	Ranking		
		P	S	R		P	S	R		P	S	R
Grandview	Bridge and structure failure	3	3	**3**								
Lee's Summit	Collapse of Mined and Occupied Subterranean Spaces	1	3	**2**								
Oak Grove	Structural Fires	3	2	**3**								
Sni Valley Fire Protection District	Structural Fires	3	2	**3**								
Harrisonville School District	Intruder	1	3	**2**								
Raymore-Peculiar School District	Violent Intruder	2	1	**2**								
North Kansas City School District	Fire	1	2	**2**		2	1	**2**		2	1	**2**
Smithville R-II School District	School Violence	2	3	**3**								
Blue Springs School District	Armed Intruder	1	3	**2**								
Kansas City MO #33 School District	Active Shooter/Intruder	3	3	**3**	Vandalism to Property	3	3	**3**	Bullying and Individual Assault	3	3	**3**
North Platte R-1 School District	Intruder	1	1	**1**								
Park Hill School District	Active Shooter	1	3	**2**								
Platte County R-3 School District	Active Shooter/Intruder	1	3	**2**								
West Platte R-II School District	Active Shooter/Hostage	1	3	**2**								
Park University	Underground facilities - Full Structural Collapse				Underground facilities-partial structural collapse							

4.4 Hazard Analysis Summary

Table 4.6 through Table 4.10 contain a summary analysis of each of the 18 Primary and Secondary hazards that can potentially affect Cass, Clay, Jackson, Platte and Ray counties and briefly describe (1) magnitude; (2) severity; (3) probability of occurrence; and (4) overall risk to the county. Each hazard is profiled in detail starting in *Section 4.6*.

Table 4.6: Cass County Hazard Summary

Hazard (period with data on record)	Magnitude	Severity: Damages, deaths and injuries	Probability of Occurrence	Overall Risk
Tornadoes (1950-2014)	4[1]	Ranking: High Damages: $31.437M Deaths: 3 Injuries: 26	Ranking: High Total Events: 34 Years w/ 1+ events: 20 Probability: 31%	High
Severe Thunderstorms (1950-2014)	2	Ranking: Medium Damages: $3.97M Deaths: 1 Injuries: 4	Ranking: High Total Events: 326 Years w/ 1+ events: 33 Probability: 51%	High
Severe Winter Weather (1996-2014)	4[2]	Ranking: High Damages: $6.7M[2] Deaths: None Injuries: None	Ranking: High Total Events: 48 Years w/ 1+ events: 19 Probability: 100%	High
Flooding (1993-2014)	3	Ranking: High Damages: $15.6M Deaths: None Injuries: None	Ranking: High Total Events: 12 Years w/ 1+ events: 20 Probability: 91%	High
Levee Failures	0	Not in Hazard Area	Not in Hazard Area	No risk
Dam Failures No known events on record	1	Ranking: Medium Damages: 0 Deaths: None Injuries: None	Ranking: Low Total Events: 0	Medium

Table 4.6: Cass County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Drought (1950–2014)	4	Ranking: Medium Total Impacts: 77 Agriculture: 34 Water/Energy: 13 Environment: 5 Fire: 4 Social: 3 Other: 18	Ranking: High	High
Heat Waves* (1994-2014)	4	Ranking: Medium Damages: $50K Deaths: 59 Injuries: 55	Ranking: High Total Events: 25 Years w/ 1+ events: 10 Probability: 66%	High
Wildland Fires (2002 -2015)	1	Ranking: Low Buildings Damaged/ Destroyed: 7	Ranking: High	Medium
Earthquake No reliable historical data on record	1	Ranking: Low Damages: None known Deaths: None known Injuries: None known	Ranking: Low Total Events: 0 Years w/ 1+ events: 0 Probability: 25-40% chance of a magnitude 6.0-7.5 or greater earthquake on the New Madrid seismic zone through 2053	Low
Mass Transportation Accidents (See Hazard Profile 4.18.3 & 4.18.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
HAZMAT Incidents** (2009-2014)	1	Ranking: Medium	Ranking: High Total Events: 112 Years w/ 1+ events: 5 Probability: 100%	High

Table 4.6: Cass County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Emerging Infectious Disease*** (2009-2014) See Hazard Profile 4.16.3 & 4.16.4 for severity and probability discussion	3	Ranking: Medium Deaths: 0 Cases: 0 cases associated with outbreaks	Ranking: High Total Events: 11 Years w/ 1+ events: 4	High
Trans-boundary Animal Disease (See Hazard Profile 4.17.3 & 4.17.4 for severity and probability discussion)	4	Ranking: High	Ranking: Low	Medium
Public Mass Shooting Incidents (See Hazard Profile 4.20.3 & 4.20.4 for severity and probability discussion)	3	Ranking: High	Ranking: High	High
Civil Disorder See Hazard Profile 4.21.3 & 4.21.4 for severity and probability discussion	1	Ranking: Low	Ranking: Low	Low
Cyber Disruption (See Hazard Profile 4.22.3 & 4.22.4 for severity and probability discussion)	4	Ranking: High	Ranking: High	High
Terrorism (See Hazard Profile 4.23.3 & 4.23.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
[1] Although it is highly unlikely that a single tornado event will cause damage to more than 50 percent of the county, a magnitude of 4 is assigned here to account for the random nature of tornadoes, in that the entire region is vulnerable to a tornado strike.				
[2] Damage estimates aggregated for all counties affected by winter storms.				
* Heat wave data is aggregated for multiple Missouri NWS Forecast Zones affected by heat wave events, which included Cass, Clay, Jackson, Platte and Cass counties. County-specific data is unavailable.				
**Data limitation for Hazardous Materials Incidents discussed in Section 4.14.1				
***Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing *Escherichia coli* (STEC), Pertussis, Measles, and Influenza				

Table 4.7: Clay County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Tornadoes (1950-2014)	4[1]	Ranking: High Damages: $114.2M Deaths: 0 Injuries: 36	Ranking: High Total Events: 30 Years w/ 1+ events: 20 Probability: 31%	High
Severe Thunderstorms (1950-2014)	2	Ranking: Medium Damages: $5.2M Deaths: 2 Injuries: None	Ranking: High Total Events: 398 Years w/ 1+ events: 37 Probability: 57%	High
Severe Winter Weather (1996-2014)	4	Ranking: High Damages: $22K[2] Deaths: None Injuries: None	Ranking: High Total Events: 42 Years w/ 1+ events: 19 Probability: 100%	High
Flooding (1993-2014)	3	Ranking: High Damages: $69.82M Deaths: 1 Injuries: None	Ranking: High Total Events: 93 Years w/ 1+ events: 17 Probability: 81%	High
Levee Failures	2	Ranking: High	Ranking: Low	Medium
Dam Failures No known events on record	1	Ranking: Medium Damages: 0 Deaths: None Injuries: None	Ranking: Low Total Events: 0	Medium
Drought (1950–2014)	4	Ranking: Medium Total Impacts: 77 Agriculture: 34 Water/Energy: 13 Environment: 5 Fire: 4 Social: 3 Other: 18	Ranking: High	High
Heat Waves* (1994-2014)	4	Ranking: Medium Damages: $50K Deaths: 59 Injuries: 55	Ranking: High Total Events: 25 Years w/ 1+ events: 10 Probability: 66%	High
Wildland Fires (2002 -2015)	1	Ranking: Low Buildings Damaged/ Destroyed: 6	Ranking: High Total Events: 208	Medium

Table 4.7: Clay County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Earthquake No reliable historical data on record	1	Ranking: Low Damages: None known Deaths: None known Injuries: None known	Ranking: Low Total Events: 0 Years w/ 1+ events: 0 Probability: 25-40% chance of a magnitude 6.0-7.5 or greater earthquake on the New Madrid seismic zone through 2053	Low
Mass Transportation Accidents (See Hazard Profile 4.18.3 & 4.18.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
HAZMAT Incidents** (2009-2014)	1	Ranking: Medium	Ranking: High Total Events: 252 Years w/ 1+ events: 5 Probability: 100%	High
Emerging Infectious Disease*** (2009-2014) See Hazard Profile 4.16.3 & 4.16.4 for severity and probability discussion	3	Ranking: Medium Deaths: 0 Cases: 4 cases of measles in 2014 confirmed by Clay County Health; 22 measles confirmed by KCMO Health Department	Ranking: High Total Events: 11 Years w/ 1+ events: 4	High
Trans-boundary Animal Disease (See Hazard Profile 4.17.3 & 4.17.4 for severity and probability discussion)	4	Ranking: High	Ranking: Low	Medium
Public Mass Shooting Incidents (See Hazard Profile 4.20.3 & 4.20.4 for severity and probability discussion)	3	Ranking: High	Ranking: High	High
Civil Disorder See Hazard Profile 4.21.3 & 4.21.4 for severity and probability discussion	1	Ranking: Low	Ranking: Low	Low

Table 4.7: Clay County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Cyber Disruption (See Hazard Profile 4.22.3 & 4.22.4 for severity and probability discussion)	4	Ranking: High	Ranking: High	High
Terrorism (See Hazard Profile 4.23.3 & 4.23.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
[1] Although it is highly unlikely that a single tornado event will cause damage to more than 50 percent of the county, a magnitude of 4 is assigned here to account for the random nature of tornadoes, in that the entire region is vulnerable to a tornado strike.				
[2] Damage estimates aggregated for all counties affected by winter storms.				
* Heat wave data is aggregated for multiple Missouri NWS Forecast Zones affected by heat wave events, which included Cass, Clay, Jackson, Platte and Cass counties. County-specific data is unavailable.				
**Data limitation for Hazardous Materials Incidents discussed in Section 4.14.1				
***Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing *Escherichia coli* (STEC), Pertussis, Measles, and Influenza				

Table 4.8: Jackson County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Tornadoes (1950-2014)	4[1]	Ranking: High Damages: $11.2M Deaths: 37 Injuries: 182	Ranking: High Total Events: 31 Years w/ 1+ events: 17 Probability: 27%	High
Severe Thunderstorms (1950-2014)	2	Ranking: Medium Damages: $28.4M Deaths: None Injuries: None	Ranking: High Total Events: 589 Years w/ 1+ events: 55 Probability: 86%	High
Severe Winter Weather (1996-2014)	4	Ranking: High Damages: $15.0M[2] Deaths: None Injuries: None	Ranking: High Total Events: 61 Years w/ 1+ events: 19 Probability: 100%	High
Flooding (1993-2014)	3	Ranking: High Damages: $43.6M Deaths: 11 Injuries: 1	Ranking: High Total Events: 143 Years w/ 1+ events: 19 Probability: 90%	High

Table 4.8: Jackson County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Levee Failures	2	Ranking: High	Ranking: Low	Medium
Dam Failures No known events on record	1	Ranking: Medium Damages: 0 Deaths: None Injuries: None	Ranking: Low Total Events: 0	Medium
Drought (1950–2014)	4	Ranking: Medium Total Impacts: 77 Agriculture: 34 Water/Energy: 13 Environment: 5 Fire: 4 Social: 3 Other: 18	Ranking: High	High
Heat Waves* (1994-2014)	4	Ranking: Medium Damages: $50K Deaths: 59 Injuries: 55	Ranking: High Total Events: 25 Years w/ 1+ events: 10 Probability: 66%	High
Wildland Fires (2002 -2015)	1	Ranking: Low Buildings Damaged/ Destroyed: 8	Ranking: High Total Events: 380	Medium
Earthquake No reliable historical data on record	1	Ranking: Low Damages: None known Deaths: None known Injuries: None known	Ranking: Low Total Events: 0 Years w/ 1+ events: 0 Probability: 25-40% chance of a magnitude 6.0-7.5 or greater earthquake on the New Madrid seismic zone through 2053	Low
Mass Transportation Accidents (See Hazard Profile 4.18.3 & 4.18.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
HAZMAT Incidents** (2009-2014)	1	Ranking: Medium	Ranking: High Total Events: 1105 Years w/ 1+ events: 5 Probability: 100%	High

Table 4.8: Jackson County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Emerging Infectious Disease*** (2009-2014) See Hazard Profile 4.16.3 & 4.16.4 for severity and probability discussion	3	Ranking: Medium Deaths: 0 Cases: 4 shigellosis cases associated with an outbreak in 2010	Ranking: High Total Events: 11 Years w/ 1+ events: 4	High
Trans-boundary Animal Disease (See Hazard Profile 4.17.3 & 4.17.4 for severity and probability discussion)	4	Ranking: High	Ranking: Low	Medium
Public Mass Shooting Incidents (See Hazard Profile 4.20.3 & 4.20.4 for severity and probability discussion)	3	Ranking: High	Ranking: High	High
Civil Disorder See Hazard Profile 4.21.3 & 4.21.4 for severity and probability discussion	1	Ranking: Low	Ranking: Low	Low
Cyber Disruption (See Hazard Profile 4.22.3 & 4.22.4 for severity and probability discussion)	4	Ranking: High	Ranking: High	High
Terrorism (See Hazard Profile 4.23.3 & 4.23.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
[1] Although it is highly unlikely that a single tornado event will cause damage to more than 50 percent of the county, a magnitude of 4 is assigned here to account for the random nature of tornadoes, in that the entire region is vulnerable to a tornado strike.				
[2] Damage estimates aggregated for all counties affected by winter storms.				
* Heat wave data is aggregated for multiple Missouri NWS Forecast Zones affected by heat wave events, which included Cass, Clay, Jackson, Platte and Cass counties. County-specific data is unavailable.				
**Data limitation for Hazardous Materials Incidents discussed in Section 4.14.1				
***Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing *Escherichia coli* (STEC), Pertussis, Measles, and Influenza				

Table 4.9: Platte County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Tornadoes (1950-2014)	4[1]	Ranking: Medium Damages: $35.66M Deaths: 0 Injuries: 17	Ranking: Medium Total Events: 18 Years w/ 1+ events: 10 Probability: 16%	Medium
Severe Thunderstorms (1950-2014)	2	Ranking: Medium Damages: $1.97M Deaths: None Injuries: None	Ranking: High Total Events: 267 Years w/ 1+ events: 40 Probability: 63%	High
Severe Winter Weather (1996-2014)	4[2]	Ranking: High Damages: $5M[2] Deaths: None Injuries: None	Ranking: High Total Events: 50 Years w/ 1+ events: 19 Probability: 100%	High
Flooding (1993-2014)	3	Ranking: High Damages: $18.7M Deaths: 1 Injuries: None	Ranking: High Total Events: 84 Years w/ 1+ events: 16 Probability: 76%	High
Levee Failures	2	Ranking: High	Ranking: Low	Medium
Dam Failures No known events on record	1	Ranking: Medium Damages: 0 Deaths: None Injuries: None	Ranking: Low Total Events: 0	Medium
Drought (1950–2014)	4	Ranking: Medium Total Impacts: 77 Agriculture: 34 Water/Energy: 13 Environment: 5 Fire: 4 Social: 3 Other: 18	Ranking: High Total Events: Years w/1+ events: Probability:	High
Heat Waves* (1994-2014)	4	Ranking: Medium Damages: $50K Deaths: 59 Injuries: 55	Ranking: High Total Events: 25 Years w/ 1+ events: 10 Probability: 66%	High

Table 4.9: Platte County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Wildland Fires (2002 -2015)	1	Ranking: Low Buildings Damaged/ Destroyed: 1	Ranking: High Total Events: 120	Medium
Earthquake No reliable historical data on record	1	Ranking: Low Damages: None known Deaths: None known Injuries: None known	Ranking: Low Total Events: 0 Years w/ 1+ events: 0 Probability: 25-40% chance of a magnitude 6.0-7.5 or greater earthquake on the New Madrid seismic zone through 2053	Low
Mass Transportation Accidents (See Hazard Profile 4.18.3 & 4.18.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
HAZMAT Incidents** (2009-2014)	1	Ranking: Medium	Ranking: High Total Events: 123 Years w/ 1+ events: 5 Probability: 100%	High
Emerging Infectious Disease*** (2009-2014) See Hazard Profile 4.16.3 & 4.16.4 for severity and probability discussion	3	Ranking: Medium Deaths: 0 Cases: 0 cases associated with an outbreak	Ranking: High Total Events: 11 Years w/ 1+ events: 4	High
Trans-boundary Animal Disease (See Hazard Profile 4.17.3 & 4.17.4 for severity and probability discussion)	4	Ranking: High	Ranking: Low	Medium
Public Mass Shooting Incidents (See Hazard Profile 4.20.3 & 4.20.4 for severity and probability discussion)	3	Ranking: High	Ranking: High	High

Table 4.9: Platte County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Civil Disorder See Hazard Profile 4.21.3 & 4.21.4 for severity and probability discussion	1	Ranking: Low	Ranking: Low	Low
Cyber Disruption (See Hazard Profile 4.22.3 & 4.22.4 for severity and probability discussion)	4	Ranking: High	Ranking: High	High
Terrorism (See Hazard Profile 4.23.3 & 4.23.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
[1] Although it is highly unlikely that a single tornado event will cause damage to more than 50 percent of the county, a magnitude of 4 is assigned here to account for the random nature of tornadoes, in that the entire region is vulnerable to a tornado strike.				
[2] Damage estimates aggregated for all counties affected by winter storms.				
* Heat wave data is aggregated for multiple Missouri NWS Forecast Zones affected by heat wave events, which included Cass, Clay, Jackson, Platte and Cass counties. County-specific data is unavailable.				
**Data limitation for Hazardous Materials Incidents discussed in Section 4.14.1				
***Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing *Escherichia coli* (STEC), Pertussis, Measles, and Influenza				

Table 4.10: Ray County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Tornadoes (1950-2014)	4[1]	Ranking: High Damages: $8.95M Deaths: 2 Injuries: 21	Ranking: High Total Events: 21 Years w/ 1+ events: 20 Probability: 31%	High
Severe Thunderstorms (1950-2014)	2	Ranking: High Damages: $20K Deaths: None Injuries: None	Ranking: High Total Events: 116 Years w/ 1+ events: 21 Probability: 33%	High

Table 4.10: Ray County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Severe Winter Weather (1996-2014)	4	Ranking: High Damages: $300K[2] Deaths: None Injuries: None	Ranking: High Total Events: 54 Years w/ 1+ events: 17 Probability: 89%	High
Flooding (1993-2014)	3	Ranking: High Damages: $11.14M Deaths: 2 Injuries: None	Ranking: High Total Events: 51 Years w/ 1+ events: 16 Probability: 76%	High
Levee Failures	2	Ranking: High	Ranking: Low	Medium
Dam Failures No known events on record	1	Ranking: Medium Damages: 0 Deaths: None Injuries: None	Ranking: Low Total Events: 0	Medium
Drought (1950–2014)	4	Ranking: Medium Total Impacts: 77 Agriculture: 34 Water/Energy: 13 Environment: 5 Fire: 4 Social: 3 Other: 18	Ranking: High	High
Heat Waves* (1994-2014)	4	Ranking: Medium Damages: $50K Deaths: 59 Injuries: 55	Ranking: High Total Events: 25 Years w/ 1+ events: 10 Probability: 66%	High
Wildland Fires (2002 -2015)	1	Ranking: Low Buildings Damaged/ Destroyed: 3010	Ranking: High Total Events: 434	Medium

Table 4.10: Ray County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Earthquake No reliable historical data on record	1	Ranking: Low Damages: None known Deaths: None known Injuries: None known	Ranking: Low Total Events: 0 Years w/ 1+ events: 0 Probability: 25-40% chance of a magnitude 6.0-7.5 or greater earthquake on the New Madrid seismic zone through 2053	Low
Mass Transportation Accidents (See Hazard Profile 4.18.3 & 4.18.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
HAZMAT Incidents** (2009-2014)	1	Ranking: Medium	Ranking: High Total Events: 38 Years w/ 1+ events: 5 Probability: 100%	High
Emerging Infectious Disease*** (2009-2014) See Hazard Profile 4.16.3 & 4.16.4 for severity and probability discussion	3	Ranking: Medium Deaths: 0 Cases: 0 cases associated with an outbreak	Ranking: High Total Events: 11 Years w/ 1+ events: 4	High
Trans-boundary Animal Disease (See Hazard Profile 4.17.3 & 4.17.4 for severity and probability discussion)	4	Ranking: High	Ranking: Low	Medium
Public Mass Shooting Incidents (See Hazard Profile 4.20.3 & 4.20.4 for severity and probability discussion)	3	Ranking: High	Ranking: High	High
Civil Disorder See Hazard Profile 4.21.3 & 4.21.4 for severity and probability discussion	1	Ranking: Low	Ranking: Low	Low
Cyber Disruption (See Hazard Profile 4.22.3 & 4.22.4 for severity and probability discussion)	4	Ranking: High	Ranking: High	High

Table 4.10: Ray County Hazard Summary				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Terrorism (See Hazard Profile 4.23.3 & 4.23.4 for severity and probability discussion)	1	Ranking: Medium	Ranking: Low	Medium
[1] Although it is highly unlikely that a single tornado event will cause damage to more than 50 percent of the county, a magnitude of 4 is assigned here to account for the random nature of tornadoes, in that the entire region is vulnerable to a tornado strike.				
[2] Damage estimates aggregated for all counties affected by winter storms.				
* Heat wave data is aggregated for multiple Missouri NWS Forecast Zones affected by heat wave events, which included Cass, Clay, Jackson, Platte and Cass counties. County-specific data is unavailable.				
**Data limitation for Hazardous Materials Incidents discussed in Section 4.14.1				
***Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing *Escherichia coli* (STEC), Pertussis, Measles, and Influenza				

Magnitude is the potential percentage of the land area (or population, where noted) of the county that could be affected by a hazard. Magnitude is ranked on a scale of 1 to 4 defined as:

1. Less than 10 percent
2. 10 to 25 percent
3. 25 to 50 percent
4. More than 50 percent

Severity, probability of occurrence and overall risk were calculated using the same methods described in Figure 4.2. For severity, the totals for damage (crop and property), injuries and deaths are included where applicable. The data contained in the table below is aggregated for Cass, Clay, Jackson, Platte and Ray counties. Because every jurisdiction and unincorporated part of each county did not fully participate in this plan, the data presented in Table 4.6 through Table 4.10 does not necessarily correspond to the data in Figure 4.2. To compensate for data lost due to lack of response, the information below is summarized at the county level to provide a more concise regional risk assessment. All weather-related information was collected from the National Weather Service's NCDC online database.

TABLE 4.5: CASS COUNTY HAZARD SUMMARY				
Hazard (period with data on record)	**Magnitude**	**Severity: Damages, deaths and injuries**	**Probability of Occurrence**	**Overall Risk**
Tornado	4 [1]	Ranking: High	Ranking: High	High
(Feb. 1950–Dec. 2014)		Damages: $31.447M	Total Events: 34	
		Deaths: 3	Years w/ 1+ events: 21	
		Injuries: 26	Probability: 33%	

Figure 4.2: Example of County Hazard Summary

Data limitations:
Probability was calculated using the same methodology in the 2010 Plan and is based on past hazard events occurring at least once a year over the available history of the hazard. For example, 34 tornadoes have struck Cass County over the last 63 Years. For probability estimation, years with one or more tornado strikes were accounted for. In 21 of the 63 years, one or more tornado strikes were recorded. Thus, Cass County has a 33 percent chance each year of being struck by a tornado (21 divided by 63 times 100). The NCDC database does not contain information on events prior to 1950 and for some hazards, no information exists prior to 1993; this relatively short data set lends itself to the possibility of skewed probability of occurrence outcomes. To compensate for this, only the years in which events occurred, and not the total number of events, were factored when determining probability—as demonstrated in the preceding Cass County tornado example. If the total number of events is divided by the years in question, then the possibility exists for achieving a greater than 100 percent probability of an event occurring. For instance, taking Cass County again, but this time using floods, there have been 37 floods in Cass County since 1993 (the earliest data is available). If these numbers were used to determine probability, then 37 events divided by 16 years equals a 230 percent probability of a flood event occurring. But, if only the years in which at least one flood occurred are used rather than the total number of floods, then the probability becomes more realistic. In this case, 15 of the 16 years on record had flood events, thus there is a 93 percent probability of at least one flood occurring a year.

Severe winter weather damage estimates are calculated for the total area affected by the storm, which generally includes a group of counties. Therefore, each county's exact loss estimate is unknown. It is likely that damage estimates from each winter storm overlap from county to county. To compensate for this, the total damage costs for all storms that included the selected county are described here to provide a comprehensive understanding of damages from winter storms.

The future probability of occurrence for drought is not calculated using historic events due to the complexity of determining drought conditions. Instead, a general measure of future probability is used and discussed in *Section 4.12.5*.

The probability of future occurrence for emerging infectious disease is not quantified in the tables below. Use of historical data to predict future outbreaks is unreliable because there are too many potential diseases that could create a public health emergency, each with varying transmission properties, to be able to accurately sum into one figure for predictability. Additionally, there is no baseline measurement for what qualifies as an "event" as in other hazards. For the purposes of this report, the probability of emerging infectious disease is identified in general terms, e.g., it is more likely than not that disease will occur, and thus the overall probability is "high."

The severity column for emerging infectious Includes information related to outbreaks of Campylobacter, Shigellosis, Cryptosporidiosis, Shigo toxin-producing Escherichia coli (STEC), Pertussis, Measles, and Influenza.

Where other data limitations exist, these are discussed separately in each hazard.

4.5 Vulnerability Assessment and Potential Loss Estimation

"Vulnerability" describes an asset's level of exposure or susceptibility to damage from hazards. The vulnerability of an asset— such as residential and commercial property, critical facilities or infrastructure— depends on a variety of factors, including its construction, contents and/or economic

value of its functions. A vulnerability assessment provides policy-makers, emergency managers and planners with information on the extent or severity of loss of life, injuries and/or property damage that may result from a hazard event of a given intensity in a given area. A vulnerability assessment includes an inventory of assets and an estimation of potential losses.

The vulnerability assessment attempts to combine information related to hazard identification with an inventory of commercial property, residential property, public facilities (including critical facilities) and infrastructure. Vulnerability assessments also include estimates of potential injuries, property damage and economic losses from hazards in a geographic area, measured in dollars or other quantifiable means.

Basic vulnerability assessments were developed for Cass, Clay, Jackson, Platte and Ray counties for each of the hazards addressed in this plan and follow the Probability of Future Occurrence section of the Hazard Profile. These vulnerability assessments estimate losses to people, buildings and infrastructure potentially at risk from hazards in each county. Information detailed in Section 2: Regional profile was used to approximate value of buildings and infrastructure and identify likely affected populations.

Because hazards have different impact areas and characteristics, varying methodologies were used to estimate loss and are described below. These methodologies the same as those applied in the 2010 Plan, but have been modified in some cases where new or better data was available.

4.5.1 Loss Estimations for "Non-Area Specific" Hazards

Fifteen of the 18 hazards identified in this Plan are best characterized as "non-area specific" hazards, meaning the hazard is not confined to a defined geographic area and has an equal chance of occurring (and impacting) any given portion of the planning area versus another. This presents serious challenges when attempting to describe a jurisdiction's vulnerability in realistic terms, as the totality of its assets could be considered vulnerable, and offers little definitive guidance as to where jurisdictions should direct limited resources for mitigation efforts.

For this reason, a Statistical Risk Assessment Methodology was used to calculate loss estimations for non-area specific hazards, resulting in a qualitative range of risk which can be used to compare hazards and identify priority mitigation actions. The next section discusses how the methodology was derived and calculated. The Statistical Risk Assessment Methodology was used for the following Primary Natural Hazards:

- Tornadoes
- Severe Thunderstorms
- Severe Winter Weather
- Dam Failures
- Heat Waves

It was also used for the following Secondary Hazards:

- Emerging Infectious Disease
- Trans-boundary Animal Disease
- Mass Transportation Accidents
- Hazardous Materials Incidents
- Mass Public Shooting Incidents
- Cyber Disruption
- Terrorism

While Civil Disorder and Drought are also non-area specific hazards, due to certain data limitations, the Statistical Risk Assessment Methodology could not be used. Instead, separate methodologies for each were used and are discussed in their hazard profile sections. In the 2010 Plan, earthquakes were considered an area-specific hazard. For this 2015 update, earthquakes were removed as an area-specific hazard, given the reality that the entire planning is in a Modified Mercalli Zone VI, and no one jurisdiction is more susceptible to the effects of an earthquake than another (See earthquake hazard profile). Potential loss estimates for earthquakes were calculated using HAZUS-MH by county in the State of Missouri's 2013 Hazard Mitigation Plan and incorporated in this Plan update. A full discussion on HAZUS methodologies is found in the earthquake hazard profile.

4.5.2 Establishing the Statistical Risk Assessment Methodology

The general steps used in the statistical risk assessment methodology are:

- Compile data from national and local sources
- Conduct statistical analysis of data to relate historical patterns within data to existing hazard models (minimum, maximum, average and standard deviation)
- Categorize hazard parameters for each hazard to be modeled
- Develop model parameters based on analysis of data, existing hazard models and risk engineering judgment
- Apply hazard model including:
  - Analysis of frequency of hazard occurrence
  - Analysis of intensity and damage parameters of hazard occurrence
  - Analysis of total exposure (building stock exposure)
  - Development of simple damage function to relate hazard intensity to a level of damage (e.g., one tornado = a certain monetary amount of estimated damage)
  - Development of annualized loss estimates

4.5.3 Derivation of Statistical Risk Assessment Methodology's Loss Estimation Calculation

The final derivation of loss estimation using the statistical risk assessment methodology takes all the information elements presented in the hazard profiles and synthesizes them into an overall loss estimation. In order to include a viable range of potential loss, two separate calculations were performed, one for a maximum loss estimation and one for a minimum loss estimation.

Maximum loss estimation was determined by averaging four variables: Overall Risk (probability and severity), Magnitude, Total Exposure (value of all assets) and Total Population. **Note, while these are the "base" variables, other variables may be substituted if the unique characteristics of the hazard or available data make it logical to do so. Alterations to the formula are discussed in each hazard profile where applicable.* Maximum loss assumes total vulnerability of all assets and population of a county to a hazard event. Since it is unlikely that an entire county will be affected in a hazard event, the variables of Overall Risk and Magnitude are introduced here to provide a realistic outer bound to maximum loss estimation. The variables were assigned simple numeric values for ease of calculation as follows:

- **Overall Risk** (probability and severity): Low = **1**
Medium = **2**
High = **3**

- **Magnitude** (percentage of county affected): Less than 10 percent = **1**
  10 to 25 percent = **2**
  25 to 50 percent = **3**
  More than 50 percent = **4**

- **Total Exposure** (dollar value, thousands): <1,000,000 = **1**
  1,000,000 – 10,000,000 = **2**
  >10,000,000 = **3**

  Total Exposure (building count, *used when property valuations unavailable*) <10= **1**;
  11 – 50 = **2**;
  >50 = **3**

- **Total Population** (in thousands): 0 – 100 = **1**
  101 – 500 = **2**
  >500 = **3**

The solution was then qualified into a range representing maximum loss estimation potential as follows:

1–1.5 = **Low**
1.6–2.5 = **Medium**
Greater than 2.5 = **High**

Table 4.11 below is an example of maximum loss estimation.

Table 4.11: Sample Maximum Loss Estimation

Overall Risk (probability and severity)	Magnitude (percent of county affected)	Total Exposure ($ value, thousands)	Total Population (in thousands)	Maximum Loss Estimation
Med = 2	25–50% = 3	11,000,000 = 3	100 = 2	2.5 = Medium

Minimum loss estimation attempts to quantify the average likely damage of a hazard based on historic damages and loss ratios. The minimum loss estimation provides a realistic lower bound for which damage can be expected. The minimum loss was calculated using the same basic formula as the maximum loss. However, averages for magnitude, loss and deaths/injuries from historical events were used instead of the total county-wide maximum loss estimations values. Averages were desirable because they provided real numbers while incorporating available data. As with the maximum loss estimation, substitutions for these variables could be made were applicable. "Overall risk" remained constant from the maximum loss calculations. The ranges used for minimum loss estimation are on the same general order as those used for maximum loss estimation. However, the ranges have been scaled, where appropriate, based on the available data. They are described as follows:

- **Overall Risk** (probability and severity): Low = **1**
  Medium = **2**
  High = **3**

- **Magnitude** (percentage of county affected): Less than 10 percent = **1**

10 to 25 percent = **2**
25 to 50 percent = **3**
More than 50 percent = **4**

- **Annualized Loss** (crop/property $ value, thousands): <100= **1**
  100–500 = **2**
  >500 = **3**

  Average Loss (building count, *used when property valuations unavailable*) <10= **1**;
  11 – 50 = **2;**
  >50 = **3**

- **Average Deaths/Injuries** (summed together): <1 = **1**
  1–5 = **2**
  >5 = **3**

The solution was then qualified into a range representing minimum loss estimation potential as follows:

1–1.5 = **Low**
1.6–2.5 = **Medium**
Greater than 2.5 = **High**

Table 4.12 below is an example of minimum loss estimation.

Table 4.12: Sample Minimum Loss Estimation

Overall Risk (probability and severity)	Average Magnitude (percent of county affected)	Annualized Loss ($ value, thousands)	Average Deaths and Injuries	Minimum Loss Estimation
Medium = 2	<1 % = 1	$289 = 2	.39 = 1	1.5 = Low

By comparing maximum and minimum loss estimations, mitigation planners will be provided with a reasonable target on which to focus their planning efforts. For instance, if the maximum loss estimation for a given hazard is "high" and the minimum loss estimation is "medium," the logical conclusion should be that the hazard is of sufficient concern to warrant high-priority mitigation actions. Likewise, if the maximum loss estimation is "medium" and the minimum is loss estimation is "low," it is logical to assume the hazard warrants a lower-priority rating for mitigation actions. When maximum and minimum loss estimations diverge, the likely threat of the hazard can be assumed to reside somewhere in between, qualifying a medium-priority ranking for hazard mitigation actions.

4.5.4 Loss Estimations for "Area Specific" Hazards

The three remaining hazards – flooding, levee failure and wildland fires are considered "area specific" hazards, in that they have generally known geographic boundaries and can impact specific portions of the planning area. Because more is known about these hazards, detailed loss estimates can be conducted for each. For flooding, HAZUS-MH was used to calculate potential losses by jurisdiction (see flooding hazard profile for more information). For levee failures, building parcel data was overlaid on a GIS layer for areas protected by levees to estimate the potential loss of buildings within the protected

area by impacted jurisdiction (see levee failure hazard profile). For wildland fire, jurisdictions and buildings in wildland/urban interface areas susceptible to fire were identified and mapped. A modified statistic risk assessment process was used to quantify risk on the individual jurisdiction level, vice the county level (see wildland fire hazard profile).

4.5.5 Deletion of Section 3.3.3a from the 2010 Plan and Addition of Problem Statements

The 2010 Plan contained a Section 3.3.3.a where separate potential loss estimates were calculated to understand potential loss in terms of building values at an individual jurisdiction level for certain "area-specific" hazards. These hazards included flooding, dam failure, earthquakes and wildland fire. A number of discrepancies were identified with this approach in 2010, most notably in the use of an "assumed standard value" to calculate building losses by jurisdiction. With the improvements in parcel data discussed above, these discrepancies have been resolved and eliminated the need for separate potential loss estimations, as these are now included within the hazard profiles where appropriate.

A series of *problem statements* were added to each hazard profile to describe the greatest vulnerabilities to support and the development of mitigation strategies.

4.6 Tornadoes

Tornadoes are violently rotating columns of air extending from a thunderstorm to the ground.[v] Though most often associated with the central United States, tornadoes have been documented in all 50 states.[vi] Tornadoes can also occur at any time of the year, although the peak season for tornadoes in the Kansas City area is the spring and summer. In addition, tornadoes can occur at any time of the day, though they are most likely to occur between 3 and 9 p.m. The weather conditions conducive to the formation of tornadoes often produce a variety of other dangerous storm-related weather conditions, such as severe thunderstorms, downbursts, straight-line winds, lightning, hail and heavy rains.[vii] Refer to the Severe Thunderstorms Hazard Profile in Section 4.7 for these types of weather conditions.



Tornadoes are formed from the largest thunderstorms, and the most destructive tornadoes are formed by supercells which are, according to NOAA's Storm Prediction Center (SPC), "rotating thunderstorms with a well-defined radar circulation called a mesocyclone."[viii]

The SEMA State Hazard Analysis provided a vivid description of the formation of a tornado:

> [The] cumulonimbus clouds [in a thunderstorm] can reach heights of up to 55,000 feet above ground level, and are commonly formed when warm, gulf air is warmed by solar heating. The moist warm air is overridden by the dry cool air provided by the jet stream. This cold air presses down on the warm air preventing it from rising, but only temporarily. Soon, the warm air forces its way through the cool air and the cool air moves downward past the rising warm air. Adding to all this is the deflection of the earth's surface, and the air masses will start rotating. This rotational movement around the location of the breakthrough forms a vortex, or funnel. If the newly created funnel stays in the sky, it is referred to as a funnel cloud. However, if it touches the ground, the funnel officially becomes a tornado.

The average period of a tornado's ground contact is 30 minutes, covering an average distance of 15 miles. In a review of Missouri tornadoes occurring between 1950 and 1996, the National Weather Service calculated a mean path length of 2.27 miles and a mean path area of 0.14 square miles.[ix]

The damage associated with tornadoes is primarily caused by wind speed; in general, the greater the wind speed, the greater the potential for damage. The violently rotating winds of a tornado can break branches and uproot trees, tear roofs off of houses, lift vehicles off the ground, remove walls from houses and topple well-constructed homes and other structures. In addition, a large amount of debris can be generated by a tornado's destructive winds and objects can become "missiles," indirectly damaging structures and injuring or killing people through the force of their impact.

Tornadoes are classified according to the Enhanced Fujita Tornado Damage Scale, commonly referred to as the EF-Scale. This scale, which became standard in 2007, determines a tornado's rating by comparing 28 damage indicators against eight degree-of-damage (DOD) levels.[x] The EF-Scale is a set of wind estimates (not measurements) based on damage. It uses three-second gusts estimated at the point of damage, based on a judgment of the levels of damage to the 28 indicators. These estimates vary with height and exposure. The three-second gust is not the same wind as in standard surface observations.

Standard measurements are taken by weather stations in open exposures, using a directly measured "one-minute mile" speed.[xi] (See Table 4.6.1)

Table 4.6.1: Enhanced Fujita Scale[xii]			
Derived EF Scale		**Operational EF Scale**	
EF Number	Three- Second Gust (mph)	EF Number	Three-Second Gust (mph)
0	65-85	0	65-85
1	86-109	1	86-110
2	110-137	2	111-135
3	138-167	3	136-165
4	168-199	4	166-200
5	200-234	5	Over 200

4.6.1 Historical Occurrences

According to the National Climatic Data Center (NCDC), the Kansas City area has been struck by 141 tornadoes of varying degrees of intensity since January 1, 1950.[xiii] These tornadoes in Cass, Clay, Jackson, Platte and Ray counties have caused 42 deaths and 277 injuries. Most notably, the Ruskin Heights Tornado of May 20, 1957 was the deadliest and most destructive tornado to ever strike the Kansas City metro area. The track of this F5 tornado was 71 miles long and averaged 400 yards wide.[xiv] This massive tornado was responsible for 44 deaths in the bistate Kansas City area, including 37 people killed in Jackson County alone and 531 injuries.[xv] Damages were estimated at $40 million. When adjusted for inflation (in 1997 dollars), the damage from this tornado was $228 million, making it the fourteenth most damaging tornado in United States history.[xvi] The current costliest tornado on record, according to NOAA, is the EF5 tornado devastating Joplin, Missouri on May 22, 2011, with estimated $2.8 billion in damage (2011 dollars). [xvii]

Table 4.6.2 below lists the number of tornadoes by EF-Scale rating in Cass, Clay, Jackson, Platte and Ray counties. No additional deaths or injuries caused by tornadoes have occurred since the last plan update.

Table 4.6.2: Kansas City Area Tornadoes By EF-Scale (1950–2014)						
EF-Scale	**Cass**	**Clay**	**Jackson**	**Platte**	**Ray**	**Total**
F0	17	8	12	4	7	48
F1	10	12	8	4	10	44
F2	2	5	6	2	7	22
F3	5	2	3	4	2	16
F4	0	3	1	4	2	10
F5	0	0	1	0	0	1
Total	**34**	**30**	**31**	**18**	**28**	**141**

Source: NOAA NCDC Web site

Table 4.6.3 provides the locations, dates, magnitude, number of deaths, number of injuries, property damage and crop damage for tornadoes occurring in Cass, Clay, Jackson, Platte and Ray counties between January 1, 1950 and December 31, 2014. The data for these tables is from the storm event database on the NCDC Web site.[xviii] A total of 11 tornado events since the last plan update occurred on six specific dates in May and June: June 8, 2010; May 25, 2011; May 6, 2012; May 10, 2014; June 15, 2014; and June 30, 2014.

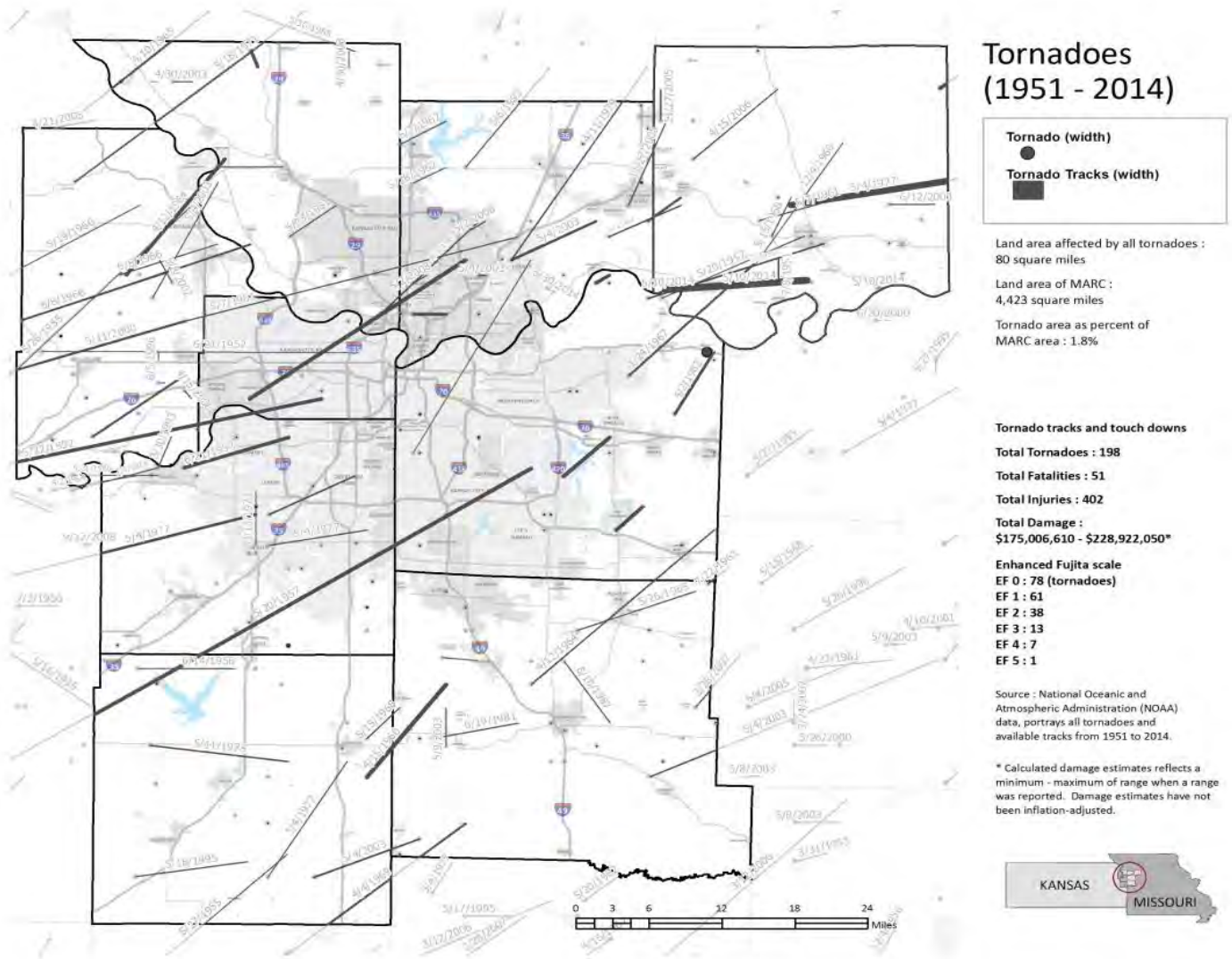
Table 4.6.3: Kansas City Area Tornadoes (2010-2014)

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Cass	Harrisonville	6/8/10	F0	0	0	$10,000	$0
Cass	Daugherty (Countywide SE of Harrisonville)	5/25/11	F0	0	0	$0	$0
Cass	Harrelson (Countywide, South of Raymore)	5/6/12	F0	0	0	$0	$0
Cass	Raymore	5/6/12	F0	0	0	$0	$0
Cass	Belton Villnave Airport (Countywide, South of Belton and West of Peculiar)	6/15/14	F0	0	0	$0	$0
Clay	Liberty	5/25/11	F0	0	0	$0	$0
Clay	Countywide (near Kearney)	5/25/11	F0	0	0	$0	$0
Clay	South Liberty	6/30/14	F1	0	0	$0	$0
Jackson	Sibley	5/10/14	F2	0	0	$0	$0
Platte	None identified						
Ray	Orrick	5/10/14	F2	0	0	$2,500,000*	$0
Ray	Lexington Airport	5/10/14	F0	0	0	$0	$0

* Damage estimate provided by Ray County
Source: NOAA NCDC Web site

Map 4.6.1 illustrates the history of tornadoes hitting in and around the Kansas City region since 1951. The figure presents paths of destruction, property damages, loss of life and injuries.

Historical narratives of the region's prior deadly tornadoes were included in the 2010 Plan update, but removed from this 2015 Plan update in an effort to streamline information. These historical narratives remain available for reference in the 2010 Plan update. The 2015 Plan update will focus on events occurring in the last five years or those in the recent past that give context to the region's vulnerability and demonstrate potential impact to the region.



Map 4.6.1: Kansas City Metropolitan Area Tornadoes (1951-2014)

4.6.1a Tornado Outbreak of May 4, 2003[xix]

A major tornado outbreak occurred across the Kansas City metro area during the late afternoon and evening of May 4, 2003. Significant damage was reported in Kansas City, Kansas, as well as in Gladstone and Parkville, Missouri. According to the National Weather Service (NWS), this was the first major tornado outbreak in the Kansas City area since May 4, 1977, when a large tornado struck the community of Pleasant Hill, Missouri.[xx]

Map 4.6.2 below depicts the paths of the May 4, 2003, tornado outbreak across the Kansas City area and indicates the F-Scale magnitude of the tornadoes. According to the NWS, five-distinct tornado paths were evident across the northern part of the Kansas City metro area.[xxi] On the Missouri side, tornadoes damaged areas in Platte County along the Missouri River near Riverside and Parkville (F0–F1 damage), and in and around Liberty and Gladstone in Clay County (F0–F4 in Gladstone and F2 in Liberty).[xxii] A tornado also touched down near Garden City in Cass County (F0–F2).[xxiii] The NWS reported no evidence of tornadoes touching down in Jackson and Ray counties during this event.



Source: NOAA NWS Kansas City/Pleasant Hill Web site

Map 4.6.2: Path and Magnitude of May 4, 2003, Tornado Outbreak

Damage estimates for the May 4, 2003 tornado outbreak include:

- Clay County – $91.4 million[xxiv]
- Platte County – $33.9 million[xxv]
- Cass County – $1.25 million[xxvi]

4.6.1b Liberty and Gladstone Tornadoes of May 2, 2008[xxvii]

An early morning line of storms developed across south central Kansas. This line of storms, developed into a bow echo, which raced northeast at speeds in excess of 50 mph, into Greater Kansas City and surrounding communities, early on the morning of May 2, 2008. The bow echo generated hurricane-force winds, which brought widespread wind damage to areas from Olathe, Kansas, through northeast Kansas City, Missouri, and into Brookfield in north central Missouri. As the bow echo moved through Kansas City, it spun up tornadoes along the apex of its leading edge. One EF3 tornado moved across the north side of Gladstone, while the other EF2 tornado moved through an area just northwest of Liberty. However, most of the damage was due to the strong straight-line winds that were also occurring along the apex of the bow echo. Gladstone reported 20 homes destroyed, 280 homes damaged and 19 businesses damaged. North Kansas City had four homes destroyed and 117 damaged. Independence had 13 homes and two businesses badly damaged. Six people were injured, and the storm caused millions of dollars of damage. The EF2 tornado developed along a bow echo on May 2, 2008 and touched down at 1:03 a.m. in Gladstone, travelling northeast. It dissipated at 1:08 A.M. numerous homes and businesses suffered damage or total loss.

4.6.1c Southeast Harrisonville Tornado of June 8, 2010

In the wake of morning thunderstorms, afternoon sunshine heated an already very humid air mass over west central Missouri and eastern Kansas on Tuesday, June 8, 2010, creating a very unstable atmosphere over the region. A slow moving cold front reached a Wichita-to-Kansas City line by late afternoon, rapidly igniting a long line of strong, slow moving thunderstorms. The only severe weather observed in the region, was with one of the first storms that developed in western Johnson County Kansas. This long-lived supercell storm tracked southeast into Cass County and began to show signs of organized rotation as it tracked toward Harrisonville, prompting the issuance of a tornado warning. A brief tornado touched down along the south side of Harrisonville, producing roof and tree damage to a church carport, a commercial business, and a number of trees at nearby residences. Storm survey and eyewitness accounts confirm that an EF0 tornado touched down at 5:39 p.m., a little over one-half mile south of Harrisonville. The tornado traveled about two miles to the east before lifting at 5:44 p.m. A church roof was blown off. There was also minor damage to a commercial building, and a number of trees were also damaged.

4.6.1d Orrick Tornado of May 20, 2014

During the day on Saturday, May 10, several supercell thunderstorms formed across western and northern Missouri. The first cells formed around 3 p.m. in far northern Missouri, and produced very large hail up to the size of softballs. These softball-sized hail stones fell near the city of Trenton, Missouri, in Grundy County. Later in the evening another cluster of storms formed directly over the Kansas City metro area, and after several minutes of maturing, a dominant supercell moved east of the metro and produced a strong tornado west of Orrick, Missouri. Unfortunately the tornado moved into the town of Orrick and damaged many structures; however, no injuries were reported with this tornado. The storm went on to produce another tornado near the city of Marshall, Missouri, in Saline County. Also remarkable with this supercell was that a storm chaser near the tornado reported winds in excess

of 100 mph near Marshall. By the late evening hours most of the storm activity either dissipated or moved out of the area. This tornado was a continuation of the tornado that formed in Jackson County Missouri, just south of Sibley, Missouri, and trekked eastward, paralleling Highway 210 just north of the Missouri River.

4.6.1e Liberty Tornado of June 30, 2014

This EF1 tornado did significant tree damage southeast of Liberty, Missouri, near the intersection of Raines Road and Highway 210.

4.6.2 Probable Locations

Tornadoes can occur anywhere in the Kansas City area. A common myth about tornadoes is that they do not cross over rivers or hit big cities.[xxviii] The Orrick tornado of May 10, 2014, started in Jackson County south of Sibley and crossed the Missouri River into Ray County. The Orrick tornado of January 24, 1967, took a similar path. Additionally, one of the tornadoes spawned during the May 4, 2003, tornado outbreak in the northern Kansas City area swept across the Missouri River from Leavenworth County, Kansas, into Platte County, Missouri. The Ruskin Heights area of south Kansas City, a densely populated area, was struck by an F5 tornado on May 20, 1957, resulting in 37 deaths, hundreds of injuries and catastrophic damage to the area. More recently, the Joplin EF5 tornado of May 22, 2011, devastated a large portion of the city, resulting in 161 fatalities, over 1,000 injured and damage to 7,500 residential dwellings. Over 500 businesses were affected, affecting 4,500 to 5,000 employees.

The threat of tornadoes is not limited to any specific part of the Kansas City area; both rural and urban areas can be affected. Although greater in the spring and early summer, the possibility exists for destructive tornadoes to occur at any time of the year. Likewise, tornadoes may occur at any time of the day or night. Finally, tornadoes of all magnitudes can and have occurred in the Kansas City area, from F0 tornadoes that causing little or no damage to F5 tornadoes causing enormous death and destruction.

4.6.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 2

Because of larger populations and greater concentration of homes, commercial structures, public facilities, utilities and infrastructure, the urban and suburban areas of Cass, Clay, Jackson, Platte and Ray counties are more susceptible to the damaging effects of tornadoes than the rural portions of these jurisdictions. Nevertheless, rural portions of the Kansas City metropolitan area can still suffer the effects of tornadoes. People may be injured or killed, just as in urban areas, though in lesser numbers due to lower population density. Outdoor warning systems may not be present in rural areas, increasing the need for other methods of warning, such as NOAA weather radios and television and radio broadcasts. Alternately, urban areas may have more redundancy in warning systems. In addition, livestock may be killed and crops damaged in rural areas. The costs associated with losses in rural areas may be significant. However, they will generally be lower than damage costs in urban areas.

Table 4.6.4 – Table 4.6.8[xxix] summarize all tornado events by EF Scale and their impact for each of the five counties. Information was retrieved from the NOAA NCDC Storm Event Database as of March 31, 2015. This information is used to determine severity, magnitude and probability of occurrence.

Table 4.6.4: Cass County Tornadoes (1950-2014)						
Magnitude	**Years with +1 Events**	**No.**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
F0	12	17	0	0	$11,000	$0
F1	6	10	0	1	$1,136,000	$0
F2	2	2	0	0	$275,000	$0
F3	4	5	3	25	$30,025,000	$0
F4	0	0	0	0	$0	$0
F5	0	0	0	0	$0	$0
Overall	**20**	**34**	**3**	**26**	**$31,447,000**	**$0**

Table 4.6.5: Clay County Tornadoes (1950-2014)						
Magnitude	**Years with +1 Events**	**No.**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
F0	5	8	0	0	$8,000	$0
F1	10	12	0	0	$6,325,000	$0
F2	5	5	0	15	$70,300,000	$0
F3	2	2	0	3	$4,025,000	$0
F4	2	3	0	18	$33,550,000	$0
F5	0	0	0	0	$0	$0
Overall	**20**	**30**	**0**	**36**	**$114,208,000**	**$0**

Table 4.6.6: Jackson County Tornadoes (1950-2014)						
Magnitude	**Years with +1 Events**	**No.**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
F0	8	12	0	0	$43,000	$0
F1	7	8	0	2	$581,000	$0
F2	4	6	0	4	$550,000	$0
F3	2	3	0	0	$7,500,000	$0
F4	1	1	0	0	$3,000	$0
F5	1	1	37	176	$2,500,000	$0
Overall	**17**	**31**	**37**	**182**	**$11,177,000**	**$0**

Table 4.6.7: Platte County Tornadoes (1950-2014)						
Magnitude	**Years with +1 Events**	**No.**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
F0	3	4	0	0	$0	$0
F1	4	4	0	2	$2,300,000	$0
F2	4	2	0	4	$275,000	$0
F3	4	4	0	11	$330,000	$0
F4	2	4	0	0	$32,750,000	$0
F5	0	0	0	0	$0	$0
Overall	**10**	**34**	**0**	**17**	**$35,655,000**	**$0**

Table 4.6.8: Ray County Tornadoes (1950-2014)						
Magnitude	**Years with +1 Events**	**No.**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
F0	6	7	0	0	$295,000	$0
F1	10	10	0	0	$509,000	$0
F2	5	7	0	2	$2,875,000	$0
F3	1	2	2	18	$2,750,000	$0
F4	1	2	0	1	$2,525,000	$0
F5	0	0	0	0	$0	$0
Overall	**20**	**34**	**2**	**21**	**$8,954,000**	**$0**

Historical statistics associated with the occurrence of tornadoes in the region, presented in Table 4.6.9 and based on the magnitude (EF-Scale) of previous tornadoes, provide an indication of the probable severity of a tornado in the Kansas City region.

Table 4.6.9: Probable Future Tornado Severity By EF-Scale		
EF-Scale	**Speed (mph)**	**Probable Future Severity (Catastrophic, Critical, Limited or Negligible)**
0	65–85	53% — Limited
1	86–109	58% — Limited
2	110–137	31% — Critical
3	138–167	20% — Critical
4	168–199	9% — Catastrophic
5	200–234	2% — Catastrophic

Based on a 64-year history of tornado events in Cass, Clay, Jackson, Platte and Ray counties, Table 4.6.10 presents the likely adverse impact of future Kansas City region tornado events.

Table 4.6.10: Estimated Categories of Impact				
Effects of Tornadoes	**Life**	**Property**	**Emotional**	**Financial**
Without mitigation measures	Limited	Critical	Critical	Critical
With mitigation measures	Negligible	Limited	Limited	Limited

The potential severity of effects from tornadoes will continue to be high.[xxx] Although the region will continue to experience deaths, injuries and property damages from tornadoes,[xxxi] mitigation measures can dramatically reduce adverse impacts of a tornado by helping to save lives, prevent injuries and lessen property damage. These measures include public education and awareness programs, public use of enhanced warning and communications systems (e.g., NOAA weather radios, mass notification systems and alerts), and the construction and use of "safe rooms" or "safe areas" in public and private structures.

Probable Duration

Tornadoes affecting the greater Kansas City metropolitan area have ranged from F0 to F5. The vast majority of tornadoes have been F0 to F1, although several F4 tornadoes and an F5 tornado have affected the Kansas City metropolitan area. Tornadoes of this magnitude are normally only on the ground for a few minutes.

Potential speed of onset (probable amount of warning time):

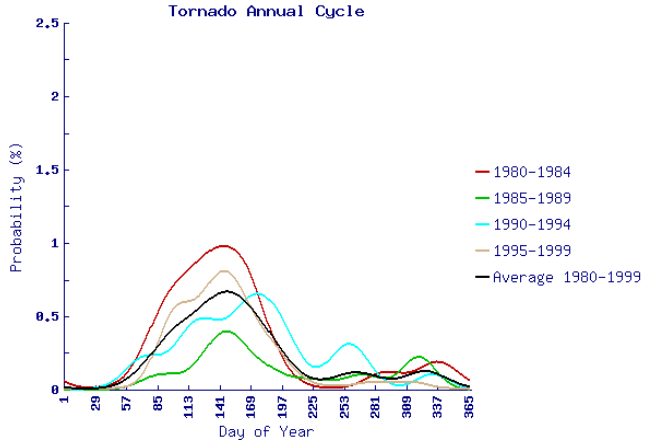
- ■ Minimal (or no) warning
- ☐ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ☐ More than 24 hours warning

4.6.4 Probability of Future Occurrence: High

Although the likelihood of tornadoes is greatest during the spring and early summer — the "tornado season" — tornadoes can occur anywhere in the region, at any time of the year and at any hour of the day or night. For example, the deadly Blue Valley (Jackson County) tornado of 1941 occurred on Oct. 6, while an F3 tornado struck Orrick (Ray County) on Jan. 24, 1967. The entire region is at risk from tornadoes year-round. A review of historical statistics, summarized in Table 4.6.11, indicates the likelihood, or risk, by magnitude (EF-Scale) of a tornado occurring anywhere in the Kansas City region:

Table 4.6.11: Risk of Future Tornado Occurrence		
EF-Scale	**Speed (mph)**	**Probable Risk (Highly Likely, Likely, Possible or Unlikely)**
0	65–85	53% — Highly Likely
1	86–109	58% — Highly Likely
2	110–137	31% — Likely
3	138–167	20% — Possible
4	168–199	9% — Unlikely
5	200–234	2% — Unlikely

The central United States has a repeatable annual tornado cycle, with the highest probability of tornadoes occurring in the spring. With its location in the central plains, the Kansas City region experiences a tornado season each year. Figure 4.6.1 depicts the annual cycle of probability of tornadoes. The lines on the graph correspond to a specific time period indicated in the legend, with the line indicated as "Average" representing the average of all the time periods. As the graph shows, the period with the greatest probability of tornado activity is approximately late March through mid-June.[xxxii] Although an update to this chart is not available, all of the tornadoes occurring in the last five years happened in May and June.



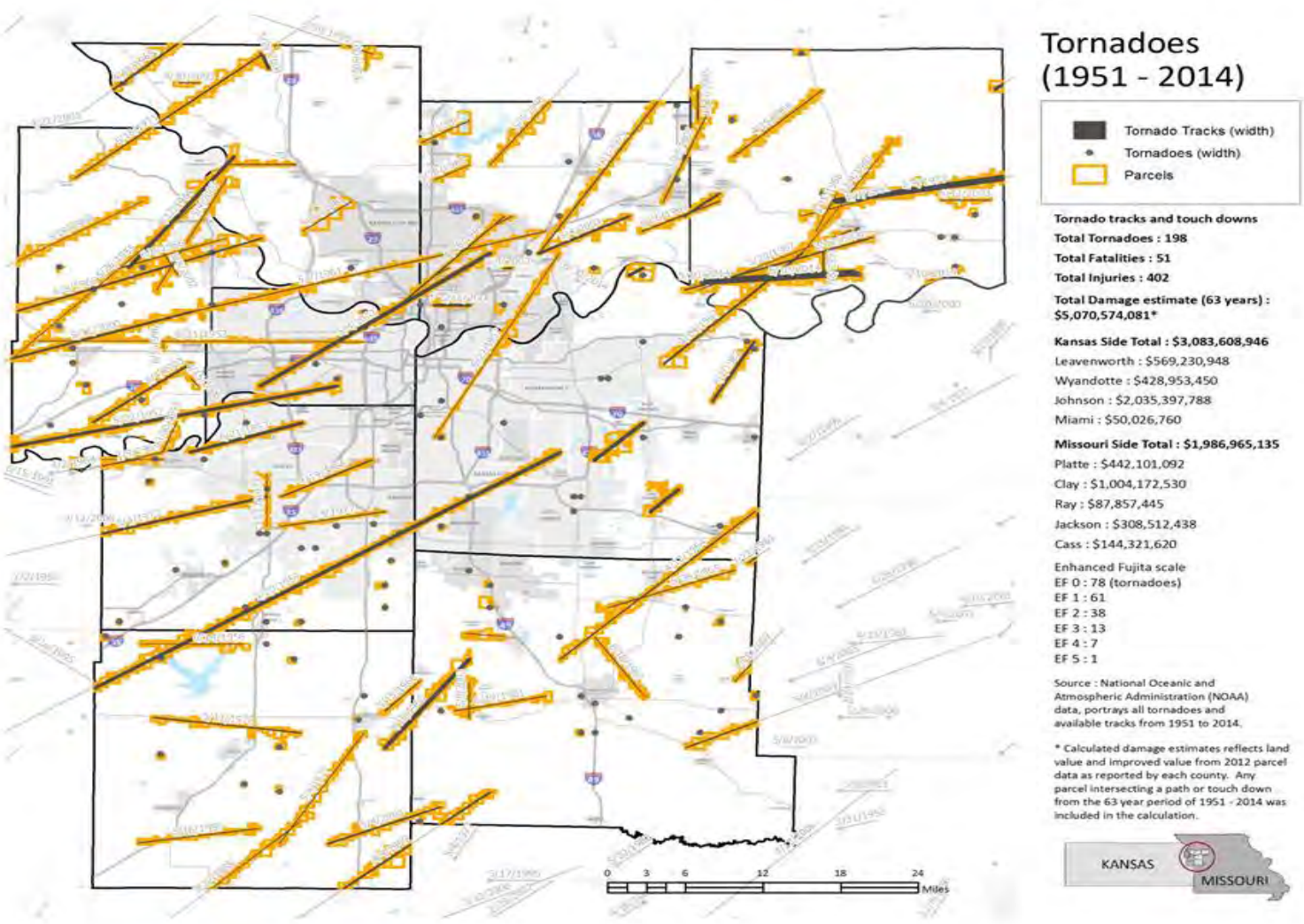
Source: NOAA NSSL Severe Thunderstorm Climatology Web site

Figure 4.6.1: Tornado Annual Cycle

4.6.5 Vulnerability Analysis and Potential Loss Estimates

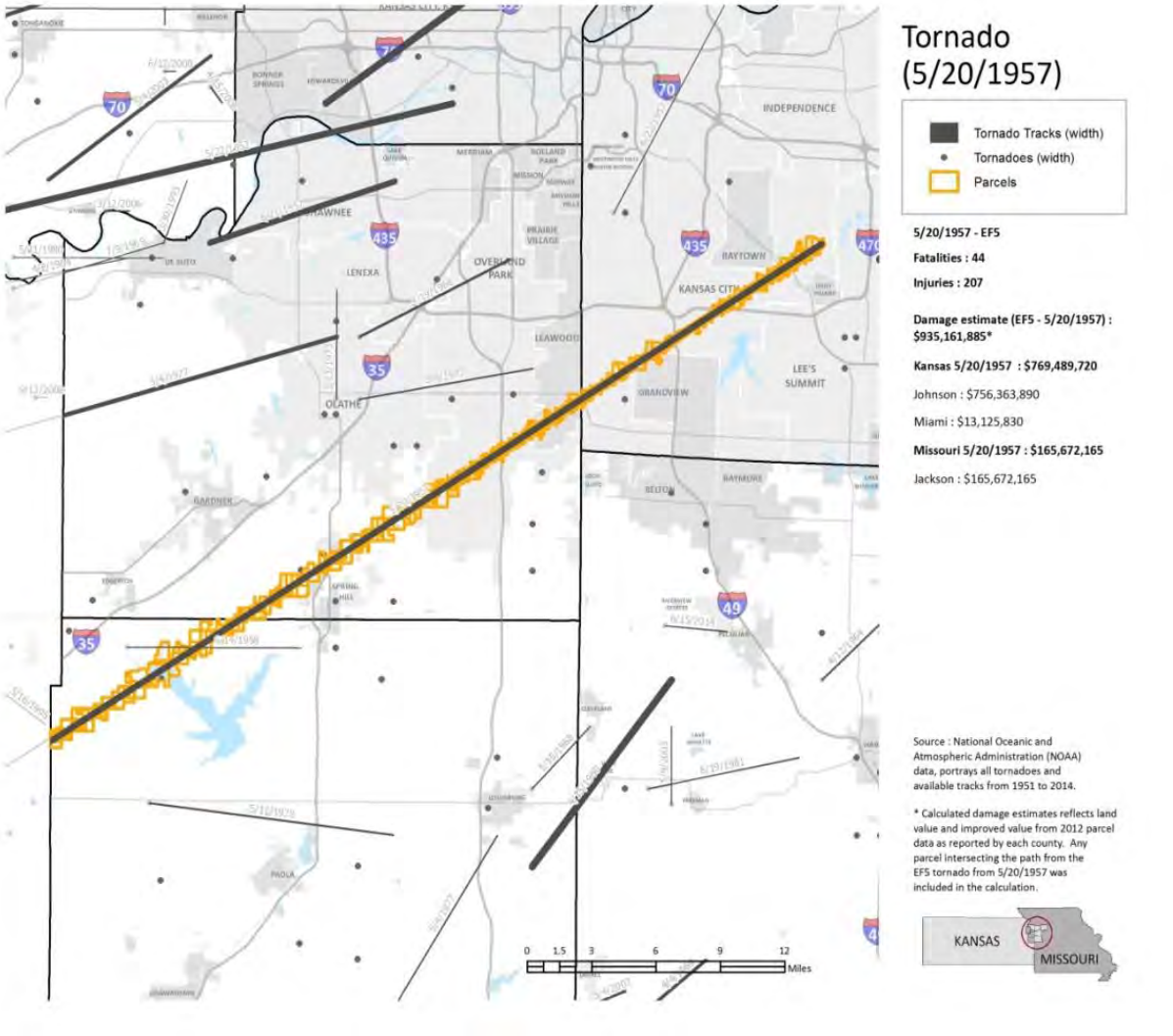
A statistical risk assessment methodology was used to determine tornado loss potential by county. This methodology used NOAA data for tornado losses between 1950 and December 2014. It is important to realize that one limitation to this data is that many tornadoes that might have occurred in uninhabited areas, as well as some inhabited areas, have not been reported. NOAA Storm Data and the Storm Events Database report tornadoes in segments.[xxxiii] Event data may show that a tornado contains multiple segments if it crosses a county or state line. Also, tornadoes that lift off the ground in less than five minutes or 2.5 miles are considered separate tornadoes. Additionally, the random nature of tornadoes makes accurate predictions impossible; therefore, a generic statistical methodology was used.

The NOAA data for tornadoes is already adjusted for inflation and other economic effects. No additional compensation was required to determine county-level maximum and minimum loss estimates. However, parcel value data was used to illustrate potential damages based on historical tornado paths in Map 4.6.3. The figure shows the impact of historical tornado events on property and life based on a 63-year history. Total damage estimates are based on today's dollars at the parcel level by county.



Map 4.6.3: Kansas City Region Tornadoes with Parcel Data

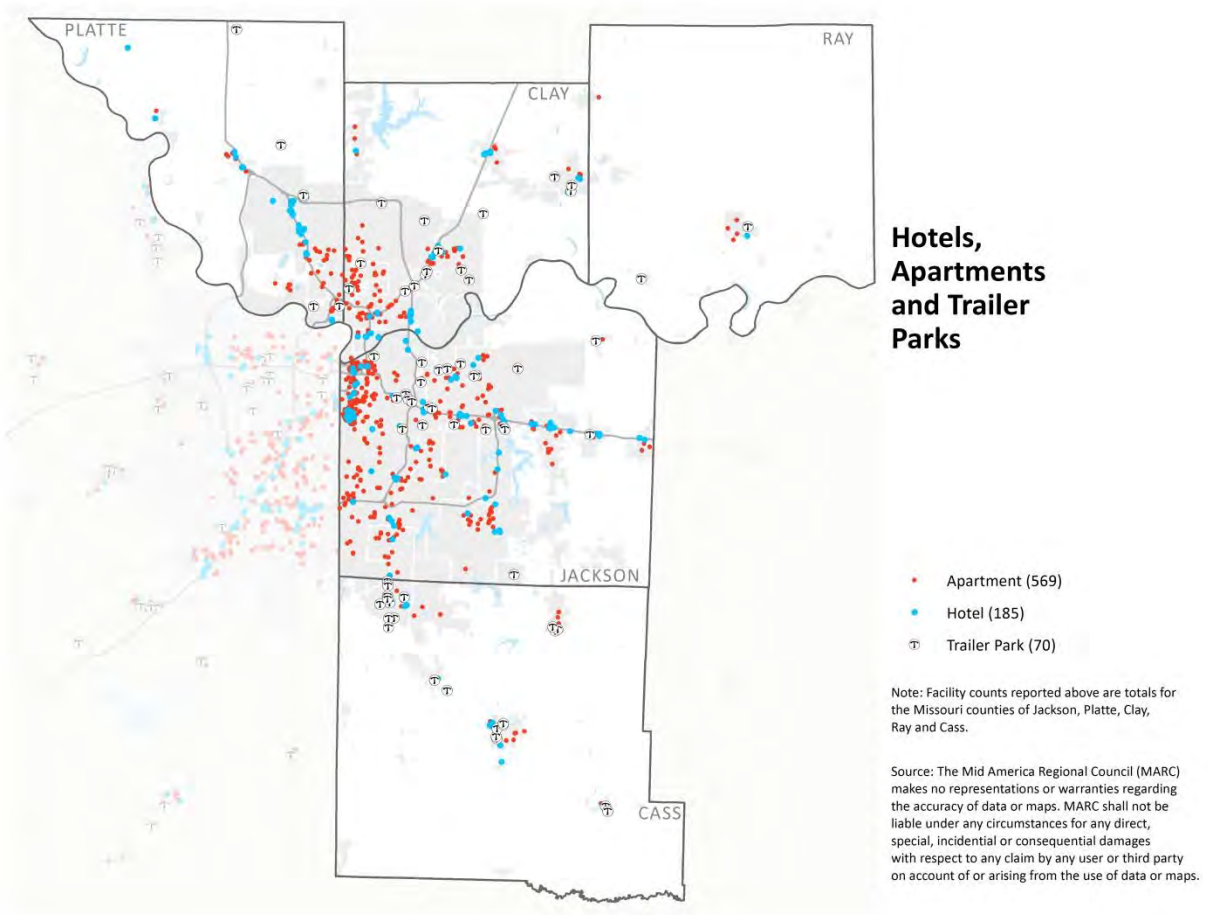
Map 4.6.4 demonstrates the path of destruction and potential losses of an EF5 tornado based on the Ruskin Heights Tornado of May 20, 1957, if a similar event occurred in Jackson County today.



Map 4.6.4: Potential Impact of EF-5 Tornado on the Kansas City Region

While tornados can occur anywhere in the planning area those most exposed when a tornado does occur are individuals who may not have access to some sort of safe shelter which may include individuals living in mobile homes or apartments or people living in homes without basements or those who may have difficulty getting to a safe location. Studies have indicated 45 percent of all fatalities during tornadoes occur in mobile homes, compared to 26 percent in traditional site-built houses.[xxxiv]

Additionally individuals who do not know where to go in the event of a tornado are also at greater risk in an event. Public venues and large outdoor gathering are of special concern. Map 4.6.5 and Table 4.6.12 illustrate the number and type of particularly vulnerable sites in the planning area.



Map 4.6.5: Hotels, Apartments, and Trailer Parks

Table 4.6.12: High Risk Locations during Tornadic Activity

Asset (critical facility)	Cass	Clay	Jackson	Platte	Ray	Planning Area	Kansas City
Day Care	66	118	478	39	8	**709**	332
Nursing Home	16	28	148	17	2	**211**	94
Public Housing	0	146	573	31	84	**834**	587
School	53	88	310	39	13	**503**	213
Dormitory	2	9	11	3	0	**25**	14
Shopping Center	43	135	344	54	8	**584**	227
Hotels	10	36	101	37	1	**185**	98
Apartments	19	101	403	40	6	**569**	360
Trailer Parks	22	15	25	6	2	**70**	12
NFL stadium	0	0	1	0	0	**1**	1
MLB Stadium	0	0	1	0	0	**1**	1
Botanical / Zoological Garden	0	0	1	0	0	**1**	1
Arena or Convention Center	0	0	5	0	0	**5**	4
Total	**231**	**676**	**2401**	**266**	**124**	**3698**	**1944**

Table 4.6.13 and Table 4.6.14 illustrate the maximum and minimum loss estimates for tornadoes in the five-county region. Maximum loss estimation for total exposure is based on each county's parcel value (See Map 4.6.3).

Table 4.6.13: Maximum Loss Estimation, Tornadoes					
County	**Overall Risk (probability and severity)**	**Magnitude (percent of county affected)**	**Total Exposure ($ value, thousands)**	**Total Population (in thousands)**	**Maximum Loss Estimation**
Cass	Medium = 2	>50% = 4	5,400,904 = 2	101 = 2	Medium
Clay	High = 3	>50% = 4	14,958,612 = 3	234 = 2	High
Jackson	High = 3	>50% = 4	76,612,242 = 3	683 = 3	High
Platte	Medium = 2	>50% = 4	7,907,587 = 2	95 = 1	Medium
Ray	High = 3	>50% = 4	935,840 = 1	23 = 1	Medium

The average magnitude for minimum loss estimation was calculated by multiplying the length (12.6 miles) of the Ruskin Heights tornado by its width (400 yards) in square miles (1.05 square miles) then dividing by the county's total area in square miles. Calculations for each county demonstrate that less than 1 percent of the county area would be impacted.

Total county areas are:

- Cass = 698.99 square miles
- Clay = 396.35 square miles
- Jackson = 604.84 square miles
- Platte = 420.33 square miles
- Ray = 569.47 square miles

Table 4.6.14: Minimum Loss Estimation, Tornadoes					
County	**Overall Risk (probability and severity)**	**Average Magnitude (percent of county affected)**	**Annualized Loss ($ value, thousands)**	**Average Deaths and Injuries**	**Minimum Loss Estimation**
Cass	Medium = 2	<1% = 1	925 = 3	.85 =1	Medium
Clay	High = 3	<1% = 1	3,807 = 3	1.2 =1	Medium
Jackson	High = 3	<1% = 1	361 = 2	7.06 = 3	Medium
Platte	Medium = 2	<1% = 1	1,049 = 3	.5 = 1	Medium
Ray	High = 3	<1% = 1	263 = 2	.68 = 1	Medium

Sources: NOAA National Climatic Data Center Storm Event Database, HAZUS-MH and MARC

4.6.6 Problem Statements

Tornadoes are random events and can equally impact any jurisdiction within the region. Problem statements, such as those below, can support development of mitigation strategies for tornadoes:

- New tornado warning technologies have created the potential for uncoordinated warnings (or conversely, oversaturation) leading to citizens not taking appropriate protective actions.
- High population centers (apartment buildings, trailer parks, shopping centers, hotels, etc.) often don't have storm shelters.
- Current public information efforts have likely plateaued in their effectiveness.

4.7 Severe Thunderstorms (Wind, Hail, Lightning)



For the 2015 Plan update, *Severe Thunderstorms (Wind, Hail, Lightning)* is now presented as a separate hazard from *Tornadoes*. Although flash floods are often associated with severe thunderstorms, these types of events are discussed in more detail in *Flooding*, Section 4.9.

A "thunderstorm" is a rain shower with thunder. A thunderstorm is the result of convection usually created by heating of the surface that carries any moisture in the air in an upward atmospheric motion. Severe thunderstorms contain one or more of the following: hail one inch in diameter or greater, winds gusts over 57.5 mph (50 knots), or a tornado. About 10 percent of the roughly 100,000 thunderstorms that occur in the U.S. each year reach severe levels.[xxxv]

Many hazardous weather events are associated with thunderstorms. Under the right conditions, rainfall from thunderstorms can cause flash flooding, which kills more people each year than hurricanes, tornadoes or lightning. Lightning is responsible for many fires around the world each year, and is also capable of causing fatalities. Hail up to the size of softballs damages cars and windows, and can kill livestock caught out in the open. Strong straight-line winds associated with thunderstorms may knock down trees, power lines and mobile homes. Tornadoes (with winds up to about 300 mph) can destroy all but the strongest man-made structures.[xxxvi]

All thunderstorms produce lightning, so all thunderstorms can be dangerous. While lightning fatalities have decreased over the past 30 years, lightning continues to be one of the top three storm-related killers in the United States. In 2010, there were 29 fatalities and 182 injuries from lightning. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms.[xxxvii]

Other dangers associated with thunderstorms include tornadoes, strong winds, hail and flash flooding. The damaging straight-line winds of thunderstorms can exceed 100 mph. Some thunderstorms produce downbursts — a sudden outrush of damaging wind. Microbursts are smaller scale events that have a damage area less than 2.5 miles wide. Macrobursts are larger events where the damage area is wider than 2.5 miles. Downbursts can produce strong wind shears (rapid changes in the speed and/or direction of wind over a short distance) near the surface. These types of winds are especially dangerous to aviation.[xxxviii]

Thunderstorms associated with tornado development also contribute to the number one killer — flash floods.[xxxix] Flash flooding is responsible for more fatalities — more than 140 annually — than any other thunderstorm-associated hazard. Dry thunderstorms, which produce rain that does not reach the ground, are most prevalent in the western United States. Falling raindrops evaporate, but lightning can still reach the ground and can start wildfires.[xl] Large hail can reach the size of grapefruit. Hail causes several hundred millions of dollars in damage annually to property and crops across the nation.

Thunderstorms are most likely to occur in the spring and summer months and during the afternoon and evening hours, but they can occur year-round and at all hours. Thunderstorms frequently form in the late afternoon and at night in the Plains states. The greatest severe weather threat extends from Texas to southern Minnesota, but no place in the U.S. is completely safe from the threat of severe weather.

Watches and Warnings

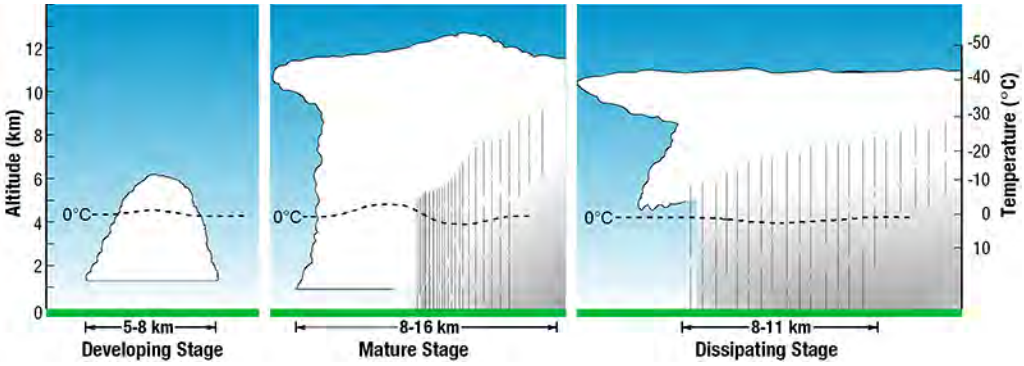
NOAA meteorologists constantly monitor weather patterns, both nationally and locally, and issue watches and warnings as needed.

Severe Thunderstorm Watches are issued by NOAA Storm Prediction Center meteorologists who monitor the entire U.S. for weather conditions that are favorable for severe thunderstorms. A watch can cover parts of one or more states. The purpose of the watch is to encourage people to prepare for severe weather and stay alert to when warnings are issued.

Severe Thunderstorm Warnings are issued by local NOAA National Weather Service Forecast Office meteorologists who monitor a designated area for severe weather that has been reported by spotters or indicated by radar. Warnings mean there is a serious threat to life and property to those in the path of the storm. The purpose of the warning is to encourage people to act immediately to find safe shelter. A warning can cover parts of counties or several counties in the path of danger.

The Thunderstorm Life Cycle

Thunderstorms can look like tall heads of cauliflower or they can have "anvils." An anvil is the flat cloud formation at the top of the storm. An anvil forms when the updraft (warm air rising) has reached a point where the surrounding air is about the same temperature or even warmer. The cloud growth abruptly stops and flattens out to take the shape of an anvil. (See Figure 4.7.1)



Source: NOAA Website, online data

Figure 4.7.1: The Thunderstorm Life Cycle

Thunderstorm Types

Single-cell thunderstorms are small, brief, weak storms that grow and die within an hour or so, typically driven by heating on a summer afternoon. Single-cell storms may produce brief heavy rain and lightning.

Multi-cell storms are common thunderstorms in which new updrafts form along the leading edge of rain-cooled air (the **gust front**). Individual cells usually last 30 to 60 minutes, while the system as a whole

may last for many hours. Multi-cell storms may produce hail, strong winds, brief tornadoes, and/or flooding.

Squall line refers to a group of storms arranged in a line, often accompanied by "squalls" of high wind and heavy rain. Squall lines tend to pass quickly and are less prone to produce tornadoes than supercells. They can be hundreds of miles long but are typically only 10 or 20 miles wide.

Supercell thunderstorms are long-lived (lasting more than one hour) and highly organized storms that feed off an updraft (a rising current of air) that is tilted and rotating. This rotating updraft — which can be as large as 10 miles in diameter and up to 50,000 feet tall — can be present as much as 20 to 60 minutes before a tornado forms. Scientists call this rotation a mesocyclone when it is detected by Doppler radar. The tornado is a very small extension of this larger rotation. Most large and violent tornadoes come from supercells.

Bow echo refers to the radar signature of a squall line that "bows out" as winds fall behind the line and circulations develop on either end. A strongly bowed echo may indicate high winds in the middle of the line, where the storms are moving forward most quickly. Brief tornadoes may occur on the leading edge of a bow echo. Often the north side of a bow echo becomes dominant over time, gradually evolving into a comma-shaped storm complex.

Mesoscale Convective System (MCS) is a collection of thunderstorms that act as a system. An MCS can spread across an entire state and last more than 12 hours. On radar, one of these monsters might appear as a solid line, a broken line, or a cluster of cells. This all-encompassing term can include any of the following storm types:

- **Mesoscale convective complex (MCC)**—A particular type of MCS, an MCC is a large, circular, long-lived cluster of showers and thunderstorms identified by satellite. It often emerges out of other storm types during the late-night and early-morning hours. MCCs can cover an entire state.
- **Mesoscale convective vortex (MCV)**—A low-pressure center within an MCS that pulls winds into a circling pattern, or vortex. With a core only 30 to 60 miles wide and 1 to 3 miles deep, an MCV is often overlooked in standard weather analyses. But an MCV can take on a life of its own, persisting for up to 12 hours after its parent MCS has dissipated. This orphaned MCV will sometimes then become the seed of the next thunderstorm outbreak. An MCV that moves into tropical waters, such as the Gulf of Mexico, can serve as the nucleus for a tropical storm or hurricane.

Derecho refers to a widespread, long-lived wind storm that is associated with a band of rapidly moving showers or thunderstorms. Although a derecho can produce destruction similar to that of tornadoes, the damage typically is directed in one direction along a relatively straight swath. As a result, the term "straight-line wind damage" is sometimes used to describe derecho damage. By definition, if the wind damage swath extends more than 240 miles (about 400 kilometers) and includes wind gusts of at least 58 mph (93 km/h) or greater along most of its length, the event may be classified as a derecho.

4.7.1 Historical Occurrences

Historical occurrences described in this hazard profile are based on severe thunderstorm characteristics of winds in excess of 57 miles per hour and hail at least one inch in diameter. Other associated events were considered, including high winds, heavy rain and lightning; however, those events are fairly limited compared events with hail and damaging winds. Narratives of select storms are included in this discussion.

Table 4.7.1 through Table 4.7.3 provide historical summaries of severe thunderstorms for wind, hail and lightning events since January 1, 1950.

Table 4.7.1: Kansas City Area Thunderstorm Wind Events (1950-2014) (>57mph)

County	Events	Deaths	Injuries	Property Damage $	Crop Damage $
Cass	132	1	4	403,500	0
Clay	181	0	2	2,148,000	0
Jackson	290	0	12	12,829,750	2,000
Platte	143	0	0	486,000	0
Ray	53	0	0	5,000	0
Total	**799**	**1**	**18**	**15,872,250**	**2,000**

Table 4.7.2: Kansas City Area Hail Events (1950-2014) (>1")

County	Events	Deaths	Injuries	Property Damage $	Crop Damage $
Cass	193	0	0	3,544,000	250,000
Clay	217	0	0	3,035,500	55,000
Jackson	288	0	0	15,333,000	0
Platte	123	0	0	1,385,000	0
Ray	61	0	0	5,000	0
Total	**882**	**0**	**0**	**23,302,500**	**305,000**

Table 4.7.3: Kansas City Area Lightning Events (1950 – 2014)

County	Events	Deaths	Injuries	Property Damage $	Crop Damage $
Cass	1	0	0	25,000	0
Clay	0	0	0	0	0
Jackson	11	0	1	276,000	0
Platte	1	0	0	100,000	0
Ray	2	0	0	10,000	0
Total	**15**	**0**	**1**	**411,000**	**0**

Of the 466 events that have occurred since April 1, 2009, fifty are damaging wind events and four are damaging hail events. Hail events accounted for more than $8 million in damages, while damaging winds caused roughly $400,000 in damage according to the NOAA NCDC web site. Only minor damages were

reported from a lightning event in 2010 with no deaths or injuries. Table 4.7.4 and Table 4.7.5 list the fifty severe thunderstorm wind and four hail events with damage since the 2010 Plan update.

Table 4.7.4: Kansas City Area Thunderstorm Events with Damaging Winds (2009-2014) (>57mph)

County	Date	Location	Wind Speed (MPH)	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
Cass	6/15/2009	Drexel	70	0	0	5,000	0
Cass	8/31/2010	Harrisonville	60	0	0	500	0
Cass	4/3/2011	Raymore	70	0	0	5,000	0
Cass	4/3/2011	Belton	70	0	0	7,500	0
Cass	4/3/2011	Lake Winnebago	70	0	1	30,000	0
Cass	6/18/2011	Belton	70	0	1	40,000	0
Cass	6/18/2011	Freeman	70	0	0	50,000	0
Cass	6/18/2011	Harrisonville	70	0	0	500	0
Cass	5/19/2013	Belton Villnave Airport	64	0	0	1,000	0
Clay	6/23/2009	Liberty	60	0	0	1,000	0
Clay	4/2/2010	Missouri City	85	0	0	10,000	0
Clay	8/12/2010	Pleasant Valley	81	0	0	2,000	0
Clay	8/13/2010	Linden	60	0	0	2,000	0
Clay	8/13/2010	Gashland	60	0	0	1,000	0
Clay	8/13/2010	Pleasant Valley	60	0	0	1,000	0
Clay	9/18/2010	Smithville	81	0	0	10,000	0
Clay	9/18/2010	Smithville	81	0	0	150,000	0
Clay	4/3/2011	Oakwood	70	0	0	2,000	0
Clay	8/18/2011	Kansas City Downtown Airport	60	0	0	250	0
Clay	2/28/2012	Nashua	60	0	0	10,000	0
Clay	8/8/2012	Holt	60	0	0	3,000	0
Clay	5/19/2013	Excelsior Springs	60	0	0	750	0
Jackson	6/22/2009	Lee's Summit	75	0	0	5,000	0
Jackson	7/25/2009	Sugar Creek	70	0	0	2,000	0
Jackson	4/2/2010	Grandview	70	0	0	2,000	0
Jackson	4/2/2010	Unity Village	70	0	0	2,000	0
Jackson	7/11/2010	Ruskin Heights	64	0	0	10,000	0
Jackson	7/20/2010	Grain Valley Airport	60	0	0	500	0
Jackson	8/11/2010	Lake Lotawana	81	0	0	5,000	0
Jackson	8/11/2010	Lake Lotawana	60	0	0	100	0
Jackson	8/13/2010	Grandview	60	0	0	400	0
Jackson	6/27/2011	Blue Summit	60	0	0	5,000	0
Jackson	6/27/2011	Kansas City	60	0	0	5,000	0
Jackson	8/20/2011	Spring Branch	60	0	0	1,000	0
Jackson	9/9/2011	Blue Springs	60	0	0	2,000	0
Jackson	5/19/2013	Blue Springs	60	0	0	250	0
Jackson	6/27/2013	Lake Lotawana	60	0	0	2,000	0

Table 4.7.4: Kansas City Area Thunderstorm Events with Damaging Winds (2009-2014) (>57mph)							
County	Date	Location	Wind Speed (MPH)	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
Platte	4/2/2010	Platte City	70	0	0	2,000	0
Platte	4/2/2010	Kansas City Int'l Airport	64	0	0	3,000	0
Platte	4/2/2010	Kansas City Int'l Airport	70	0	0	2,000	0
Platte	6/19/2010	Tiffany Springs	70	0	0	1,000	0
Platte	8/7/2011	Barry	60	0	0	500	0
Platte	8/7/2011	Platte Woods	60	0	0	3,000	0
Platte	8/20/2011	Barry	60	0	0	500	0
Platte	8/20/2011	Barry	60	0	0	4,000	0
Platte	7/18/2012	Dearborn	64	0	0	7,500	0
Platte	5/19/2013	Parkville	60	0	0	1,000	0
Ray	6/17/2009	Taitsville	60	0	0	1,000	0
Ray	7/10/2009	Lawson	60	0	0	1,000	0
Ray	4/6/2010	Lawson	64	0	0	3,000	0

Table 4.7.5: Kansas City Area Severe Thunderstorms with Damaging Hail (2009 - 2014) (>1 Inch)							
County	Date	Location	Hail Size	Deaths	Injuries	Property Damage $	Crop Damage $
Clay	9/18/2010	Avondale	1.75 in.	0	0	500	0
Jackson	9/18/2010	Cement City	5.50 in.	0	0	1,000,000	0
Jackson	4/3/2011	South Lee	2.50 in.	0	0	7,000,000	0
Platte	6/19/2011	Platte City	3.00 in.	0	0	30,000	0

Table 4.7.6 lists the aforementioned lightning event plus two high wind and five heavy rain events associated with severe thunderstorms since the 2010 Plan update.

Table 4.7.6: Kansas City Area Lightning, High Wind and Heavy Rain Events 2009-2014									
County	Date	Event Type	Location	Wind Speed (MPH)	Rainfall	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
Jackson	6/8/2010	High Wind	Jackson (Zone)	60		0	0	0	0
Jackson	6/8/2010	High Wind	Jackson (Zone)	67		0	0	0	0
Jackson	9/18/2010	Lightning	Lee's Summit			0	0	1,000	0
Jackson	9/18/2010	Heavy Rain	Blue Springs		6.94	0	0	0	0
Cass	5/6/2012	Heavy Rain	Pleasant Hill		3.2	0	0	0	0
Jackson	5/25/2012	Heavy Rain	Grandview Richards-Gebaur		4.17	0	0	0	0

Table 4.7.6: Kansas City Area Lightning, High Wind and Heavy Rain Events 2009-2014									
County	Date	Event Type	Location	Wind Speed (MPH)	Rainfall	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
Jackson	5/25/2012	Heavy Rain	Greenwood		5.6	0	0	0	0
Cass	5/25/2012	Heavy Rain	Lake Winnebago		4.8	0	0	0	0

Lee's Summit – May 26, 1996
A Memorial Day weekend thunderstorm identified by the National Weather Service as a microburst caused more than $10 million in damage to homes in Lee's Summit, Missouri. The storm destroyed at least 13 homes and damaged more than 100 others in several Lee's Summit subdivisions. The city also incurred a substantial cost for debris removal and cleanup activities from this devastating storm. The downburst occurred during a severe thunderstorm and produced a 120-mph wind gust over the Raintree Lake section of Lee's Summit. Nine injuries were reported but none were serious. Winds on top of Lee's Summit Hospital were clocked at 79 mph during the storm.

Kansas City, Mo. – August 6, 1996
A small cluster of thunderstorms produced several microbursts over Western Jackson County. Property damage was estimated at $150,000.

Richmond – May 18, 1997
Lightning struck a power line which carried a surge of electricity into a Richmond home during a thunderstorm. The electrical surge sparked a fire which resulted in about $10,000 in damages to the home. No one was injured in the fire.

Smithville – August 19, 2000
Thunderstorm winds estimated at 80 mph tore through the Smithville Lake area. Extensive damage was done to a marina, where 40 to 45 boats were damaged, and two of four docks were damaged. A nearby campground was also hit hard, as approximately 20 camping trailers were damaged. Two campers were hospitalized, including one who was inside an RV that rolled over. The severe thunderstorms developed ahead of a warm front in northeastern Kansas and moved east into northwest Missouri. The strongest storm crossed the Missouri River near Atchison, Kansas and caused extensive wind damage as it moved eastward to Richmond. The hardest hit area was in northern Clay County from Smithville Lake to Excelsior Springs. Property damages were estimated at $800,000.

Belton – September 7, 2001
Lightning struck a house and the ensuing fire severely damaged the roof. Property damages were estimated at $25,000.

Garden City – August 21, 2003
Severe thunderstorm winds estimated at 70 mph destroyed two mobile homes and caused two injuries. One of the victims later died from injuries sustained in the storm. One house had major damage with one injury. Numerous trees were downed or damaged along with outbuildings. Property damage was estimated at $150,000.

Dearborn – May 11, 2005
Home totally destroyed by fire started by lightning. Property damages were estimated at $100,000.

Lee's Summit – June 4, 2005
A severe thunderstorm caused significant wind damage along Douglas and Lee's Summit roads. Trees were downed and hangar damage was reported at the airport, along with damage to nine planes and significant damage at a hospital construction site. Property damage was estimated at $1 million. A lightning event caused fire damage to a residence with property damages estimated at $60,000.

Lee's Summit – June 10, 2005
Lightning sparked a residential fire damaging two homes; one extensively. Property damages from both were estimated at $110,000.

Lone Jack – June 10, 2005
Lightning struck and destroyed a hay barn killing three horses. One person was injured. A second event struck a home. Property damages from both events were estimated at $105,000.

Excelsior Springs, Grain Valley, Grandview, Independence, Lee's Summit, Raytown, Rayville – May 6, 2007
A slow moving cold front and upper-level storm system combined to bring severe thunderstorms and heavy rains to the region late on May 5-6, 2007. Several rounds of heavy rain were observed across northwest Missouri from near St. Joseph, north to Tarkio, and east to Bethany. Rainfall amounts of from 5 to 9 inches were observed in this area. The heavy rains caused many rivers to flood, with levels not observed since the great flood of 1993. The Tarkio River near Fairfax had its highest crest ever. Several cities in the Kansas City area reported 4 inches of rainfall within hours, causing flooded basements and backed up sewers.

Gladstone, Independence, Liberty North Kansas City, Riverside – May 2, 2008
An early morning line of storms across south central Kansas developed into a bow echo, which raced northeast at speeds in excess of 50 mph into the Greater Kansas City area and surrounding communities early on the morning of May 2, 2008. The bow echo generated hurricane force winds, which brought widespread wind damage to areas from Olathe, Kansas, moving northeast through Kansas City to north central Missouri. As the bow echo moved through Kansas City, it spun two tornadoes along the apex of its leading edge. One EF3 tornado moved across the north side of Gladstone, while an EF2 tornado moved through an area just northwest of Liberty. Most of the damage was due to strong straight-line winds also occurring along the apex of the bow echo. Gladstone reported 20 homes destroyed, 280 homes with damage, and 19 businesses damaged. North Kansas City had four homes destroyed and 117 damaged. Independence had 13 homes and two businesses badly damaged. Six people were injured and damage was in the millions of dollars. Riverside had numerous 5- to 6-inch diameter trees and power lines down. Five empty train cars were blown over near Interstate 635.

Cluster of High Precipitation Supercell Thunderstorms – July 2, 2008
Another round of severe weather swept across western Missouri on July 2, 2008. The storm system brought large hail, damaging winds, and flooding. A long duration severe weather event began across the Kansas City Metro area as a cluster of high-precipitation supercells produced up to baseball-sized hail, with small bowing segments producing damaging straight line winds across many areas of the metro. In addition, torrential rainfall upward of 6.5 inches fell across portions of the city, resulting in major flash flooding across Platte and Jackson counties. Wind damage also occurred across portions of Holt and Buchanan counties, associated with a bowing segment.

Partial Remnants of Tropical Depression Dolly – July 30, 2008
The partial remnants of Tropical Depression Dolly, which impacted the lower Texas Gulf Coast, ushered copious amount of deep tropical moisture into the central plains and Midwest. As an upper level storm system from the central Rockies interacted with Dolly's remnants, numerous showers and thunderstorms developed across central Missouri. The slow movement of the storm system, coupled with the training and back building individual cells, set the stage for very heavy rainfall and flooding. Widespread amounts of 2 to 4 inches were noted across central Missouri. The Interstate 70 corridor was particularly hard hit with upwards of 5 to 8.5 inches of rain recorded. Several flash flood warnings were issued with numerous reports of flash flooding. The rainfall prompted several river flood warnings to be issued. In 24 hours, Richmond recorded five inches; Dodson, six inches; and Grain Valley, 3.95 inches.

Cass and Jackson Counties – June 8, 2010
In the wake of morning thunderstorms, afternoon sunshine heated an already very humid air mass over west central Missouri and eastern Kansas on June 8 2010, creating a very unstable atmosphere over the region. A slow-moving cold front reached a Wichita-to-Kansas City line by late afternoon, rapidly igniting a long line of strong, slow-moving thunderstorms. While the threat of damaging winds and large hail were diminished by the vast number of storms that developed along the front, excessive rainfall quickly became a concern. Repeated thunderstorms tracked over the same area deluged portions of the Kansas City metro area into Cass County. Areas from Overland Park to Grandview to Lee's Summit, southward to Peculiar, Pleasant Hill and adjacent communities, were hit especially hard as 2.5 to 4 inches of rain fell in just a couple of hours. Interstate 435 near the Kansas/Missouri state line was turned into a river at rush hour, with water rescues conducted near Cleveland, Missouri, to the southeast. In addition to the torrential rainfall, these storms were prolific lightning producers, with nearly continuous cloud to ground lightning, observed well into the early evening hours. National lightning detection network counts showed total cloud to ground lightning strikes well into the tens of thousands, but no damage was reported. The only severe weather observed in the region was with one of the first storms that developed in western Johnson County, Kansas. This long-lived supercell storm tracked southeast into Cass County and began to show signs of organized rotation as it tracked toward Harrisonville, prompting the issuance of a tornado warning. A brief tornado touched down along the south side of Harrisonville, producing roof and tree damage to a church carport, a commercial business, and to a number of trees at nearby residences.

Cass, Clay and Jackson Counties, including Smithville and Cement City – September 18, 2010
A warm and unstable air mass was located over the region during the afternoon and evening hours of September 18, 2010. A cold front moved southeast across the area in the afternoon and evening hours. There were numerous reports of hail with some as large as softballs around the Independence Center shopping area. Skylights were broken at the mall and numerous vehicles at the mall and in nearby areas had extensive damage. Locally heavy rains were also observed with flash flood conditions persisting into the morning hours of September 19, 2010. Property damage was estimated at $1 million. Numerous reports of wind damage occurred around Smithville Lake, with trees were down on homes and fences blown down. A Smith Forks Church Camp attendant reported several tents were blown over into Smithville Lake. All persons were accounted for and uninjured. Thunderstorm wind gusts were estimated up to 80 mph. Property damage in Smithville was reported at $150,000. A lightning event from the same thunderstorm caused minor damage of about $1,000 to a chimney in Lee’s Summit.

Lee's Summit, Cass County – April 3, 2011
April 3, 2011, was an abnormally warm day, with high temperatures in the 80s and 90s. Record high temperatures were broken in several locations. A slow-moving cold front, combined with a very strong spring storm system, produced widespread damaging thunderstorms in the late afternoon and evening hours. Supercell thunderstorms developed along and ahead of the cold front as it sank southward across the area, producing extremely large hail, greater than golf ball size in many areas, as well as damaging winds of 60 to 80 mph. The hardest hit areas included the southern half of the Kansas City metropolitan area, especially Lee's Summit. Numerous homes had various degrees of hail damage. Later in the evening, strong straight-line winds in excess of 70 mph produced significant damage in areas from Marshall to Moberly and Fayette. This hail event left over a thousand homes in Lee's Summit with various degrees of hail damage to roofs, gutters and siding. Automobiles at area dealerships and private automobiles also suffered numerous reports of damage. Property damage was estimated at $7 million.

Belton, Raymore and Lake Winnebago were also impacted by the storm. One injury was reported in Lake Winnebago when a tree fell on a car; buildings were reported damaged and trees were blown down around Timber Street. Belton reported a roof blown off a trailer home. Raymore had several power poles leaning and one wooden pole split at the intersection of 195th and School Road. Several outbuildings and one barn were reported destroyed or blown down. Property damage was estimated at $44,500 in Cass County.

Platte City – June 19, 2011
Severe thunderstorms developed along a surface boundary that was draped across west central Missouri during the late evening hours of June 18 into the early morning hours of June 19, 2011. Hail, damaging winds, and flash flooding were observed. Exposed car windshields cracked or were broken with numerous dings on vehicles in Platte City. Property damage was estimated at $30,000.

Clay, Jackson and Platte Counties – August 7, 2011
Severe thunderstorms were observed across the area during the afternoon hours of August 7, 2011. A cold front moved southeast across the region, with hail and damaging winds reported.

Clay, Jackson, Platte and Ray Counties – August 18-20, 2011
After a quiet few weeks, conditions changed rapidly on August 18, 2011 when a favorable setup for severe thunderstorm activity developed in the mid-section of the country. Severe thunderstorms developed during the evening and overnight hours of August 18-19, 2011. While this large cluster of thunderstorms was beginning to develop over western Nebraska, an isolated supercell drifted towards the city of Maryville, Missouri, with winds greater than 80 mph, even approaching 100 mph, creating extreme damage. Quickly filling in behind this supercell was a developing mesoscale convective system, or MCS, capable of producing extreme winds. This system quickly became organized and pushed from north to south down the Missouri river. Winds were estimated between 60 and 80 mph, as damage was reported from St. Joseph to Leavenworth and across the Kansas City metropolitan area. Extensive tree and power line damage was reported with upwards of 100,000 customers without power at the height of the event. Thunderstorms once again developed in the late evening on August 19, 2011. A developing cluster of storms over east central Kansas rapidly transitioned into a wind-producing MCS as it approached and crossed the Kansas City metro. Measured wind speeds between 60 and 80 mph raced through the Kansas City metro, causing additional tree and power line damage and leading to power outages.

Cass County – May 6, 2012
A cold front moved southeast across the area during the late morning through evening hours of May 6, 2012. The front produced scattered thunderstorms with a few becoming severe, including numerous reports of hail, several reports of damaging winds, and two EF0 tornadoes near Raymore and Harrelson.

Houston Lake – June 11, 2012
Houston Lake reported that high winds at night knocked down trees onto power lines; 30 percent of the community was without power. An isolated, early morning thunderstorm was recorded on June 11, 2011. It produced a wind gust to 58 mph at the Kansas City International Airport.

Jackson and Platte Counties – June 27, 2013
A Mesoscale Convective System, or MCS, moved southeast across extreme western Missouri during the morning hours of June 27, 2013, with several reports of damaging winds. Numerous trees, large branches and fencing were reported down across several subdivisions in Lee's Summit. Thunderstorm wind gusts were estimated up to 60 mph.

Clay and Ray Counties – May 10, 2014
Numerous reports of hail from 1 to 2.5 inches in diameter occurred from Avondale, Bigham Height, Gashland, Glenaire, Holt, Kearney, Liberty, Linden, Paradise, Smithville, Stockdale and Richmond.

Clay County – October 2014
The Fishing River Fire Protection District reported several storms in October with high winds causing a few trees to blow down — one falling on a house and causing very minor damage.

Clay, Jackson, Platte and Cass Counties – July 7, 2014
On the evening of July 7, 2014, a long line of thunderstorms moved southward through northern Kansas and Missouri bringing widespread wind damage to the area. While the reports were numerous and widespread, the magnitude of the damage was minimal — mostly minor structure damage and tree damage. These storms were predominantly wind producers with very little in the way of large hail. The storms finally became sub-severe around midnight, bringing only widespread heavy rain through the overnight hours.

4.7.2 Probable Locations

Severe thunderstorms can occur anywhere in the Kansas City metro area. According to NOAA, the greatest severe weather threat in the U.S. extends from Texas to southern Minnesota.

4.7.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 2

Similar to tornadoes, the urban and suburban areas of Cass, Clay, Jackson, Platte and Ray counties are more susceptible to the damaging effects of thunderstorms than the rural portions of these jurisdictions due to larger populations and greater concentration of homes, commercial structures, public facilities, utilities and infrastructure. Nevertheless, thunderstorms can still impact rural portions of the Kansas City region. People may be injured or killed in rural as well as urban areas, though in lesser numbers due to lower population density; livestock may be killed and crops damaged in rural areas. The costs associated with losses in rural areas may be significant, although generally lower than damage costs in urban areas.

Rural residents may also tend to rely more on NOAA weather radios in addition to media broadcasts. More use of mass communication and notification systems in urban areas provide timely alerts and updates to residents in harms' way.

Vulnerable Assets

People: Severe thunderstorms can jeopardize the safety of people and pets. Death and injury can be sustained by fallen trees onto houses or cars, downed power lines, etc., due to damaging winds, or traffic accidents on rain-slick roads caused by heavy rains. People who remain in mobile homes are at a tremendous risk. Roads may become blocked by tree limbs or downed power lines and inhibit the ability of emergency services and medical personnel to travel and assist people who are injured or in harm's way, posing a secondary hazard to life. Loss of electricity for extended periods of time in the heat of summer could cause heat exhaustion. Large crowds at outdoor venues are also at a higher risk for injury and death unless nearby shelter is accessible.

Property: Residential and commercial property in the Kansas City area is susceptible to severe thunderstorms. Damaging winds and hail can break branches or topple an entire tree, knocking down power and telephone lines, disrupting power and telephone service, causing property damage to vehicles, homes, commercial buildings and other structures. Flooded basements and backed up sewers can also damage property.

Transportation Infrastructure and Services: Transportation infrastructure and services in the Kansas City area are highly susceptible to severe thunderstorms. Rain-slick roads may result in traffic accidents. Roads may also be blocked and traffic disrupted by downed trees, tree limbs and power lines. Heavy rain may reduce visibility can temporarily disrupt or slow traffic.

Utilities: Above-ground power and telecommunications lines in the Kansas City area are highly susceptible to severe thunderstorms. Fallen trees and branches can break and fall onto power and telecommunications lines, damaging the lines and disrupting power and service to customers. Utility poles and telecommunications towers may also be toppled by damaging winds.

Commerce and Essential Services: Severe thunderstorms can have a temporary impact on the economy by damaging property, hampering transportation and disrupting utility services. The costs associated with property damage, power restoration and debris removal can be low or high depending on the storm. Storms can delay surface, air and rail transportation by disrupting the temporary flow of goods and services. Commuters can be delayed or stranded causing a loss of business productivity. Downed power and telecommunications lines can interfere with businesses' ability to power equipment, communicate or execute financial transactions. Essential services such as law enforcement, fire protection and EMS may be hampered by road conditions.

Natural Environment: Damaging wind and hail events can cause considerable damage to trees and other vegetation, similar to severe winter storms. Trimming and removal efforts, though necessary in most cases, can exacerbate this problem.

All critical facilities are susceptible to the hazard. Refer to the supplemental hazard-specific information in *Appendix C: Maps and References*.

Table 4.7.7 – Table 4.7.11 [xli] summarize all thunderstorm wind events in excess of 57 mph and impact for each of the five counties in the planning area. Similarly, Table 4.7.12 – Table 4.7.16 summarize hail events at least one inch in diameter. Information was retrieved from the NOAA NCDC Storm Event Database as of March 31, 2015. This information is used to determine severity, magnitude and probability of occurrence.

Table 4.7.7: Cass County Thunderstorm Wind Events (1950-2014) (>57mph)

Wind Speed (mph)	Events	Deaths	Injuries	Property Damage $	Crop Damage $
57 - 67	86	0	0	46,500	0
68 - 81	40	1	4	357,000	0
82 - 100	6	0	0	0	0
Total	132	1	4	403,500	0

Table 4.7.8: Clay County Thunderstorm Wind Events (1950-2014) (>57mph)

Wind Speed (mph)	Events	Deaths	Injuries	Property Damage $	Crop Damage $
57 - 67	120	0	0	387,000	0
68-81	54	0	2	1,693,000	0
82 - 103	7	0	0	68,000	0
Total	181	0	2	2,148,000	0

Table 4.7.9: Jackson County Thunderstorm Wind Events (1950-2014) (>57mph)

Wind Speed (mph)	Events	Deaths	Injuries	Property Damage $	Crop Damage $
57 - 67	191	0	3	1,300,750	0
68 - 81	81	0	0	1,524,000	2,000
82 - 118	18	0	9	10,005,000	0
Total	290	0	12	12,829,750	2,000

Table 4.7.10: Platte County Thunderstorm Wind Events (1950-2014) (>57mph)

Wind Speed (mph)	Events	Deaths	Injuries	Property Damage $	Crop Damage $
57 - 67	89	0	0	54,500	0
68 - 81	49	0	0	431,500	0
82 - 106	5	0	0	0	0
Total	143	0	0	486,000	0

Table 4.7.11: Ray County Thunderstorm Wind Events (1950-2014) (>57mph)

Wind Speed (mph)	Events	Deaths	Injuries	Property Damage $	Crop Damage $
57 - 67	33	0	0	30,000	0
68 -81	19	0	0	249,000	0
81 - 92	1	0	0	200,000	0
Total	53	0	0	479,000	0

Table 4.7.12: Cass County Hail Events (1950-2014) (>1")

Hail Size	Events	Deaths	Injuries	Property Damage $	Crop Damage $
1 - 1.5	118	0	0	0	0

Table 4.7.12: Cass County Hail Events (1950-2014) (>1")					
Hail Size	**Events**	**Deaths**	**Injuries**	**Property Damage $**	**Crop Damage $**
1.75 - 2.5	71	0	0	3,540,000	250,000
>2.75	4	0	0	4,000	0
Total	193	0	0	3,544,000	250,000

Table 4.7.13: Clay County Hail Events (1950-2014) (>1")					
Hail Size	**Events**	**Deaths**	**Injuries**	**Property Damage $**	**Crop Damage $**
1 - 1.5	114	0	0	0	0
1.75 - 2.5	91	0	0	2,535,500	55,000
>2.75	12	0	0	500,000	0
Total	217	0	0	3,035,500	55,000

Table 4.7.14: Jackson County Hail Events (1950-2014) (>1")					
Hail Size	**Events**	**Deaths**	**Injuries**	**Property Damage $**	**Crop Damage $**
1 - 1.5	181	0	0	3,000	0
1.75 - 2.5	96	0	0	14,330,000	0
>2.75	11	0	0	1,000,000	0
Total	288	0	0	15,333,000	0

Table 4.7.15: Platte County Hail Events (1950-2014) (>1")					
Hail Size	**Events**	**Deaths**	**Injuries**	**Property Damage $**	**Crop Damage $**
1 - 1.5	72	0	0	20,000	0
1.75 - 2.5	46	0	0	1,325,000	0
>2.75	5	0	0	40,000	0
Total	123	0	0	1,385,000	0

Table 4.7.16: Ray County Hail Events (1950-2014) (>1")					
Hail Size	**Events**	**Deaths**	**Injuries**	**Property Damage $**	**Crop Damage $**
1 - 1.5	32	0	0	0	0
1.75 - 2.5	27	0	0	5,000	0
>2.75	2	0	0	0	0
Total	61	0	0	5,000	0

Historical statistics associated with the occurrence of severe thunderstorms in the region, presented in Table 4.7.17 and based on wind gusts and hail size, provide an indication of the probable severity of a thunderstorm in the Kansas City region:

Table 4.7.17: Probable Future Severe Thunderstorm Severity		
Hail Size (inches)	**Wind Gusts (mph)**	**Probable Future Severity (Catastrophic, Critical, Limited or Negligible)**
1 – 1.5	57 - 67	62% — Limited
1.75 – 2.5	68 - 80	34% — Critical
>2.75	81 - 118	4% — Catastrophic

Based on the 64-year history of severe thunderstorm events across the region, Table 4.7.18 presents the likely adverse impact of future Kansas City metropolitan area severe thunderstorm and related events.

Table 4.7.18: Estimated Categories of Impact				
Effects of Thunderstorms	**Life**	**Property**	**Emotional**	**Financial**
Without mitigation measures	Limited	Critical	Limited	Critical
With mitigation measures	Negligible	Limited	Negligible	Limited

Hail and wind events commonly occur in the Kansas City planning area. Mitigation measures can reduce the adverse impact of damaging winds, hail and heavy rains associated with severe thunderstorms, helping to save lives, prevent injuries and lessen property damage. Measures include public education and awareness programs and public use of enhanced warning and mass communication systems.

Seasonal Pattern: In general, severe thunderstorms may affect Greater Kansas City anytime; however, weather is most likely during the spring and summer months. But as historical records indicate, it is possible for severe thunderstorms to affect the region early or late in the season.

Probable Duration: Thunderstorms can strike so quickly and with little if any warning. The entire thunderstorm life cycle from the growing cumulus cloud to the dissipated storm can take only 30 minutes. Thunderstorms range between 5 and 25 miles in diameter making them much localized storms.[xlii]

Potential speed of onset (probable amount of warning time):

- ■ Minimal (or no) warning
- ■ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ☐ More than 24 hours warning

4.7.4 Probability of Future Occurrence: High

Although the likelihood of severe thunderstorms is greatest during the spring and early summer, they can occur anywhere in the region, at any time of the year and at any hour of the day or night. A review of historical statistics, summarized in Table 4.7.19, indicates the likelihood or risk, by severity, of a severe thunderstorm occurring anywhere in the Kansas City area:

Table 4.7.19: Risk of Future Severe Thunderstorm Occurrence		
Hail Size (inches)	**Wind Gusts (mph)**	**Probable Risk (Highly Likely, Likely, Possible or Unlikely)**
1 – 1.5	57 - 67	62% — Highly Likely
1.75 – 2.5	68 - 80	34% — Likely
>2.75	81 - 118	4% — Possible

4.7.5 Vulnerability Analysis and Potential Loss Estimates

A statistical risk assessment methodology was used to determine severe thunderstorm loss potential by county. This methodology used NOAA data for thunderstorm wind and hail losses between 1950 and December 2014. It is important to realize that one limitation to this data is that some events may have occurred in uninhabited areas, as well as some inhabited areas, may not have been reported. NOAA

data is adjusted for inflation and other economic effects. No additional compensation was required to determine county-level maximum and minimum loss estimates.

Total county areas are:

Cass = 698.99 square miles
Clay = 396.35 square miles
Jackson = 604.84 square miles
Platte = 420.33 square miles
Ray = 569.47 square miles

Table 4.7.20 and Table 4.7.21 illustrate the maximum and minimum loss estimates for severe thunderstorms for the five-county region. Maximum loss estimation for total exposure is based on each county's parcel value.

Table 4.7.20: Maximum Loss Estimation, Severe Thunderstorms

County	Overall Risk (probability and severity)	Magnitude (percent of county affected)	Total Exposure ($ value, thousands)	Total Population (in thousands)	Maximum Loss Estimation
Cass	High = 3	>50% = 4	5,400,904 = 2	101 = 2	Medium
Clay	High = 3	>50% = 4	14,958,612 = 3	234 = 2	High
Jackson	High = 3	>50% = 4	76,612,242 = 3	683 = 3	High
Platte	Medium = 2	>50% = 4	7,907,587 = 2	95 = 1	Medium
Ray	High = 3	>50% = 4	935,840 = 1	23 = 1	Medium

Sources: NOAA National Climatic Data Center Storm Event Database, HAZUS-MH (2015) and MARC

The average magnitude for minimum loss estimation was calculated by multiplying the length (12.6 miles) of the Ruskin Heights tornado by its width (400 yards) in square miles (1.05 sq. mile) then dividing by the county' total area in square miles. Calculations for each county demonstrate that less than 1% (One percent) of the county area impacted.

Table 4.7.21: Minimum Loss Estimation, Severe Thunderstorms

County	Overall Risk (probability and severity)	Average Magnitude (percent of county affected)	Annualized Loss ($ value, thousands)	Average Deaths and Injuries	Minimum Loss Estimation
Cass	Medium = 2	<1% = 1	925 = 3	.85 =1	Medium
Clay	High = 3	<1% = 1	3,807 = 3	1.2 =1	Medium
Jackson	High = 3	<1% = 1	361 = 2	7.06 = 3	Medium
Platte	Medium = 2	<1% = 1	1,049 = 3	.5 = 1	Medium
Ray	High = 3	<1% = 1	263 = 2	.68 = 1	Medium

Sources: NOAA National Climatic Data Center Storm Event Database, HAZUS-MH (2015) and MARC

4.7.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for severe thunderstorms:

- Severe thunderstorms with damaging winds and hail are frequent events within the Kansas City region and will likely continue to impact large areas.
- Cascading impacts of severe thunderstorms can have lasting, cross-jurisdictional impacts. Normal mutual-aid partners or regional resources may be unavailable or unable to support response.
- Mitigation measures to protect property tend to be expensive with cost-benefit ratio being challenging.
- As with tornadoes, current public information efforts have likely plateaued in their effectiveness.
- New warning technologies have created the potential for uncoordinated warnings (or conversely, oversaturation) leading to citizens not taking appropriate protective actions.

4.8 Severe Winter Weather

Severe winter weather, including snow storms, ice storms and extreme cold, may affect any part of Cass, Clay, Jackson, Platte and Ray counties in any given winter season. Although the annual snowfall amount in the Kansas City area is moderate — generally around 20 inches — the area may be affected by a full range of snowy conditions, including blizzards, blowing snow, snow squalls, snow showers and snow flurries.[xliii,xliv]



These snowy conditions are defined as follows:[xlv,xlvi]

Blizzard – Winds of 35 mph or more with snow and blowing snow reducing visibility to less than one-quarter mile for at least three hours.

Snow Squalls – Brief intense snow showers accompanied by strong, gusting winds; accumulation may be significant.

Blowing Snow – Wind-driven snow that reduces visibility; blowing snow may be falling snow and/or snow on the ground picked up by the wind.

Snow Showers – Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

Drifting Snow – Uneven distribution of snowfall caused by strong surface winds. Drifting snow does not reduce visibility.

Snow Flurries – Light snow falling for short durations with little or no accumulation.

Ice storms may also affect the Kansas City area during the winter months. In ice storms, damaging accumulations of ice occur during a period of freezing rain. According to the NWS, significant accumulations of ice are defined as one-quarter inch or more of ice. Other icy conditions that may affect the Kansas City area include freezing rain and sleet. Freezing rain or freezing drizzle occur when rain or drizzle freezes on surfaces, such as roads, bridges, cars and trees, forming a coating or glaze of ice. In freezing rain or freezing drizzle, air temperatures are warm enough for rain to form, but surface temperatures are below 32 degrees, causing rain or drizzle to freeze on contact with surfaces. Sleet is made up of raindrops that freeze and form ice pellets before reaching the ground. Like hail, sleet may bounce when it hits the ground or another surface instead of sticking and forming a coating. However, sleet may accumulate like snow. Heavy sleet accumulation is half an inch or more of sleet.[xlvii]

In the winter, the Kansas City area's normal low temperatures are 22.5 degrees in December, 17.8 degrees in January and 23.2 degrees in February.[xlviii] However, the area may also experience periods of extreme cold in the wintertime. For example, the lowest temperature on record for the Kansas City area was minus 23 degrees on Dec. 22–23, 1989. The winter of 1978–79 had the lowest average seasonal temperature for the Kansas City metropolitan area, 21.5 degrees.[xlix]

Wind chill can exacerbate winter's cold air temperatures. Wind chill is not the actual air temperature, but rather how the cold and wind feel on exposed skin.[l] As the wind velocity increases, heat is carried

away from the body at an accelerated rate, lowering the body temperature.[li] People and animals outdoors are affected by wind chill, a situation that can be dangerous, because hypothermia can result from loss of body heat.

The NWS provides a number of advisories, watches and warnings in advance of severe winter weather. These include:

Winter Weather Advisory – Winter weather conditions are expected to cause significant inconveniences and may be hazardous. However, if caution is exercised, these situations should not become life-threatening. In conditions warranting a winter-weather advisory, the greatest hazard is often to motorists.

Winter Storm Watch – A significant winter storm may affect the area, but its occurrence, location and timing are uncertain. A winter storm watch is issued to provide 12 to 36 hours' notice of the possibility of severe winter weather. A watch will often be issued when neither the path of a developing winter storm nor the consequences of the event are well-defined. A winter storm watch may be upgraded to a warning when the nature and location of the developing weather event becomes more apparent.

Winter Storm Warning – A winter storm warning is issued when hazardous winter weather is occurring, imminent or likely. A warning is used for winter weather conditions that may be a threat to life and property. Winter storm warnings are usually issued for heavy snow approaching or exceeding 6 inches, ice accumulations, dangerous wind chills or a combination of these conditions. Warnings can be issued for lesser amounts of snow, 3 to 6 inches, for example, if the snow occurs with strong winds in excess of 20 miles per hour and/or significant sleet or heavy ice accumulations from freezing rain. In the Central Plains, expected snow accumulation during a winter storm warning is 4 inches or more in 12 hours or 6 inches or more in 24 hours.

Wind Chill Warning – A wind chill warning is issued when life-threatening wind chills reach minus 50 degrees or below.

Ice Storm Warning – An ice storm warning is issued when a significant coating of ice, a quarter of an inch or more, is expected.

Heavy Snow Warning – A heavy snow warning is issued when snow accumulations are expected to approach or exceed 6 inches in 12 hours, but will not be accompanied by significant wind. A heavy snow warning could also be issued if 8 inches or more of snow accumulation is expected in a 24-hour period. Sleet and freezing rain are not expected during a heavy snow warning.

Blizzard Warning – A blizzard warning is issued when sustained winds or frequent gusts of 35 mph may occur in combination with considerable falling and/or blowing snow for a period of at least three hours. In a blizzard warning, visibilities will frequently be reduced to less than one-quarter mile, and temperatures will often be extremely cold.

4.8.1 Historical Occurrences

Severe winter weather is virtually an annual occurrence in the Kansas City area. Whether it is a snow storm, ice storm, freezing rain, sleet, period of extreme cold or combination of these conditions, citizens of the Kansas City area will normally experience some type of severe weather event each winter. Occurrences of severe winter weather spanning the last decade are described below. Each historical occurrence contains the date(s) of the severe winter weather event, the affected counties in the Kansas City area and a description of the event. Events occurring since 2009 are reflected in Table 4.8.1 below:

Table 4.8.1: Historical Occurrences, Severe Winter Weather (2009–2014)

County	Date	Event Type	Deaths	Injuries	Property Damage $	Crop Damage $
Platte	2/5/2008	Heavy Snow	0	0	0	0
Clay, Jackson	2/28/2009	Heavy Snow	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	3/28/2009	Winter Storm	0	0	0	0
Platte	12/7/2009	Blizzard	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	12/24/2009	Blizzard	0	0	0	0
Cass, Clay, Jackson, Platte	1/6/2010	Winter Storm	0	0	0	0
Cass, Jackson	2/4/2010	Winter Weather	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/21/2010	Winter Storm	0	0	0	0
Jackson, Platte	3/19/2010	Winter Storm	0	0	0	0
Cass	3/20/2010	Winter Storm	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	1/10/2011	Winter Weather	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	1/19/2011	Winter Storm	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/1/2011	Blizzard	0	0	0	0
Clay, Jackson, Platte, Ray	2/24/2011	Winter Storm	0	0	0	0
Cass, Jackson	3/13/2011	Winter Weather	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/13/2012	Winter Weather	0	0	0	0
Cass, Jackson	1/12/2013	Winter Weather	0	0	0	0
Platte	1/30/2013	Winter Weather	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/21/2013	Winter Storm	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/25/2013	Winter Storm	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	3/23/2013	Winter Storm	0	0	0	0
Cass, Clay, Jackson	5/2/2013	Winter Weather	0	0	0	0
Platte	12/9/2013	Winter Weather	1	0	0	0
Cass, Clay, Jackson, Platte, Ray	12/21/2013	Ice Storm	1	0	0	0
Cass, Clay, Jackson, Platte, Ray	1/6/2014	Cold/wind Chill	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	2/4/2014	Heavy Snow	0	0	0	0
Cass, Clay, Jackson, Platte, Ray	3/1/2014	Winter Storm	0	0	0	0

Cass, Clay, Jackson, Platte and Ray Counties – December 24-26, 2009
An unusually strong storm system wreaked havoc on a large portion of the central United States during one of the heaviest travel periods of the year. Shortly after midnight on Thursday, December 24, an arctic cold front swept through the area, sending temperatures on a downward spiral through the 40s, 30s, 20s and eventually landing in the teens by nightfall on Christmas Eve. With warm air still present

aloft, the first round of precipitation fell mainly in the form of sleet, with some freezing rain across central Missouri. The sleet came down particularly heavy at times on eastern portions of the Kansas City metro, with ice pellet accumulations upwards of 2 inches in some areas. By mid-evening, enough cold air had wrapped in aloft to change all the precipitation over to snow. Heavy snow blanketed much of western Missouri and eastern Kansas, with winds of 30 to 45 mph resulting in blizzard conditions from Kansas City to the Iowa and Nebraska borders. Snowfall amounts averaged between 6 and 8 inches along and west of Interstate 35, with drifts 3 to 8 feet reported in many areas. Travel was crippled across many areas with portions of Interstate 29, which was closed north of St. Joseph. A white Christmas for many came at the expense of the first blizzard to impact the Kansas City area since 1989, and the first blizzard warning issued for Kansas City since 1982. Overall, a broad area of the lower Missouri River Valley region experienced snowfall totals in excess of 8 inches. Hardest hit areas of northwest Missouri and northeast Kansas received as much as 11 to 14 inches of snow during this storm.

Cass, Clay, Jackson and Platte Counties – January 6-7, 2010
On January 6 and 7, 2010, a potent storm system moved across the region. This storm brought widespread snowfall of 3 to 6 inches to eastern Kansas and much of the northern half of Missouri. The storm system also brought bitterly cold temperatures, strong northwesterly winds and brutal wind chills to the area. Northwest winds of around 20 to 25 mph and gusts to around 35 mph were common across the region on Thursday afternoon, creating significant blowing and drifting snow. These winds combined with temperatures in the single digits and lower teen, to produce wind chill values of -5 to -15 degrees during the daytime hours Thursday. The wind gradually decreased through Friday, as the storm system moved northeast of the region. Very cold temperatures overspread the area behind the storm system. Temperatures Friday morning ranged from 5 to -5 degrees, with Friday afternoon readings mainly in the 5 to 10 degree range.

Cass and Jackson Counties – February 4-5, 2010
An upper-level storm system, brought snow to the region on February 4 and 5, 2010. The heaviest snow fell across west central Missouri and north central Missouri. Accumulations of 4 to 8 inches were observed in these areas.

Cass, Clay, Jackson, Platte and Ray Counties – February 20-21, 2010
Yet another winter storm in an already active winter season impacted much of Kansas and Missouri during the weekend of February 20-21, 2010. This challenging winter storm, more typical of late February, brought numerous forecast problems with hazards ranging from heavy snow to sleet, ice, rain and even flooding. At the surface, several waves of precipitation moved through the area with periodic sleet, snow and rain showers persisting from late Saturday afternoon through daybreak Sunday. A large, incredibly intense band of snowfall developed in areas of northern Kansas and northern Missouri on the morning of February 21. This band of snow persisted through the evening hours, producing snowfall rates between 1 and 2 inches per hour at times. Snowfall totals reached 4-6 inches in Platte County, 6-8 inches in Clay County, and 2-4 inches in Ray County. A mixture of snow, freezing rain and sleet, was reported in Cass and Jackson counties with up to one-quarter of an inch of ice accumulation observed and 2 inches of snowfall.

Cass, Jackson and Platte Counties – March 19-21, 2010
A powerful, dynamic, and long-duration winter storm welcomed the arrival of spring to the Missouri River Valley. An initial band of snow moved through the region, during the overnight hours of March 19 into the morning hours of Saturday, March 20, as an upper-level storm system started to develop in the

Southern Plains. After a several-hour pause in the snow early Saturday morning, additional precipitation developed across Kansas, Oklahoma, Arkansas and southern Missouri, and then lifted northward into the area. Snow totals upwards of 9 to 10 inches were reported in Cass, Jackson, and Platte counties.

Cass, Clay, Jackson, Platte and Ray Counties – January 10-11, 2011
A prolonged winter snow event was observed across Missouri from early on January 10 through early on January 11. The snow was only light to moderate in intensity, but due to the extended period of snowfall, amounts ranged from 5 to 8 inches in the five-county area.

Cass, Clay, Jackson, Platte and Ray Counties – January 19-20, 2011
A storm system produced heavy snow along the Interstate 70 corridor, from Kansas City to Boonville. The snow began in the early afternoon hours of January 19 and ended in the morning hours of the 20th. Snowfall totals ranged from 6 to 7.4 inches in the five-county area.

Cass, Clay, Jackson, Platte and Ray Counties – February 1-2, 2011
A historic winter storm impacted a wide swath of the central and eastern United States from Tuesday, February 1, into Wednesday, February 2. This was one of the strongest blizzards ever to impact the region. Snowfall of 12-18 inches fell along the Interstate 70 corridor, causing the first ever state-wide closure of Interstate 70 from Tuesday night into early Wednesday. Snowfall rates of 2 to 3 inches per hour also resulted in the temporary closure of Kansas City International Airport on Tuesday afternoon and evening. Snow rates brought travel in the Kansas City metropolitan area to a grinding halt, causing temporary closures of many of the urban expressways. Some schools were closed for several days. In addition to the heavy snow, this event also brought very rare blizzard conditions to the region. Strong northwest winds frequently gusted between 35 and 45 mph across the region, reducing visibilities to near zero at times in whiteout conditions, and drifting snow 3 to 4 feet deep in many areas. Significant snowfall of 9 to 12 inches fell across Clay, Jackson, Platte and Ray counties and 10 to 16 inches in Cass County. Blizzard conditions were observed across the five-county area, with frequent wind gusts up to 45 mph, visibilities less than one-quarter of a mile, and heavy snow. Travel was nearly impossible with the blowing and drifting snow and low visibilities. Kearney reported costs of $20,000 for overtime and contract plowing.

Clay, Jackson, Platte and Ray Counties – February 24-25, 2011
A potent winter storm moved across the area with a variety of precipitation beginning in the morning hours of February 24, 2011. The activity diminished to light snow, and ended in the early morning hours of February 25, 2011. Up to an inch of sleet, mixed at times with light freezing rain was observed, with many areas having 6.5 to 7 inches of snow. The combination of 3 to 5 inches of snow mixed with up to a half inch of sleet and blowing and drifting snow led to hazardous driving conditions across Jackson County. The combination of 6 inches of snow and blowing and drifting snow led to hazardous driving conditions in Clay, Platte and Ray counties.

Cass and Jackson Counties – March 13-14, 2011
A strong storm system that originated over the central high plains on March 13, 2011, moved into northern Arkansas in the morning hours of March 14. Precipitation began as rain, transitioned briefly to sleet, and then to snow in the late evening hours. The snow came to an end from west to east across the area, during the late morning and early afternoon hours of March 14. Isolated, heavier amounts of snow were located mainly along and south of the Missouri River. Snowfall of 4 to 5 inches was reported in Cass and Jackson counties. Hazardous driving conditions were reported.

Cass, Clay, Jackson, Platte and Ray Counties – February 13, 2012
An upper-level storm system moved across the region on February 13, 2012. Light to moderate snow began in the predawn hours along the Kansas-Missouri state line with the snow ending from west to east during the late morning and early afternoon hours. Patchy light freezing drizzle and drizzle were observed after the snow ended and continued into the early evening hours. Snowfall amounts were in the 1-to-3 inch range in the five-county area.

Cass and Jackson Counties – January 13, 2013
An upper-level disturbance produced some light snow across western Missouri, south of the Missouri River, on January 12, 2013. Snowfall amounts ranged from 1 to 3 inches.

Cass, Clay, Jackson, Platte and Ray Counties – February 21, 2013
A major winter storm impacted much of Kansas and Missouri on February 21, 2013, with very heavy snow and some sleet and freezing rain. Some areas received up to a foot of snow, placing this snow storm among the largest snow events in recent memory. Many locations reported thunder with heavy snow and sleet and snowfall rates as high as 3 inches per hour. The very heavy snowfall rates created havoc on area roadways and many travelers became stuck and stranded. Many roads became clogged with stalled vehicles, essentially closing them down. Many motorists abandoned their cars altogether leaving roadways littered with snow-covered vehicles. Independence measured 9.8 inches of snow; Lee's Summit, 10.2; Raytown, 13; Pleasant Hill, 11.2; Kearney, 8; KCI, 9.3; and Richmond, 7.7.

Cass, Clay, Jackson, Platte and Ray Counties – February 25-27, 2013
A major winter storm swept through the Plains on February 25-27, 2013, resulting in the second round of heavy snows that the region had experienced in less than a week. Temperatures near freezing led to a heavy wet snow that was slow to accumulate at the onset of the event. However, as snowfall rates increased overnight, snow rapidly began to accumulate sticking to trees and power lines, resulting in numerous power outages across the area. Unlike the event from five days earlier, the heaviest snow fell overnight and not during the morning commute, allowing road crews open access to the highways during the peak of the event. Road crews still struggled to keep up with snowfall rates as much as 2 inches per hour. By the time the morning commute rolled around most roads were snow-covered, but the combination of snow decreasing in intensity and many more people choosing not to travel, the morning commute was not nearly as disastrous as with the February 21 event. Snowfall reports were 14.5 inches of snow in Pleasant Hill; Lee's Summit, 12; KCI, 11; Richmond, 12; and Liberty, 8. Peculiar reported $47,000 in property damage. The mayor of Independence declared a state of emergency.

Cass, Clay, Jackson, Platte and Ray Counties – March 23-24, 2013
A major early-spring winter storm tracked across the Interstate 70 corridor, March 23-24, 2013. Widespread snowfall amounts of 6 to 10 inches were observed. This ranked in the 10 highest spring-time snow amounts (March 21 and later) in Kansas City history. Independence reported 10 inches of snowfall; Pleasant Hill, 7.8; Gladstone, 7; Kearney, 7; and Ray County, 4-7.

Cass, Clay and Jackson Counties – May 2-3, 2013
A strong cold front with unseasonably cold temperatures moved through the area during the day on May 2, 2013. An upper-level storm system then passed across western Missouri during the evening and overnight hours of May 2-3, 2013. Rain changed to snow across western Missouri, with the heaviest band setting up from Bethany southwest through southeastern Kansas City. Snowfall amounts ranged from 2 to 3 inches in the Kansas City area.

Platte County – December 9, 2013
Light snow on December 8, 2013, left icy patches on Kansas City area roads. On the morning of December 9, a college student lost control of her car on an icy spot on the road and collided with the center barricade and an 18-wheeler. She passed away as a result of the incident.

Cass, Clay, Jackson, Platte and Ray Counties – December 21, 2013
Early on the morning of December 21, 2013, an area of light to moderate rain moved northward into eastern Kansas and western Missouri. At the time of the rain, surface temperatures were in the middle to upper 20s. The result was several hours of freezing rain across eastern Kansas and western and central Missouri, including the Kansas City metro area. Trained spotters reported one-tenth to four-tenths of an inch of ice accumulation in the five-county area. After sunset the freezing rain gradually transitioned into sleet, then snow. By 9 p.m. Saturday, most of the area was receiving light to moderate snow of 1 to 3 inches. The snow moved out of the area late Saturday night, leaving behind very slick roads and some minor damage caused by the ice. In Clay County, 1 to 6 inches fell on top of the ice accumulation. Several vehicle spinouts were reported across the Kansas City metro area. According to broadcast media, a vehicle incident involving slippery roads occurred at Highway 152 and North Indiana Avenue in Clay County. The driver passed away as a result of the incident. Despite scattered power outages and several disabled vehicles on the roads, widespread effects were not incredibly high impact.

Cass, Clay, Jackson, Platte and Ray Counties – January 6, 2014
A polar plunge of arctic air slammed into Kansas, bringing wind chill values to around 30 degrees below zero to the five-county area on the morning of January 6, 2014.

Cass, Clay, Jackson, Platte and Ray Counties – February 4-5, 2014
A major winter storm tracked from southern Kansas into Maine on February 4-5, 2014. Some of the highest snow totals with this system fell from northeast Kansas into northern Missouri, where some areas exceeded a foot of snow. Northerly winds on the back side of this system gusted up to 30 mph and produced substantial blowing and drifting. Many areas reported drifts of 2 to 3 feet. Most of the metro area received a foot of snow.

Cass, Clay, Jackson, Platte and Ray Counties – March 1-2, 2014
During the afternoon to evening hours on March 1, light freezing rain and sleet fell across portions of western and central Missouri. While there was not a period of incredible accumulation, the long duration of the event allowed for several areas to receive more than one-half inch of sleet and around 3 to 5 inches of snow. The storm lasted overnight with several rounds of wintry precipitation occurring. Trained spotters across the area reported about a half-inch to an inch of sleet, occurring mostly during the evening hours on March 1 through the overnight hours on March 2. Aside from the sleet accumulations, snowfall approaching 3 to 6 inches also accumulated through the overnight hours on March 1into March 2d. The long-duration event ended during the afternoon hours on March 2.

4.8.2 Probable Locations

Severe winter weather events tend to be regional in scope. Therefore, the entire Kansas City metro area including Cass, Clay, Jackson, Platte and Ray counties may be affected.

4.8.3 Extent, Severity, Magnitude

Severity: Medium
Magnitude: 3

Historical occurrences have shown the impact severe winter weather can have on the Kansas City area. Winter storms have caused injuries and loss of life, traffic accidents, property damage, power outages, transportation and telecommunications disruptions, and economic losses. One of the most glaring examples of the impact severe winter weather can have on the Kansas City area is the ice storm of January 29-31, 2002, in which each of the five counties experienced many of the aforementioned adversities. The damage costs associated with this severe winter storm were enormous — $61.9 million in federal public assistance alone — making it the second-costliest disaster in Missouri's history.

On average, Missouri counties north of the Missouri River receive annual snowfall of 18 to 22 inches; counties south of the Missouri River receive 8 to 12 inches. The events often involve borderline conditions of freezing rain, ice and high winds, causing high unpredictability. Besides snow and ice, extremely cold temperatures can produce problems. The wind chill is determined by factoring cold temperatures and wind speed. See Figure 4.3.1. The situation can be dangerous to people outdoors because their bodies can experience rapid heat loss, resulting in hypothermia (abnormally low body temperature).

An indirect winter hazard is carbon monoxide poisoning. Improperly vented gas and kerosene heaters or the indoor use of charcoal briquettes create dangerous levels of carbon monoxide. In Missouri, there were 212 reported fatal carbon monoxide poisoning cases from 2001–2007. Accidental poisonings and deaths are also more likely to occur in colder months.

People: Winter storms are deceptive killers because many of the deaths and injuries that occur are indirectly related to the storm. Indirect causes of death and injury include traffic accidents on snow-covered or icy roads and heart attacks due to overexertion from shoveling snow and related activities. According to the NWS, about 70 percent of injuries related to ice and snow are the result of vehicle accidents, about 25 percent occur to people outdoors in a storm, and most happen to males more than 40 years old. Ice- or snow-covered roads, or roads blocked by tree limbs or power lines, may also inhibit the ability of emergency services and medical personnel to travel and assist people who are injured or in harm's way, posing a secondary hazard to life. Other, though less common, causes of injury and death indirectly related to severe winter weather include pedestrians slipping and falling on icy walkways, carbon monoxide poisoning from improperly vented heaters, and electrocutions and fires from downed power lines.

The most direct causes of injuries and death from severe winter weather are frostbite and hypothermia. Frostbite occurs when body tissue is damaged by extreme cold. (See Figure 4.8.1) Frostbite usually affects the body's extremities, such as fingers, toes, ear lobes and the tip of the nose, and causes a loss of feeling and a white or pale appearance. Hypothermia is a potentially deadly condition that occurs when body temperature drops to less than 95 degrees. Hypothermia can cause lasting kidney, liver and pancreas problems for those who survive the condition. Early symptoms of hypothermia include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and exhaustion. According to the NWS, approximately 50 percent of injuries related to cold temperatures occur in people more than 60 years old, more than 70 percent happen to men, and about 20 percent

occur at home. The elderly, infants, the poor and the homeless may be particularly susceptible to extremely cold conditions.

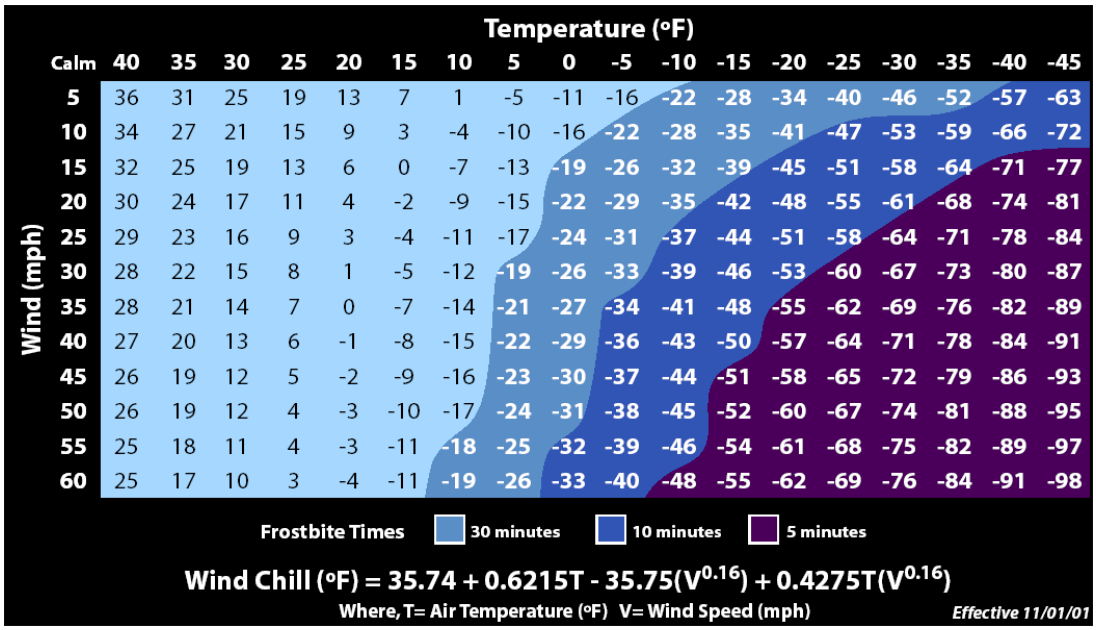


Figure 4.8.1: 2001 NWS Wind Chill Index[lii]

Property: Residential and commercial property in the Kansas City area is susceptible to severe winter weather. Snow and ice may accumulate on trees, breaking branches or toppling the entire tree. Falling trees and branches can knock down power and telephone lines, disrupting power and telephone service. Falling trees and branches can also damage homes, commercial buildings and other structures. Ice can accumulate on power and telephone lines, causing them to break. Heavy accumulations of snow can cause roofs to collapse. Extremely cold temperatures may injure or kill unprotected pets and livestock, and damage or destroy crops. Extreme cold can also cause water lines in houses and commercial property to freeze and break.

Transportation Infrastructure and Services: Transportation infrastructure and services in the Kansas City area are highly susceptible to severe winter weather. Snow-covered and/or icy roads may result in traffic accidents. Bridges and overpasses are particularly susceptible to icy conditions because they tend to freeze sooner than other roadways. Roads may also be blocked and traffic disrupted by downed trees, tree limbs and power lines. Heavy snow, ice, freezing rain, high winds and reduced visibility can close airports, disrupt barge traffic on the Missouri River and disrupt or slow rail traffic.

Utilities: Above-ground power and telecommunications lines in the Kansas City area are highly susceptible to severe winter weather. Heavy accumulations of snow and ice on trees can cause trunks and branches to break and fall on power and telecommunications lines, damaging the lines and disrupting power and service to customers. Utility poles and telecommunications towers may also be toppled by heavy accumulations of ice. The October 22-23, 1996, snow storm and the January 29-31, 2002, ice storm caused widespread power and telecommunications outages across the region. Older and more rural parts of the Kansas City area are generally more likely to experience service disruptions due to severe winter weather because they tend to have more above-ground power and

telecommunications lines than newer areas where those utilities are often underground. Extremely cold temperatures may cause main water lines to break, disrupting the supply of water to communities.

Commerce and Essential Services: By damaging property, hampering transportation and disrupting utility services, severe winter weather can have an adverse impact on the economy of a community. As an example, the costs associated with property damage, power restoration and debris removal following the January 29-31, 2002, ice storm were so high for local governments in the Kansas City area that Missouri received a Presidential Disaster Declaration. Cass, Clay, Jackson, Platte and Ray counties were among the 26 Missouri counties eligible for both federal Individual and public assistance programs as a result of this winter storm event. Severe winter weather can impact surface, air and rail transportation systems by disrupting the flow of goods and services into and out of the metro area. Similarly, commuters can be delayed or stranded, causing a loss of business productivity. Downed power and telecommunications lines can interfere with business' ability to power equipment, communicate or execute financial transactions. Essential services such as law enforcement, fire protection and EMS may be hampered by icy and hazardous road conditions. Area schools are routinely closed due to snow-covered or icy roads and extremely cold temperatures. In addition, beneficial programs for the elderly and/or persons with disabilities, such as home-delivered meals for home-bound senior citizens, may be temporarily curtailed due to the hazardous driving conditions snow-covered or icy roads.

Natural Environment: The early snow storm of October 22–23, 1996, and the ice storms of December 6, 1994, and January 29–31, 2002, caused considerable damage to the environment in the Kansas City area. Thousands of trees and other vegetation in both natural and developed areas were seriously damaged or destroyed by the storm. Trimming and removal efforts, though necessary in most cases, exacerbated this problem. In addition, air quality may have been affected due to the permitted burning of storm debris in some communities.

All critical facilities are susceptible to the hazard. Refer to the supplemental hazard-specific information in *Appendix C: Maps and Refences*.

4.8.4 Probability of Future Occurrence: High

It is likely that some or all of the Kansas City metro area will experience some form of severe winter weather each year. At any hour of the day or night, snow, ice, freezing rain, sleet and/or extreme cold may affect the region in the wintertime (generally between November and April). As a result, the entire region is at risk from severe winter weather.

Some of the adverse effects of severe winter weather may be reduced, however, through certain mitigation measures, such as public education campaigns that stress winter safety; proper tree-trimming (to keep branches away from power lines); and programs to reduce, eliminate or defer home heating costs for low-income and at-risk residents.

Seasonal Pattern: In general, severe winter weather may affect Greater Kansas City between November and April; severe winter weather is most likely during the months of December, January and February. But, as historical records indicate, it is possible for severe winter weather to affect the region early in the season, such as October snow storms. Similarly, it is not uncommon for the Kansas City area to receive severe winter weather late in the season, such as snow or freezing rain in March.

Probable Duration: The dangerous conditions associated with severe winter weather, such as accumulation of snow and ice or extremely low temperatures, can occur within a few hours. Snow and ice may be present for several days; extreme cold may also persist for several days. The cascading effects of severe winter weather, such as utility outages, can also last for several days. In the aftermath of the January 29–31, 2002, ice storm, some parts of the Kansas City area were without electrical power for more than a week.

Potential Speed of Onset (probable amount of warning time):

- ☐ Minimal (or no) warning
- ■ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ☐ More than 24 hours warning

4.8.5 Vulnerability Analysis and Potential Loss Estimates

The same statistical risk assessment methodology to determine tornado and severe thunderstorm loss potential was used for winter weather. Again, this methodology uses NOAA data for winter storm losses between 1994 and March 2009.

Data Limitations: As noted previously, there are serious data limitations associated with winter storm losses. The NOAA NDC database groups damage estimates cumulatively for all counties affected by a winter storm event. Therefore, it is impossible to calculate an accurate annualized loss at the county level. Also, no losses were reported in the online database for the current five-year period. The economic impacts of a winter storm differ greatly from those of a tornado or severe thunderstorm as the duration of the event and its indirect impacts can last up to one week. In a tornado, the majority of the economic impact is generally isolated to the direct losses (infrastructure, property, etc.) in the affected area. A severe winter storm, however, can have wide-ranging secondary effects such as utility and transportation disruption, debris removal, etc. The exact cost of these secondary effects is difficult to quantify. In order to achieve a measurable figure for damages, annualized loss was calculated using the gross sum of all damages for all storms that affected the individual counties. Multiple counties may be involved in the same storm event. Since one county's share of the damages is unknown, annualizing the total damages provides a measurable analysis of the probable economic impact. To compound the problem further, the magnitude of the historic winter storm events is unknown. Citing the general nature of storms that have affected the entire region, it seems reasonable to assume a magnitude of four for all counties.

Table 4.8.2 and Table 4.8.3 provide maximum and minimum loss estimates for severe winter weather.

Table 4.8.2: Maximum Loss Estimation, Severe Winter Weather

County	Overall Risk (probability and severity)	Magnitude (percent of county affected)	Total Exposure ($ value, thousands)	Total Population (in thousands)	Maximum Loss Estimation
Cass	Medium = 2	>50% = 4	5,400,904 = 2	101 = 2	High
Clay	Medium = 2	>50% = 4	14,958,612 = 3	234 = 2	High
Jackson	High = 3	>50% = 4	76,612,242 = 3	683 = 3	High

Table 4.8.2: Maximum Loss Estimation, Severe Winter Weather					
County	**Overall Risk (probability and severity)**	**Magnitude (percent of county affected)**	**Total Exposure ($ value, thousands)**	**Total Population (in thousands)**	**Maximum Loss Estimation**
Platte	Medium = 2	>50% = 4	7,907,587 = 2	95 = 1	Medium
Ray	High = 3	>50% = 4	935,940 = 1	23 = 1	Medium

Table 4.8.3: Minimum Loss Estimation, Severe Winter Weather					
County	**Overall Risk (probability and severity)**	**Average Magnitude (percent of county affected)**	**Annualized Loss ($ value, thousands)**	**Average Deaths and Injuries**	**Minimum Loss Estimation**
Cass	Medium = 2	1	2,143 = 3	0 = 1	Medium
Clay	Medium = 2	1	2,500 = 3	1 = 2	Medium
Jackson	High = 3	1	2,370 = 3	0 = 1	Medium
Platte	Medium = 2	1	2,486 = 3	1 = 2	Medium
Ray	High = 3	1	2,470 = 3	0 = 1	Medium

4.8.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for severe winter weather:

- Cascading impacts of severe winter weather can have lasting, cross-jurisdictional impacts. Normal mutual-aid partners or regional resources may be unavailable or unable to support response.
- Many critical facilities don't have emergency backup power, or rely on generators that will need to be refueled in 24–72 hours.
- Economic impacts from extreme, long-duration winter storms will stress local government resources.
- Debris management/snow removal will likely be a tremendous challenge; many jurisdictions don't have approved debris management plans.

4.9 Flooding

Note: Floodplain maps for individual jurisdictions can be found in Appendix C: Maps and References.

With the exception of fires, floods are the most common and widespread of all natural disasters. Most communities have experienced some type of flooding.[liii] Flooding occurs when normally dry areas of land are partially or completely inundated by water.[liv] Floods are caused by a number of conditions, including widespread and/or intense rainfall; runoff from deep snow cover (usually a combination of heavy rain, rapid warming and rapidly melting snow); over-saturated soil (the ground cannot absorb any more water); frozen soil that cannot absorb as much water as soil that is not frozen; high river, stream or reservoir levels preceding heavy or extended rains; ice jams in rivers and streams (these can flood upstream locations and, when they break, downstream locations); and urbanization (large amounts of pavement and buildings inhibit water absorption by the soil and cause rainwater to flow into sewers and drainage ditches and overflow them).[lv] These same conditions that cause flooding have the potential to lead to levee failures, resulting in even more extensive flooding. *Levee Failures* is now a separate hazard for the 2015 Plan Update and will be discussed in *Section 4.10*.



Several types of flooding may adversely affect the Kansas City area: riverine floods, flash floods and sheet floods. Riverine flooding occurs when rivers, streams, lakes, reservoirs or drainage systems overflow due to excessive rainfall, rapid snowmelt or ice jams.[lvi] According to FEMA, riverine floods can be either slow- or fast-rising, but generally occur over a period of days, inundating adjacent areas of land.[lvii] The low, relatively flat land adjoining rivers and streams is known as a floodplain. Floodplains are natural reservoirs for floodwaters, created over thousands of years by floods and the flow of a river or stream's waters.[lviii] Floodplains are important components of basins, the land drained by a river and its tributaries. The Kansas City area, along with most of the northern and central parts of the state, lies within the Missouri River Basin. As a result, a significant portion of the region lies within floodplains.[lix]

Common nomenclature associated with riverine floods and floodplains include the terms "10-year flood," "50-year flood," "100-year flood" and "500-year flood." These terms describe the probability of flooding in any given year and are primarily used to determine flood insurance rates in flood hazard areas.[lx] A 10-year flood, for example, has a 10 percent chance of occurring in any given year; a 50-year flood has a 2 percent chance of occurring; a 100-year flood has a 1 percent chance of occurring; and a 500-year flood has a 0.2 percent chance of occurring. Because these terms are measures of probability, an event such as a 100- or 500-year flood has the same chance of occurring each year, regardless of when floods of similar magnitude have occurred, even if the occurrence was the previous year.[lxi]

Although riverine floods are more damaging to property, flash floods are the most dangerous type of flooding that may affect the Kansas City area. Flash floods are generally caused by heavy rainfall over a short period of time, though they can also be caused by the breaching or overtopping of dams.[lxii] According to SEMA, flash flooding frequently impacts small rivers, creeks, streams, canals and drainage ditches and is characterized by a rapid accumulation or runoff of surface water from any source. The majority of flood-related deaths are the result of flash floods, which are likely to occur with little or no

warning and can reach full peak in minutes.[lxiii] Of the approximately 92 flood-related deaths that occur in the United States each year, three-quarters are due to flash floods.[lxiv]

Sheet floods may also affect portions of the Kansas City area. Sheet flooding is caused by a combination of excessive rainfall or snowmelt, over-saturated ground and inadequate drainage. Sheet flooding is a byproduct of urbanization and development and may occur in areas that are not within a floodplain. In sheet flooding, water spreads out across the surface of the ground toward areas of lowest elevation, rather than flowing into a defined stream channel.[lxv] Large amounts of pavement (e.g., roads and parking lots) and buildings facilitate the flow of rainwater into areas of low elevation and into drainage systems that cannot properly carry and disburse the tremendous amount of water produced by intense storm events. In this type of flooding, water may back up into residential and commercial property, particularly the basements of these structures, damaging mechanical systems, floors, walls, furniture and fixtures, and creating public health and safety problems.[lxvi]

The plan narrative and GIS maps provide information on specific locations within the region's cities and counties where past riverine and flash floods have resulted in human casualties or property damage. The information also provides location-specific information on areas subject to future flooding, including identification of 100-year and 500-year flood-prone areas.

The NWS provides a number of advisories, watches, warnings and related products in advance of flooding. These include:[lxvii]

Flash Flood Warning – Urban and small-stream flash flooding is imminent or is in progress, and is life threatening.

Flood Warning – Major river flooding is imminent or in progress.

Flash Flood/Flood Watch – A threat of flash flooding or flooding exists, but an occurrence is not yet certain or imminent. A watch is usually issued with six or more hours of lead time.

Small-Stream Flood Warning – Small-stream flooding is imminent or in progress. Flooding is not life threatening, but is causing property damage.

Urban Flood Warning – Urban flooding is imminent or in progress. Flooding is not life threatening, but is causing property damage.

Urban and Small-Stream Flood Warning – Urban and small-stream flooding is imminent or in progress. Flooding is not life threatening, but is causing property damage.

Urban and Small-Stream Flood Advisory – Urban and/or small-stream flooding is a significant inconvenience. Flooding is not life threatening or causing property damage.

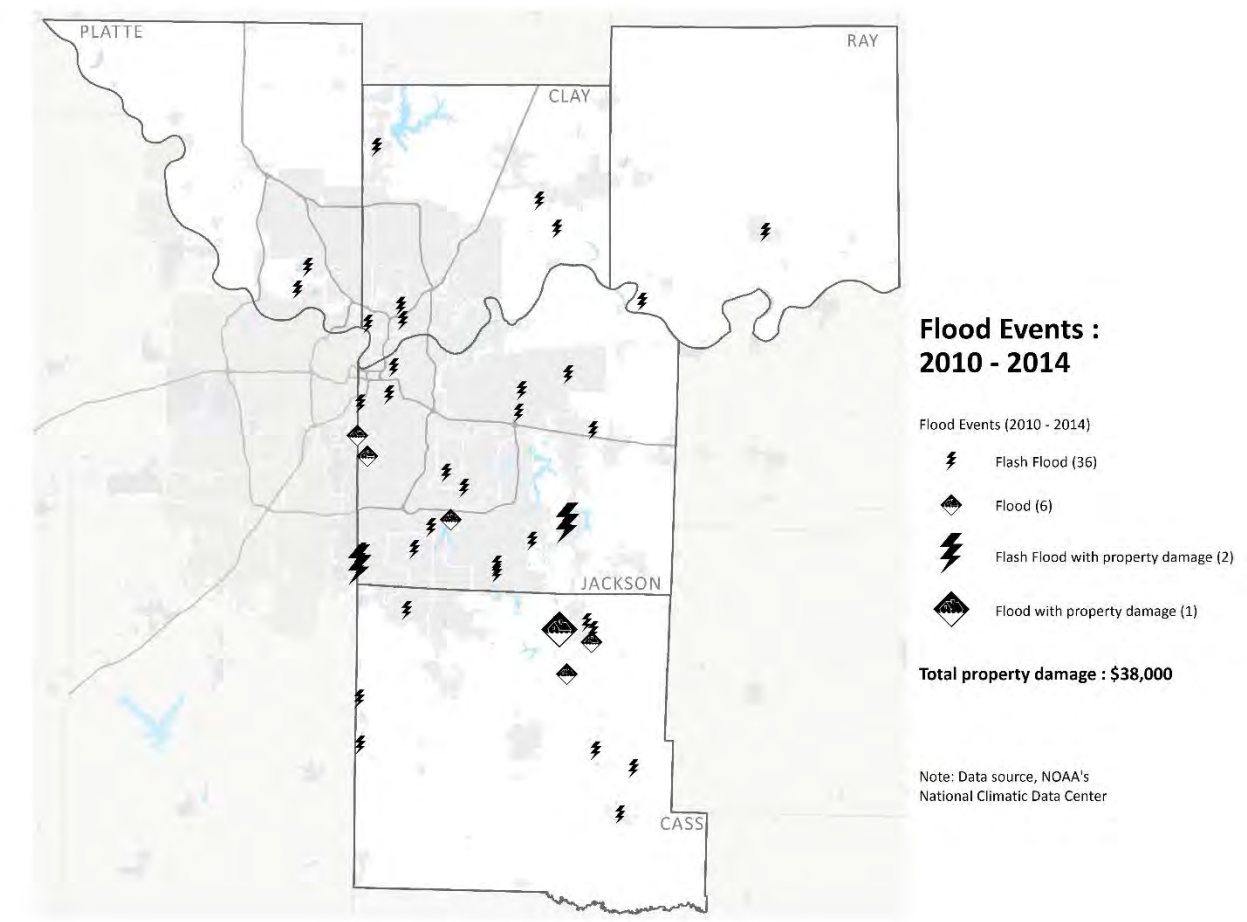
Flash Flood Statement – Issued to provide more information on a Flash Flood Watch or Warning, or to cancel all or part of those products.

Flood Statement – Issued to provide more information on a Flood Watch, Warning or Advisory, or to cancel all or part of those products.

Local Storm/Spotter Report – Issued to report flash flooding or other types of flooding by time, location and effect, e.g., damage, deaths or injuries; also, includes the information source.

4.9.1 Historical Occurrences

Unfortunately, the Kansas City area has a long history of flooding. Several of the region's largest and most destructive riverine floods include the Flood of 1844, Flood of 1903, Flood of 1951 and the Great Midwest Flood of 1993. Examples of some of the most significant flash floods to affect the Kansas City area include the Sept. 12, 1977 Flash Flood and the Oct. 4, 1998 Flash Flood. Map 4.9.1 and Table 4.9.1 depict flooding events by county for the last five years. Refer to the 2010 Plan update for details on flood history.



Map 4.9.1: Flood Events in the Kansas City Area (2010-2014)

Table 4.9.1: Kansas City Area Flood Events by County (2010-2014)

County	Location	Date	Event	Deaths	Injuries	Property Damage $	Crop Damage $	Cause
Cass	Jaudon	6/8/2010	Flash Flood	0	0	0	0	Heavy Rain
Cass	Cleveland	6/8/2010	Flash Flood	0	0	0	0	Heavy Rain

Table 4.9.1: Kansas City Area Flood Events by County (2010-2014)								
County	Location	Date	Event	Deaths	Injuries	Property Damage $	Crop Damage $	Cause
Cass	Belton	6/12/2010	Flash Flood	0	0	0	0	Heavy Rain
Cass	Pleasant Hill	6/14/2010	Flood	0	0	3,000	0	Heavy Rain
Cass	East Lynne	6/19/2011	Flash Flood	0	0	0	0	Heavy Rain
Cass	Gunn City	6/19/2011	Flash Flood	0	0	0	0	Heavy Rain
Cass	Pleasant Hill	6/19/2011	Flood	0	0	0	0	Heavy Rain
Cass	Pleasant Hill	5/6/2012	Flash Flood	0	0	0	0	Heavy Rain
Cass	Pleasant Hill	5/25/2012	Flash Flood	0	0	0	0	Heavy Rain
Cass	Avon	5/31/2013	Flash Flood	0	0	0	0	Heavy Rain
Cass	Garden City	4/2/2014	Flash Flood	0	0	0	0	Heavy Rain
Cass	Pleasant Hill	7/6/2014	Flood	0	0	0	0	Heavy Rain
Clay	Mosby	7/20/2010	Flash Flood	0	0	0	0	Heavy Rain
Clay	Claycomo	9/18/2010	Flash Flood	0	0	0	0	Heavy Rain
Clay	Oakwood	9/18/2010	Flash Flood	0	0	0	0	Heavy Rain
Clay	Smithville	9/18/2010	Flash Flood	0	0	0	0	Heavy Rain
Clay	Avondale	9/19/2013	Flash Flood	0	0	0	0	Heavy Rain
Clay	Stockdale	10/1/2014	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Ruskin Heights	6/8/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Spring Branch	6/8/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Kansas City Dwtn	6/8/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Martin City	6/8/2010	Flash Flood	0	0	25,000	0	Heavy Rain
Jackson	Spring Branch	6/12/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Raytown	6/12/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Vale	6/13/2010	Flood	0	0	0	0	Heavy Rain
Jackson	Lake Lotawana	6/14/2010	Flash Flood	0	0	10,000	0	Heavy Rain
Jackson	Martin City	6/14/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Ruskin Heights	6/16/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Knobtown	6/16/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Kansas City	7/11/2010	Flood	0	0	0	0	Heavy Rain
Jackson	Grain Valley Arpt	9/18/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Lake City	9/18/2010	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Dodson	7/12/2011	Flood	0	0	0	0	Heavy Rain
Jackson	Greenwood	5/6/2012	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Greenwood	5/25/2012	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Lake Lotawana	5/31/2013	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Kansas City Dwtn	5/31/2013	Flash Flood	0	0	0	0	Heavy Rain
Jackson	Kansas City	9/19/2013	Flash Flood	0	0	0	0	Heavy Rain
Platte	Parkville	5/12/2010	Flash Flood	0	0	0	0	Heavy Rain
Platte	Platte Woods	5/26/2010	Flash Flood	0	0	0	0	Heavy Rain
Ray	Orrick	7/24/2010	Flash Flood	0	0	0	0	Heavy Rain
Ray	Richmond	10/1/2014	Flash Flood	0	0	0	0	Heavy Rain

Source: NOAA NCDC Web site

Cass, Jackson – June 8, 2010
In the wake of morning thunderstorms, afternoon sunshine heated an already very humid air mass over west central Missouri and eastern Kansas on Tuesday, June 8 2010, creating a very unstable atmosphere over the region. A slow-moving cold front reached a Wichita-to-Kansas City line by late afternoon, rapidly igniting a long line of strong, slow-moving thunderstorms. While the threat of damaging winds and large hail were diminished by the vast number of storms that developed along the front, excessive rainfall quickly became a concern. Training, or repeated thunderstorms tracking over the same area, deluged portions of the Kansas City metro into Cass County. Areas from Overland Park to Grandview to Lee's Summit and southward to Peculiar, Pleasant Hill and adjacent communities were hit especially hard as two-and-a-half to four inches of rain fell in just a couple of hours. Major flooding occurred from U.S. Hwy. 71 into the Country Club Plaza. Water was over the roads, and the intersection of Spring Branch and Red Bridge Road was impassable. Flooding at Indian Creek near 103rd and State Line Road (Martin City) affected businesses up to 100 yards from the creek, resulting in $25,000 in property damage. Cass County reported over 2 feet of water over the roads in some locations. Interstate 435 near the Kansas/Missouri state line was turned into a river at rush hour with three water rescues conducted near Cleveland; one near Route Y and 251 Road, and two within the city limits. In addition to the torrential rainfall, these storms were prolific lightning producers, with nearly continuous cloud-to-ground lightning observed well into the early evening hours. National lightning detection network counts showed total cloud-to-ground lightning strikes well into the tens of thousands, but thankfully no damage was reported.

The only severe weather observed in the region, was with one of the first storms that developed in western Johnson County, Kansas. This long-lived supercell storm tracked southeast into Cass County and began to show signs of organized rotation as it tracked toward Harrisonville, prompting the issuance of a tornado warning. A brief tornado touched down along the south side of Harrisonville, producing roof and tree damage to a church carport, a commercial business, and a number of trees at nearby residences.

Cass, Jackson – June 12, 2010
A stalled frontal boundary, combined with an upper-level disturbance, caused the first of several rounds of convections across the region during the morning hours of June 12, 2010. Heavy rains caused several reports of flash flooding. In Cass County, the city of Belton reported 1 to 2 feet of water near Route Y and Highway 58. In Jackson County, heavy rains across the region caused flooding in the McCoy Park area with reports of cars becoming submerged. There were also reports of up to 8 inches of water on Noland Road and numerous intersections were reported flooded in Raytown.

Cass, Jackson – June 14, 2010
A frontal boundary continued to meander around the region. Thunderstorms with very heavy rains caused several reports of flash flooding across the area, in the late evening and early morning hours of June 13-14, 2010. In Jackson County, parts of Highway 7 were washed out due to flash flooding in Lake Lotawana; a water rescue was needed at 99th and Holmes Road; and home evacuations were also needed along Indian Creek near 101st and Wornall. In Cass County, Pleasant Hill reported flooding near the intersection of Front Street and Highway 58; five homes had minor flooding.

Cass, Jackson – May 25, 2012
A warm front over west central Missouri during the morning hours of May 25, 2012, lifted north and

produced a large area of thunderstorms. A small cluster of intense thunderstorms with torrential rains was located over southern Jackson County and northern Cass County. Rainfall up to 5.6 inches was reported along with flash flooding. In Pleasant Hill, 1 foot of water was reported flowing over the road at the intersection of Country Club Drive and Murray Road. In Greenwood, Highway 150 was closed at both Harbor Drive and Highway 291 due to flooded roads.

Clay, Jackson – September 19, 2013
A cold front moved across northwest Missouri and produced scattered thunderstorms, during the afternoon and evening hours of September 19, 2013. Some of the thunderstorms were severe with damaging winds. Heavy rains were also reported, with flash flooding observed around downtown Kansas City. Flash flooding was reported along Brush Creek and near Southwest Boulevard with water rescues also reported. In eastern Jackson County, water was reported over the roads, along with several stranded cars. In Clay County, a water rescue was reported at North Vivion and Choteau. Smithville reported 1 foot of water over Highway 92; Claycomo reported stranded cars and water over the roads.

Cass, Jackson – May 31, 2013
A strong low-level jet, combined with an unstable air mass, led to thunderstorm development over eastern Kansas. These thunderstorms rolled east across central Missouri, during the morning hours of May 31, 2013. Heavy rains caused some flash flooding and several reports of hail. Numerous roads were reported closed in the Kansas City area, due to high water from heavy rains; stranded cars were also reported. In Lake Lotawana, westbound Highway 50 just east of the Todd George exit, had 6 inches of water over the roadway; traffic was restricted but able to go through. In Cass County, water was reported flowing over Highway 58 by the fairgrounds; water came up quickly in 15 minutes.

4.9.2 Probable Locations

Areas in the Kansas City area most susceptible to flooding continue to include the Missouri River floodplain; areas near the Blue River in South Kansas City; Indian Creek near Red Bridge Road; portions of Martin City and South Kansas City near Red Bridge Road; the Brush Creek Basin near Highway 71; the intersection of I-35 and I-70 and adjacent surface streets; areas in the northeast, such as 9th Street, Hardesty, Gardner and Chouteau Trafficways; Southwest Boulevard and surrounding areas; State Line Road and 95th Street; Turkey Creek near 31st Street; Fairmont; and Westport.

4.9.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 2

Although most flooding events cause little to no damage, there is the potential for massive loss of life and property. Since 1993, the region has suffered a cumulative total of one injury, 14 deaths, $49 million in crop damages, and $111.6 million in property damage as a result of floods.

All critical facilities are susceptible to the hazard. Table 4.9.2 below summarizes the number and type of critical facilities for all jurisdictions in the 100-Year Floodplain. A more detailed list of critical facilities, as well as a map of 100-year floodplain areas is included in *Appendix C: Maps and References.*

Table 4.9.2: Critical Facilities in the Kansas City Area within the 100-Year Floodplain			
Jurisdiction	**Participating Jurisdication Hazard Ranking**	**Critical Facilities in Floodplain**	**Types of Critical Facilities**
Cass County	2	6	Tier II, Shelter, EPA FRS
Archie	N/A	2	Police Station, Tier II Wastewater
Baldwin Park	N/A	0	
Belton	1	1	Fire Station
Cleveland	N/A	0	
Creighton	N/A	0	
Drexel	N/A	0	
East Lynne	N/A	0	
Freeman	N/A	0	
Garden City	N/A	0	
Greenwood	N/A	0	
Harrisonville	N/A	0	
Lake Annette	N/A	0	
Lake Winnebago	2	1	Police Station
Lee's Summit	2	0	
Peculiar	3	0	
Pleasant Hill	2	4	Shopping Center, Trailer Park, Tier II, EPA FRS
Raymore	1	0	
Riverview Estates	N/A	0	
Strasburg	N/A	0	
Village of Loch Lloyd	N/A	0	
West Line	N/A	0	
Clay County	2	1	Airport
Avondale	N/A	1	Local Government
Birmingham	N/A	0	
Claycomo	N/A	2	Tier II
Excelsior Springs	3	79	Apartment Complex, Public Housing Site, Public Housing Units, Historic Site, Local Government
Gladstone	1	1	Apartment Complex
Glenaire	N/A	0	
Holt	N/A	0	
Kansas City	3	22	Fire Station, Daycares, Apartment Complex, Tier II, Tier II Wastewater, EPA FRS, Airport, Historic Place, Federal Government
Kearney	1	5	RMP, Tier II, EPA FRS, Airport, Local Government
Lawson	N/A	0	
Liberty	2	6	Tier II, EPA FRS, Superfund, Federal Government
Missouri City	N/A	1	Historic Place
Mosby	2	6	Fire Stations, Police Station, Tier II
North Kansas City	2	140	PSAP, HAZMAT, Fire Stations, Police Station, College, Hotels, Apartment Complexes, Nursing Home, School, Shopping Centers, RMP, Tier II, Shelter, Tier II Wastewater, EPA FRS, Superfund, Historic Places, State Government, Local Government, Post Office

Table 4.9.2: Critical Facilities in the Kansas City Area within the 100-Year Floodplain			
Jurisdiction	**Participating Jurisdication Hazard Ranking**	**Critical Facilities in Floodplain**	**Types of Critical Facilities**
Pleasant Valley	N/A	0	
Prathersville	N/A	0	
Randolph	N/A	0	
Smithville	2	1	Apartment Complex
Jackson County	3	5	Tier II, EPA FRS, Airport, Historic Place
Blue Springs	1	0	
Buckner	N/A	0	
Grain Valley	N/A	2	Daycare, Tier II
Grandview	2	0	
Greenwood	N/A	0	
Independence	3	7	Shopping Center, Trailer Park, Tier II, EPA FRS
Kansas City	3	151	Fire Station, Police Stations, Colleges, Daycare, Hospital, Hotels, Apartment Complex, School, Shopping Centers, Trailer Parks, RMPs, Tier II, Tier II Wastewater, Public Housing Sites, Public Housing Units, EPA FRS, Historic Places, Federal Government, State Government, Post Office
Lake City Arsenal	N/A	0	
Lake Lotawana	N/A	0	
Lee's Summit	2	4	Fire Station, Apartment Complex, Historic Place, Local Government
Levasy	N/A	0	
Lone Jack	N/A	0	
Oak Grove	2	0	
Raytown	1	0	
River Bend	N/A	1	Tier II
Sibley	N/A	0	
Sugar Creek	N/A	5	RMP, Tier II, Tier II Wastewater, EPA FRS
Unity Village	N/A	0	
Platte County	3	3	Airports, Historic Place
Dearborn	1	3	RMPs, Tier II
Edgerton	2	0	
Farley	3	0	
Kansas City	3	0	
Northmoor	2	1	Trailer Park
Parkville	3	0	
Platte City	2	0	
Riverside	2	4	Trailer Park, Tier II, EPA FRS
Smithville	2	0	
Tracy	3	0	
Weston	3	0	
Ray County	3	6	Police Station, Tier II, EPA FRS, Airport, Local Government
Camden	N/A	0	
Crystal Lakes	N/A	0	

Table 4.9.2: Critical Facilities in the Kansas City Area within the 100-Year Floodplain			
Jurisdiction	**Participating Jurisdication Hazard Ranking**	**Critical Facilities in Floodplain**	**Types of Critical Facilities**
Elmira	N/A	0	
Excelsior Springs	3	0	
Fleming	N/A	0	
Hardin	N/A	6	RMP, Tier II, EPA FRS, Local Government
Henrietta	N/A	0	
Lawson	N/A	0	
Orrick	N/A	1	Tier II
Richmond	3	10	Shopping Center, Public Housing Sites, Public Housing Units

4.9.4 Probability of Future Occurrence: High

Seasonal Pattern: The most likely cause of flooding is heavy rainfall. In the Kansas City area, May, June, July and September receive the highest average monthly rainfall amounts. Consequently, the risk of flooding may be greatest in these months.

4.9.5 Vulnerability Analysis and Potential Loss Estimates and Changes from 2010 Plan

To calculate vulnerability and potential loss from floods, data from HAZUS-MH 2.0 (provided by SEMA) was reproduced by MARC GIS staff and overlaid on jurisdictional boundaries. Each map contains estimated losses specific to that jurisdiction. In *Section 3.3.3.a* of the 2010 Plan, potential loss estimates were calculated to understand potential loss in terms of building values on an individual jurisdiction level for certain area-specific hazards. These hazards included flooding, dam failure, earthquakes and wildland fire. Since HAZUS modeling is superior to the potential loss estimation methodology used in the 2010 Plan, it has replaced the 2010 methodology as the sole means of quantifying vulnerability to flooding for this 2015 Plan. Flood analysis maps and parcel value tables for Cass, Clay, Jackson, Platte and Ray Counties, as well as for each vulnerable jurisdiction, are located in *Appendix C: Maps and References*.

As HAZUS data provided by SEMA was used to produce the flood analysis maps, relevant portions of SEMA's methodology for flood-loss estimation from the 2013 Missouri State Hazard Mitigation Plan are excerpted below. Table and figure numberings have been changed to correspond to sequencing in this Plan.

"To develop county-wide probabilistic analyses for each county using HAZUS, the following parameters were used:

- Thirty-meter resolution DEMs as the terrain base to develop hydrologic and hydraulic models.
- Streams and rivers with a minimum drainage basin area of 10 square miles all experiencing a base flood at the same time.
- U.S. Geological Survey hydrologic regional regression equations and stream gage data included in HAZUS-MH.

- HAZUS-MH building inventory with enhanced Level 2 essential facility data from HSIP (2011) summarized to the census block level with demographic/loss estimate ratio applied to reflect population changes from 2000 – 2010.

In some cases, 10-meter resolution DEMs were used as a substitute for problem areas in the corresponding 30-meter DEMs. A sensitivity analysis comparing 10-meter DEMs with 30-meter DEMs was run for some counties. Although the 10-meter DEM produces slightly more accurate floodplain boundaries, the slight difference in the impact results did not justify the additional processing time it would have taken to run 10-meter DEMs for all counties."

Flood Damage Estimates, Societal Impacts, and Agriculture Impacts

HAZUS-MH provides the number of buildings impacted, estimates of the building repair costs, and the associated loss of building contents and business inventory. Building damage can also cause additional losses to a community as a whole by restricting a building's ability to function properly. Income loss data accounts for losses such as business interruption and rental income losses, as well as the resources associated with damage repair and job and housing losses. These losses are calculated by HAZUS using a methodology based on the building damage estimates. Flood damage is directly related to the depth of the flooding. For example, a 2-foot deep flood generally results in about 20 percent damage to the structure (which translates to 20 percent of the structure's replacement value). HAZUS takes into account flood depth when modeling damage (based on FEMA's depth-damage functions). HAZUS reports capture damage by occupancy class (in terms of square footage impacted) by damage classes. Occupancy classes in HAZUS include agricultural, commercial, education, government, industrial, religion and residential. Damage percent classes are grouped by 10 percent increments: 1-10 percent, 11-20 percent, etc., up to 50 percent. Buildings that sustain more than 50 percent are considered to be substantially damaged.

The displaced population is based on the inundation area. Individuals and households will be displaced from their homes even when the home has suffered little or no damage either because they were evacuated (i.e., warning was issued) or there was not physical access to the property because of flooded roadways. Displaced people using shelters will most likely be individuals with lower incomes and those who do not have family or friends with the immediate area. Age plays a secondary role in shelter use in that there are some individuals who will go to a public shelter even if they have the financial means to go elsewhere. These will usually be younger, less-established families and elderly families. HAZUS does not have the same model for flood casualties given that flood-related deaths and injuries typically to do not have the same significant impact on the medical infrastructure as those associated with earthquakes.

HAZUS impact analyses were completed (on both DFIRM and the HAZUS generated floodplain data). Using GIS, HAZUS flood results were mapped to show flood loss potential and how it varies across the region. The primary indicators used to assess flood losses were:

- Direct building losses combined with income losses.
- Loss ratio of the direct building losses compared to overall building inventory. The loss ratio of the direct building losses compared to overall building inventory per county gives an indication of the severity of impacts on community sustainability. While a large urban area may have the

greatest dollar losses, it may be able to absorb the impact better than a more rural area where a flood could impact a significant amount of the infrastructure in the entire county.
- Population displaced by the flood and shelter needs.

In addition to HAZUS, MARC Research Services analysis utilized parcel estimates for loss based on 2012 parcel data for improvement value as provided by the county. Parcels have been aggregated/dissolved by 2010 census block geographies for comparison with HAZUS data. The parcel selection and symbolizing process for Flood Zone mapping 2015 for each county is as follows:

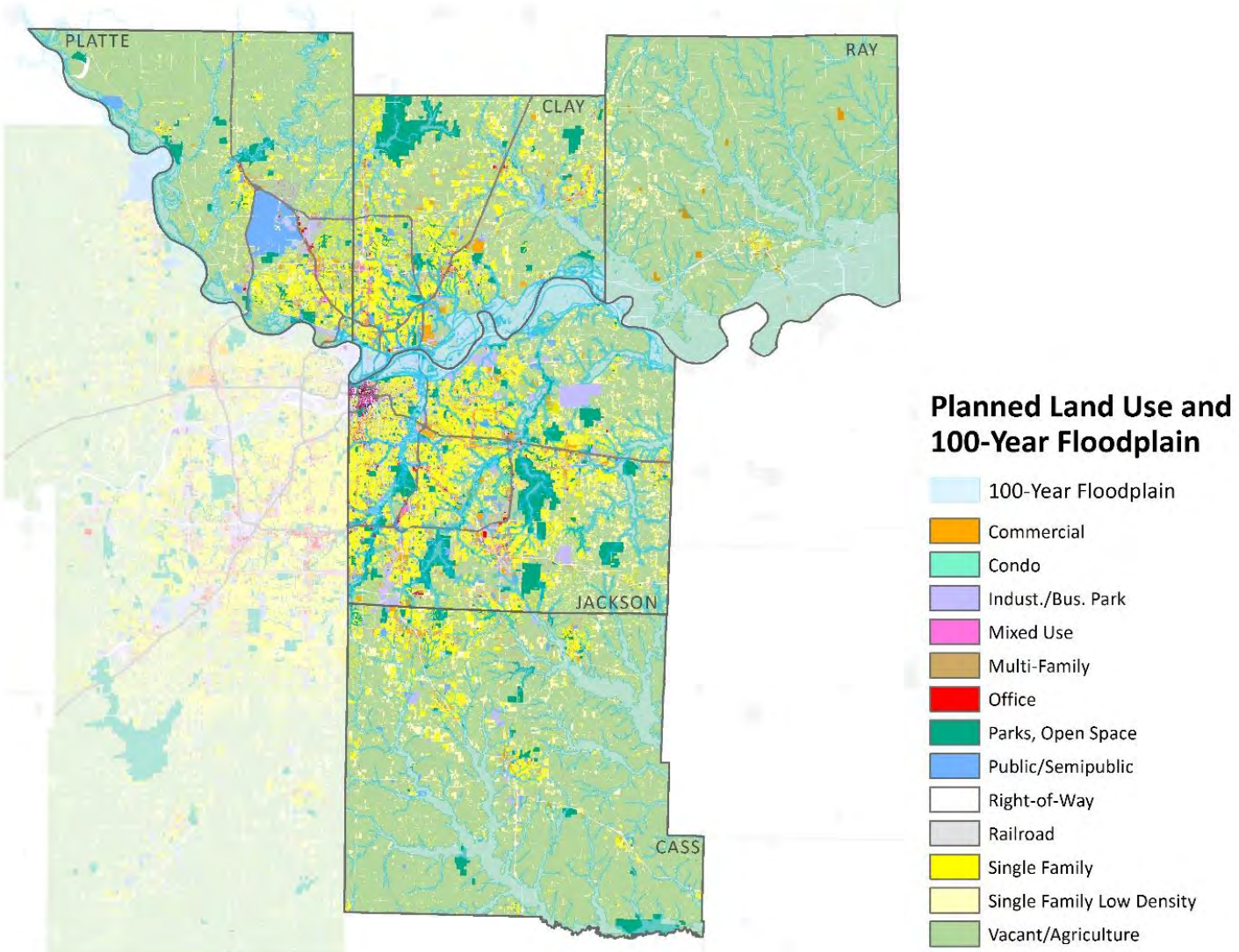
Step 1: Select the parcels that intersect the flood zone boundary.
Step 2: Create parcel centroids on this selection. (*Feature to point* tool used.)
Step 3: Perform a spatial join on the parcel centroid selection (from Step 2) with the 2010 census blocks. (Default setting, "It falls inside," is left as is.)
Step 4: Using the selected parcels from *Step 1*, perform a spatial join to the parcel centroid result from *Step 3*. (Default setting, "Each polygon will be given a summary of" is left as is.). This step takes the longest.
Step 5: Using the result from *Step 4*, perform an attribute join on the parcel centroid result from *Step 3*, using "PRCL_ID" (or equivalent parcel ID field, since this varies by county).
Step 6: On the result of the join above, perform a dissolve using the "GEOID10" field as the dissolve field. Also choose the "imp_value" field as the Statistics field, choose SUM as Statistic type.
Step 7: Use the results of the dissolve to symbolize values based on "imp_value."
The parcel data was included as a side-by-side comparison with HAZUS data to show the potential total loss of structures within a floodplain, to give a fuller picture of total risk. Use of parcel data was particularly useful in estimating potential losses from levee failures, as it can be assumed that buildings within a levee protected area would suffer a total loss from a levee breach. (See *Section 4.10 Levee Failures*)

Future Development Impact
SEMA reports that Clay County is one of the top 10 counties in the state most severely impacted counties based on building loss, loss ratio, and displaced population indicators for building loss, loss ratio and displaced population. Jackson County is among the top 10 for building loss. These high rankings are due in part to Clay and Jackson being heavily populated, with Kansas City metro communities split by the Missouri River. Clay County is also on the top 10 list for population and building gains, making it the only county to be on all five lists. Cass County appears on three of the top 10 lists for population change, housing change and displaced population.[lxviii]

Data Limitations:
Impacts estimated in counties where DFIRM flood data was integrated typically showed increased losses when compared to the HAZUS-generated flood data. There are more stream reaches (due to the smaller drainage area modeled) and therefore more buildings and population inventory are affected and included in loss estimates. In addition a more detailed digital elevation model was used to create the DFIRM, thus the depth grid is more precise. The DFIRM/HAZUS floodplain source difference makes comparisons between counties inconsistent (not 'apples to apples'). The state anticipates integrating even more accurate and reliable DFIRM data in future updates to this plan. For these reasons, it was decided that DFIRM flood data should be integrated where possible in the plan update. As it stands now, almost 70 percent of the state has been modeled using DFIRM floodplains. In the future, nearly all of the state will be mapped with DFIRM boundaries.

The damaged building counts generated by HAZUS are susceptible to rounding errors and are likely the weakest output of the model due to the use of census blocks for analysis. HAZUS reports include this disclaimer: "Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduce uncertainty into the building count results. Please use these results with suitable caution." The counts of buildings at risk collected from local hazard mitigation plans could potentially provide a more realistic estimate of the actual numbers of buildings in the base-flood hazard areas.

Some of the data for counties with low flood risks may include inconsistencies between the structural loss figures and the substantially damaged building counts. The source of the inconsistencies is in the loss estimation software. Use of county-level data should be accompanied by cautionary language. HAZUS analyzes loss estimates for critical infrastructure and facilities as well, including vehicle losses, utility system losses, essential facility impacts, transportation impacts, as well as agricultural losses. HAZUS also provides the results in more detail and some results spatially. Project files for each county are available for use by local governments from SEMA. Levees may not be detected on the computer terrain models. Thus, some communities that may be protected from 100-year floods by levees may be modeled by HAZUS as inundated and the risk may be overestimated. Pemiscot County is one example where levee protection is not recognized by HAZUS. These results, for those counties with levee protection, should be considered as the "worst-case scenario" and may represent losses that could result from a levee breach. Lastly, it should be noted that the loss estimates have been adjusted to maintain consistency between the other hazard (*Earthquakes*) modeled using FEMA's HAZUS software. Results derived from earthquake runs in HAZUS are aggregated to the census tract level updated to reflect 2010 census. Results derived from flood hazard runs; however, aggregated to the census block level, which contains demographic information from the 2000 census count. At the time of this analysis, the demographic data required by HAZUS was not available at the census block level; therefore, a discrepancy between the two sources (blocks and tracts) was present. In order to maintain some level of consistency as well as generate the most accurate loss estimates possible, a ratio was applied to all of the flood loss estimates based on the change in population (from 2000 to 2010) identified in each "at risk" census tract.



Map 4.9.2: Planned Pland Use and the 100-Year Floodplain

4.9.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for flooding:

- Buildings and critical infrastructure (including hazardous materials sites) within each county are vulnerable to flood damage.
- Many homeowners and business owners may not understand changes to the National Flood Insurance Program (NFIP) from the Homeowner Flood Insurance Affordability Act of 2014 and how it impacts them.
- In some cases, flood control actions taken by one jurisdiction or community development can negatively impact downstream or neighboring jurisdictions.
- Fewer programs and grants exist to support flood mitigation efforts than in the past.
- Changing weather patterns can increase the frequency and severity of flash floods and will be exacerbated by city design/development.

4.10 Levee Failures



Levees are earth embankments constructed along rivers and coastlines to protect adjacent lands from flooding. Floodwalls are concrete structures, often components of levee systems, designed for urban areas where there is insufficient room for earthen levees. When levees and floodwalls and their appurtenant surfaces are stressed beyond their capabilities to withstand floods, levee failure can result in loss of life and injuries as well as damages to property, the environment, and the economy. Levees are usually engineered to withstand a flood with a computed risk of occurrence. In Missouri, there are an estimated 1,926 miles of levees, many of which were largely constructed to protect agricultural land and are not built to design standards established to protect people and property.[lxix] Their presence can, in some cases, generate a false sense of security. If a larger flood occurs, that structure will likely be compromised. In the event of a levee failure, the water behind it can be released as a flash flood. Failed levees can create floods that are catastrophic to life and property, in part because of the tremendous energy of the released water. See Map 4.10.1.



Map 4.10.1: Breached levee in Elsberry, Missouri

For the purposes of this plan, the term levee failure will refer to both overtopping and breach of a levee.[lxx] Overtopping occurs when floodwaters exceed the height of a levee and flow over its crown. As the water passes over the top, it may erode the levee, worsening the flooding and potentially causing an opening, or breach, in the levee. A levee breach occurs when part of the levee gives way, creating an opening through which floodwaters may pass. See Figure 4.10.1 – Figure 4.10.2.

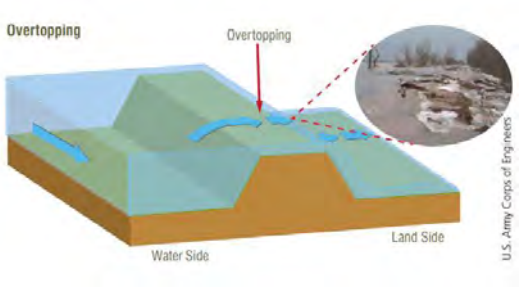


Figure 4.10.1: Overtopping of a Levee

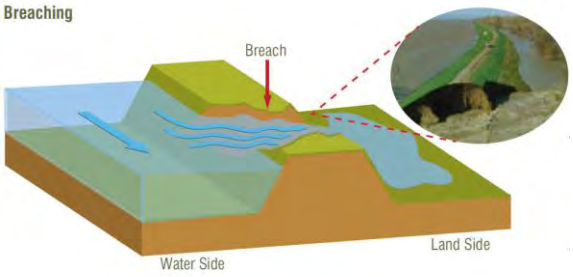


Figure 4.10.2: Breaching of a Levee

Earthen levees can be damaged in several ways. Figure 4.10.3 presents a few inundation scenarios. For instance, strong river currents and waves can erode the surface. Debris and ice carried by floodwaters — and even large objects such as boats or barges — can collide with and gouge the levee. Trees growing on a levee can blow over, leaving a hole where the root wad and soil used to be. Burrowing animals can create holes that enable water to pass through a levee. If severe enough, any of these situations can lead to a zone of weakness that could cause a levee breach. Seismic activity can also cause levees to slide or slump, both of which can lead to failure.

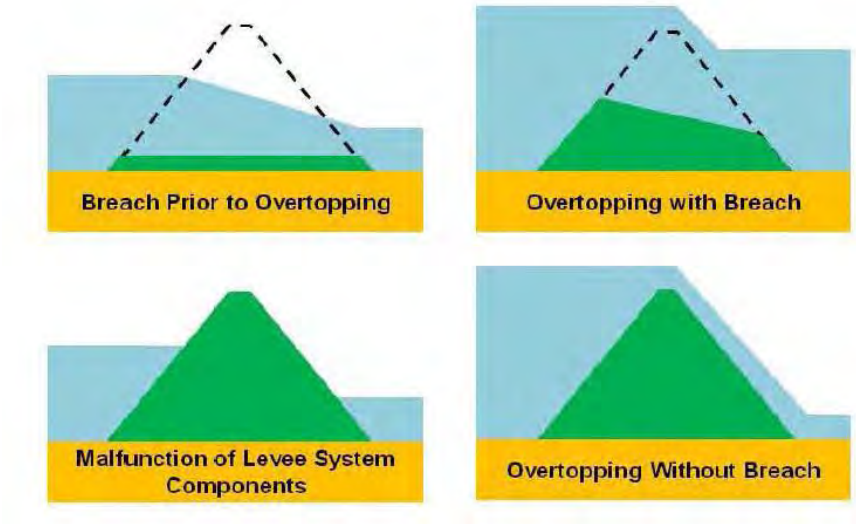


Figure 4.10.3: Inundation Scenarios

Three categories of levees are discussed in the Levee Failure profile:

1. Levees in the USACE Levee Safety Program
2. FEMA Accredited Levees
3. Levees that are both in the USACE Levee Safety Program and Accredited by FEMA

Levees in the USACE Levee Safety Program

The Levee Safety Program (LSP) was created by the USACE in 2006 to assess the integrity and viability of levees and to make sure levee systems that do not present unacceptable risk to the public, property and environment. Under this program, the USACE conducts levee inspections that are used to rate levee systems and determine compliance with operation and maintenance requirements, understand the overall levee condition, and determine eligibility for federal rehabilitation assistance under PL84-99. [lxxi]

According to the National Levee Database managed by USACE, there are currently 34 levees in the Kansas City region included in the Levee Safety Program, of which one is rated acceptable, 18 are rated minimally acceptable, and 15 are not reported. Eleven of the 34 levees are federally constructed and turned over to the public sponsor for operations and maintenance. All other levees are locally constructed, operated and maintained.

See Table 4.10.1 for specific levees in the USACE LSP as of December 31, 2014.[lxxii]

Table 4.10.1: USACE Levees in Cass, Clay, Jackson, Platte and Ray Counties

County	Public Sponsor	Length (Miles)	Construction	Leveed Area Type	Leveed Area Acreage
Clay County		7.43	Local	Agricultural	3,108
Clay County		4.62	Local	Agricultural	756
Clay County	Birmingham Drainage District	10.63	USACE	Rural	4,990
Clay County	City of Kansas City, Missouri, North Kansas City Levee Unit	8.96	USACE	Urban	2,909
Clay County		0.68	Local	Agricultural	24
Clay County, Jackson County	Corps of Engineers	1.02	Local	Agricultural	673
Clay County, Jackson County	Corps of Engineers	0.82	Local	Agricultural	949
Clay County, Ray County	Egypt Levee & Drainage District, Tri-County of Ray, Clay, Jackson, Mo.	13.36	Local	Agricultural	4,526
Jackson County		2.22	Local	Agricultural	407
Jackson County		1.4	Local	Agricultural	295
Jackson County	Atherton Levee District, Atherton-Blue Mills Levee District	16	USACE	Rural	8,154
Jackson County	Department of Energy	2.33	Local	Agricultural	289
Jackson County	City of Kansas City, Missouri	9.49	USACE	Urban	4,335
Jackson County	Lake City AAP	4.31	Local	Agricultural	2,061
Jackson County, Lafayette County		3.15	Local	Rural	738

Table 4.10.1: USACE Levees in Cass, Clay, Jackson, Platte and Ray Counties					
County	**Public Sponsor**	**Length (Miles)**	**Construction**	**Leveed Area Type**	**Leveed Area Acreage**
Jackson County, Wyandotte County (KS)	City of Kansas City, Missouri, Kaw Valley Drainage District	4.9	USACE	Rural	950
Jackson County, Wyandotte County (KS)	United Government of Wyandotte County	0.54	USACE	Urban	194
Buchanan County, Platte County	Platte County Drainage District, Rushville-Sugar Lake	12.18	Local	Rural	9,136
Platte County	Bean Lake Levee Association, Platte County Drainage District	9.42	Local	Agricultural	6,674
Platte County	Riverside Quindaro Bend Levee District	1.59	USACE	Urban	139
Platte County	Riverside Quindaro Bend Levee District	4.58	USACE	Agricultural	1,446
Platte County		6.53	Local	Agricultural	2,376
Platte County		1.45	Local	Agricultural	285
Platte County		6.83	Local	Agricultural	2,251
Platte County	Farley-Beverly Drainage District	12.2	USACE	Rural	9,827
Platte County	Waldron Levee District	7.36	USACE	Rural	3,821
Platte County	Waldron Levee District	0.14	USACE	Urban	3
Platte County		2.06	Local	Agricultural	447
Platte County		2.83	Local	Agricultural	862
Platte County		1.7	Local	Agricultural	113
Ray County, Lafayette County	Mo Valley D&L Dist. of Ray Co., Mo.	13.65	Local	Agricultural	9,928
Ray County	Mo Valley D&L Dist. of Ray Co., Mo.	1.96	Local	Agricultural	277
Ray County, Carroll County	The Ray-Carroll Levee District of Ray County, Missouri	21.87	Local	Rural	13,577
Ray County, Lafayette County	Ray-Lafayette Levee Dist. No. 1	25.3	Local	Agricultural	29,689
	Totals	**223.5**			**126,210**

FEMA Accredited Levees

Many levees shown on the effective Flood Insurance Rate Maps (FIRM) were mapped in the 1970s and 1980s and have never been remapped by FEMA. Prior to 1986, levees were shown on FIRMs as providing protection from base flood when they were designed and constructed in accordance with sound engineering practices. Since 1986, levees have been shown as accredited on FIRMs only when they meet the requirements of 44 CFR 65.10 “Mapping Areas Protected by Levee Systems,” including certification by a registered professional engineer or a federal agency with responsibility for levee design.

Levees that do not meet the requirements of 44 CFR 65.10 cannot be shown as accredited on a FIRM. Furthermore, floodplain areas behind the levee are at risk to base flood inundation and are mapped as high-risk areas subject to FEMA's minimum floodplain management regulations and mandatory flood insurance purchase requirement.

In 2004, as it initiated work under the Flood Map Modernization Initiative (Map Mod), FEMA determined that analysis of the role of levees in flood risk reduction would be an important part of the mapping efforts. A report issued in 2005 noted that the status of the nation's levees was not well understood and the condition of many levees and floodwalls had not been addressed since their original inclusion in the NFIP. As a result, FEMA established policies to address existing levees.

For the remainder of this discussion, FEMA Accredited Levees will be discussed in two main types: those mapped on Digital Flood Insurance Rate Maps (DFIRM) since the Flood Map Modernization Initiative and those that are mapped prior to the initiative and not mapped on DFIRMs.

FEMA Accredited Levees Mapped on DFIRMS

As DFIRMs are developed, levees fall under one of the three following categories:

Accredited Levee – With the exception of areas of residual flooding (interior drainage), if the date and documentation specified in 44 CFR 65.10 is readily available and provided to FEMA, the area behind the levee will be mapped as moderate-risk areas. There is no mandatory flood insurance purchase requirement in a moderate-risk area, but flood insurance is strongly recommended.

Provisionally Accredited Levee (PAL) – If data and documentation is not readily available, and no known deficiency precludes meeting requirements of 44 CFR 65.10, FEMA can allow the party seeking recognition up to two years to compile and submit full documentation to show compliance with 44 CFR 65.10. During this two-year period of provisional accreditation, the area behind the levee will be mapped as moderate-risk with no mandatory flood insurance purchase requirement.

De-Accredited Levees – If the information established under 44 CFR 65.10 is not readily available and provided to FEMA, and the levee is not eligible for the PAL designation, the levee will be de-accredited by FEMA. If a levee is de-accredited, FEMA will evaluate the level of risk associated with each non-accredited levee through its Levee Analysis Mapping Procedures (LAMP) criteria to consider how to map the floodplain and which areas on the dry side of the levee will be shown as high risk. The mapping will then be updated to reflect this risk.

Table 4.10.2 shows the status of accredited levees within the region. The table distinguishes between USACE program levees and non-USACE program levees.

Table 4.10.2: Levee Accreditation Status in DFIRM Counties in the Kansas City Region

County	Primary Community	Levee Owner	USACE Program Levee	Levee Status
Clay	Kansas City, MO	Birmingham Drainage District	Yes	PAL
Clay	Kansas City, MO; North Kansas City	City of Kansas City, MO	Yes	Accredited
Clay	North Kansas City	North Kansas City Levee District	Yes	PAL
Jackson	Kansas City, MO	City of Kansas City, MO	Yes	PAL
Jackson	Jackson County	Atherton Levee District	Yes	PAL

Table 4.10.2: Levee Accreditation Status in DFIRM Counties in the Kansas City Region				
County	**Primary Community**	**Levee Owner**	**USACE Program Levee**	**Levee Status**
	Unincorporated Area			
Jackson	Jackson County Unincorporated Area	Atherton-Blue Hills Levee District	Yes	PAL
Jackson	Kansas City, MO	GSA	No	Accredited
Jackson	Levasy		No	Not PAL Eligible
Platte	Platte County Unincorporated Area	Waldron Levee District	Yes	PAL
Platte	Platte County Unincorporated Area	Farley-Beverly Levee District	Yes	PAL
Platte	Riverside	Riverside-Quindaro Bend Levee District	Yes	PAL
Platte	Riverside	Riverside-Quindaro Bend Levee District	Yes	PAL
Ray	None identified			

4.10.1 Historical Occurrences

Data Limitation: The damage years for levees in the five-county area are unknown. The Missouri State Hazard Mitigation Plan provides an example of levee damage history (1942–1993) for southeastern Missouri. A similar history can provide establish the severity and probability for the Kansas City area. For example, Ray County has received 13 federal disaster declarations for flooding.[lxxiii]

The historical narratives below provide an overview of significant floods in recent years relative to levee failure mainly due to spring thaw and storms.

Flood of 1993 Summary

Known as the "Great Flood of 1993," this flood is considered to be among the most expensive ever in the United States, with total damages of over $15 billion and an overall death toll of 50, of which at least 13 took place in Missouri. This flood evolved from a series of heavy rain events along the Missouri and Mississippi Rivers, culminating with a crest of 49.58 feet and a flow of 1.08 million cubic feet per second on August 1 on the Mississippi River at St. Louis. The areas of record flooding extended well upstream on both the Missouri and Mississippi Rivers within Missouri, including western Illinois, western Wisconsin, southern Minnesota, southeastern South Dakota, eastern Nebraska, and much of Kansas, Missouri and Iowa. Months of heavy rainfall followed a winter of near- to above-average snowfall to produce significant spring flooding over much of Missouri. For the first seven months of 1993, United States Department of Agriculture/Agriculture Stabilization and Conservation Service county offices reported more than 50 inches of rainfall in Osage, Sullivan and Worth Counties — more than twice their normal totals. In June and July, the rainfall intensified as mainly nocturnal thunderstorms affected much of the lower Missouri and middle Mississippi River basins.

Throughout the Midwest, at least 75 towns were completely inundated, an estimated 54,000 people were evacuated, and about 50,000 homes were damaged or destroyed by the flooding. And personal impacts extended well beyond flooded structures. In Iowa, for example, tens of thousands of people were unable to work due to a lack of public water supplies needed for sanitation, firefighting, and routine operation of businesses. Transportation was severely affected throughout Missouri. At one point

in July, all road bridges between St. Louis and Burlington, Iowa, were closed due to flooding. On Friday, July 16, only 5 of 28 bridges connecting Missouri with Illinois were open. At one point, all bridges crossing the Missouri River between St. Louis and Kansas City were closed, along with sections of Interstates 29, 35, and 70 across Missouri, all at considerable cost to the trucking industry. Along the Mississippi River, barge traffic was halted for over a month, costing the barge industry between $3–4 million each day. The rail industry suffered losses of over $300 million, with more than $100 million in losses in Missouri alone. Damages to locks and dams and levee systems were staggering. Over a thousand levee systems, including 40 federal levees, were damaged or destroyed.

The agriculture industry also experienced huge losses. More than 600 billion tons of topsoil were removed by the flood and deposited downstream. Over a million acres were flooded, much of it farmland. All of this was a complete loss at harvest time, resulting in a total agricultural loss of $1 billion.

According to SEMA, this flood brought issues related to levees to the forefront.[lxxiv] The flood approached or exceeded the 100-year threshold on most major rivers and resulted in overtopping or failure of large numbers of levees, most of them agricultural levees that provided various levels of damage/risk reduction. As a result of this flooding, 840 of Missouri's estimated 1,456 levees were damaged. A number of flood-level records were broken in 1993. In the USACE St. Louis and Kansas City Districts, 867 of 947 federal and non-federal levees failed or were overtopped, greatly contributing to the flooding. (See Table 4.10.3) The Missouri River, normally no more than a half-mile wide, expanded to 5–6 miles wide north of St. Joseph and 8–10 miles wide east of Kansas City.

Table 4.10.3: Number of Failed or Overtopped Federal and Non-Federal Levees – 1993 Flood

USACE District	Federal	Non-Federal
Kansas City	6 of 48	810 of 810

2007 Flooding[lxxv]

According to a CBS news report,[lxxvi] at least 20 levees were overtopped as floodwaters made their way down Missouri streams and rivers in 2007. Nine levee breaks inundated the town of Big Lake, Missouri in Holt County. The broken levees included five on the Missouri River and four smaller levees along the Tarkio River and the Tarkio Creek (none of them operated by USACE). Levee breaks or overtopping were also reported in the following counties: Ray, Carroll, Clay, Chariton, Lafayette, Jackson, Saline and Platte.

2010 Flooding Summary[lxxvii]

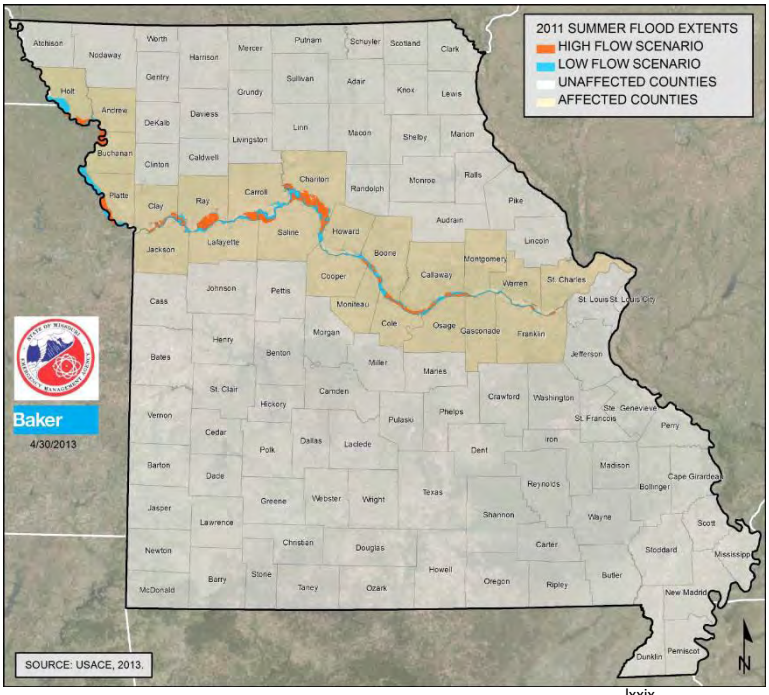
On July 27, 2010, a major disaster declaration was requested due to severe storms, flooding and tornadoes during the period of June 12 to July 31, 2010. The governor requested a declaration for individual assistance for 11 counties, public assistance for 29 counties, and hazard mitigation for the entire state of Missouri. During the period of July 7–20, 2010, joint federal, state, and local Preliminary Damage Assessments (PDAs) were conducted in the requested counties and are summarized below. PDAs estimate damages immediately after an event and are considered, along with several other factors, in determining whether a disaster is of such severity and magnitude that effective response is beyond the capabilities of the state and the affected local governments, and that federal assistance is necessary.

On August 17, 2010, the president declared that a major disaster existed in the state of Missouri. This declaration made public assistance requested by the governor available to state and eligible local

governments and certain private nonprofit organizations on a cost-sharing basis for emergency work and the repair or replacement of facilities damaged by the severe storms, flooding and tornadoes in Adair, Andrew, Atchison, Buchanan, Caldwell, Carroll, Cass, Chariton, Clark, Clinton, Daviess, DeKalb, Gentry, Grundy, Harrison, Holt, Howard, Jackson, Lafayette, Lewis, Livingston, Mercer, Nodaway, Putnam, Ray, Schuyler, Scotland, Sullivan, and Worth counties. This declaration also made Hazard Mitigation Grant Program assistance requested by the governor available for hazard mitigation measures statewide.

2011 Flooding Summary[lxxviii]

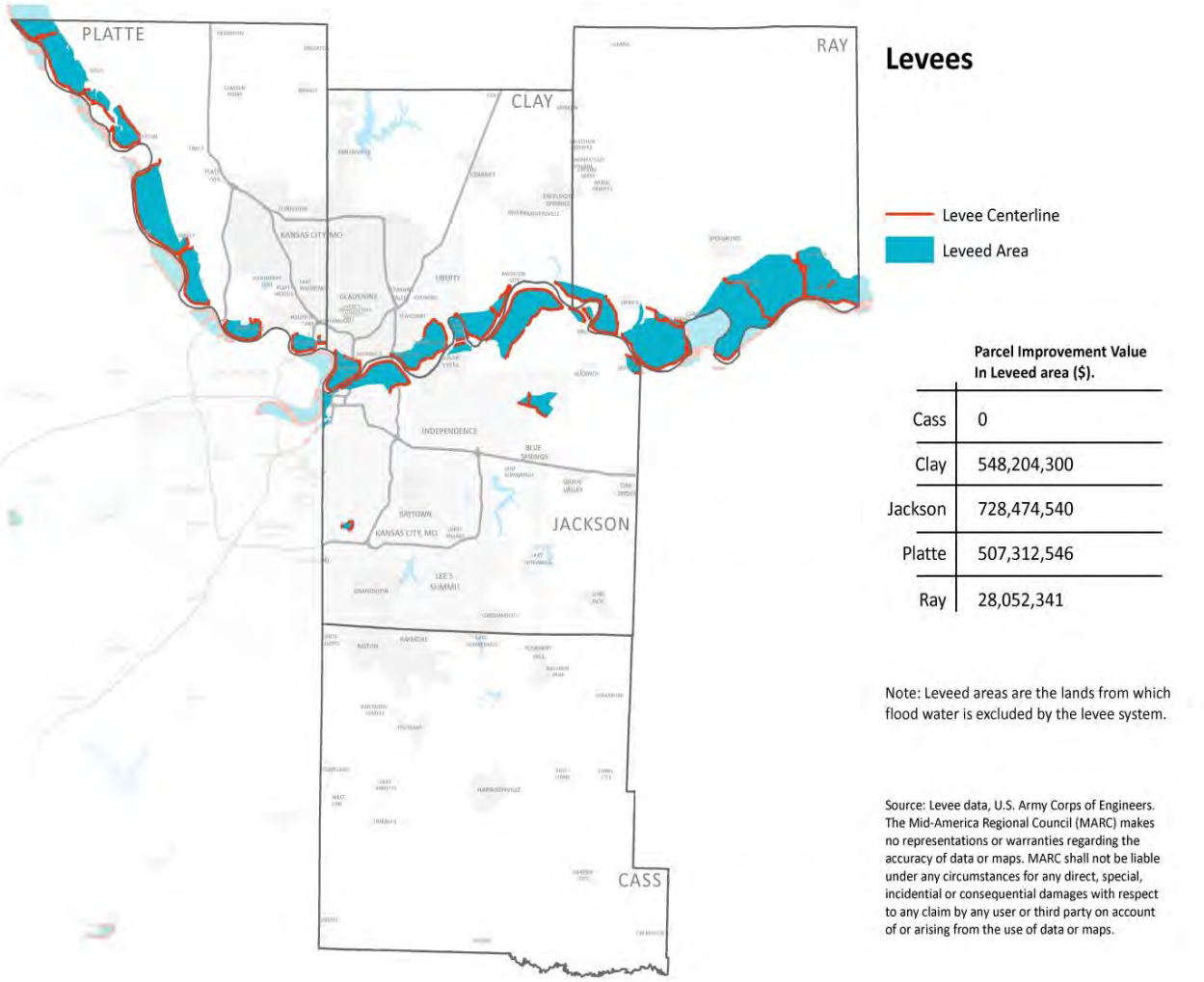
On July 25, 2011, a major disaster declaration was requested due to flooding during the period of June 1 to August 1, 2011 (See Figure 4.5.5). The governor requested a declaration for individual assistance for 11 counties, public assistance for 22 counties and hazard mitigation for the entire state of Missouri. During the period of July 18–22, 2011, joint federal, state, and local PDAs were conducted in the requested counties and are summarized below.



Map 4.10.2: Summer Flood Extents (Missouri)[lxxix]

4.10.2 Probable Locations

Map 4.10.3 below is the Location of Levees and Protected Areas within the Kansas City Region.



Map 4.10.3: Location of Levees and Protected Areas, Kansas City Region

4.10.3 Extent, Severity, Magnitude

Severity: High

Magnitude: 2

Data for levee failure was produced and provided by SEMA. SEMA's methodology estimation for the 2013 Missouri State Hazard Mitigation Plan is excerpted below. Table and figure numberings have been changed to correspond to sequencing in this Plan.

"According to the MLI, levees in the state of Missouri that are accredited against the 0.2 percent and 1 percent annual chance of flooding provide protection for close to 2,200 square miles of land. The majority of privately constructed and maintained levees provide protection for an even greater expanse

of agricultural land. Should major flood events similar to the 1993 flood strike, the severity of damage to human lives and properties from all levee failures is expected to be high. While the U.S. Army Corps of Engineers has done major levee reconstruction for levees that are in the PL84-99 program following the 1993 flood, proper inspection, diligent maintenance and timely repair are key to controlling the severity of levee failure damage in the event of another catastrophic flood.

The magnitude of levee failure during a flooding event can be very similar to a dam failure in that the velocity of the water caused by sudden release as a result of levee breach can result in a flood surge or flood wave that can cause catastrophic damages. If the levee is overtopped as a result of flood waters in excess of the levee design, impacts are similar to flood impacts."

Table 4.10.4 summarizes the number of critical facilities in areas protected by levees for affected jurisdictions in the five-county area. A more detailed list of critical facilities, as well as maps of levee-protected areas is included in *Appendix C: Maps and References*.

Table 4.10.4: Jurisdiction Critical Facilities Protected by Levees

Jurisdiction	Participating Jurisdiction Hazard Ranking	Critical Facilities in Leveed Area	Types of Facilities
Clay County	3	0	
Birmingham	N/A	2	Fire Station, Police Station
Kansas City	3	25	Fire Station, College, Daycare, Hotel, Apartment Complex, RMP, Tier II, EPA FRS, Federal Building, Airport
Liberty	1	0	
Missouri City	N/A	0	
North Kansas City	3	141	PSAP, HAZMAT, EOC, Fire Stations, Police Station, College, Daycare, Hotels, Apartment Complexes, Nursing Home, School, Shopping Centers, RMP, Tier II, Shelters, Tier II Wastewater, EPA RRS, Superfund, Historic Places, State and Local Government, Post Office
Randolph	N/A	1	Police Station
Jackson County	**2**	11	Tier II, Tier II Wastewater, EPA FRS, Airport, Local Government
Independence	1	3	EOC, Tier II, EPA FRS
Kansas City	3	160	Fire Station, Police Station, Colleges, Daycare, Hotels, Nursing Home, Trailer Park, RMPs, Tier II, Shelter, Tier II Wastewater, EPA FRS, Historic Places, Federal, State and Local Government, Post Office
Lake City Arsenal	N/A	3	EOC, Tier II, EPA FRS
Levasy	N/A	0	
River Bend	N/A	1	Tier II
Sugar Creek	N/A	4	RMP, Tier II, Tier II Wastewater, EPA FRS
Platte County	3	16	RMP, Tier II, EPA FRS, Airports, Historic Places, Local Government, Post Office
Farley	3	2	Fire Station, Post Office
Parkville	2	0	
Riverside	2	18	Hotels, Shopping Center, RMP, Tier II, EPA FRS
Weston	3	0	

Table 4.10.4: Jurisdiction Critical Facilities Protected by Levees			
Jurisdiction	**Participating Jurisdiction Hazard Ranking**	**Critical Facilities in Leveed Area**	**Types of Facilities**
Ray County	3	3	Tier II, EPA FRS, Airport
Camden	N/A	0	
Fleming	N/A	0	
Hardin	N/A	16	Fire Station, Police Station, Daycare, Schools, RMP, Tier II, EPA FRS, Local Government, Post Office
Henrietta	N/A	7	Police Stations, Tier II, EPA FRS, Post Office

4.10.4 Probability of Future Occurrence: Low (500-year Event) to High (100-year Event)

Given the numerous levee systems constructed along the main stems and tributaries of the Missouri River, the Kansas City region is highly susceptible to catastrophic levee failure and/or overtopping. Not counting the great flood of 1993, for the 70-year period from 1942 to 2012 for which levee failure statistics are available, over 100 levee failures/over toppings were recorded. In the Flood of 1993 alone, 840 levees — over 55 percent of the levees in the state of Missouri — sustained significant damages. This translates to an overall high probability of 1 percent (100-year event) annual chance flood levee failure in any given year. The probability of a 0.2 percent (500-year event) annual chance flood levee failure has been defined as low for this plan update.[lxxx]

4.10.5 Vulnerability Analysis and Potential Loss Estimates

Flooding is the most common hazard associated with levee failure, breach or overtopping. A levee failure, breach or overtopping can result not only in loss of life, but also considerable loss of capital investment, loss of income and property damage. As discussed in the introduction to this section, extreme flooding conditions have the potential to result in levee failures. Since levee failure is an area-specific hazard, potential loss estimates could be tied directly to the hazard area by jurisdiction. Those areas most at risk are depicted in the map above which identifies the potential area impacted and includes the total improved parcel value by county that would be at risk if the levee failed (see Map 4.10.3 above). Table 4.10.5 below is the resultant potential loss estimates for jurisdictions within the levee protected areas (*asterisks indicate the community is a current plan participant).

Table 4.10.5: Potential Loss Estimates for County/City Structures and Land Protected by Levees							
City	**Total Building Value**	**Total land Value**	**Total Value**	**City**	**Total Building Value**	**Total land Value**	**Total Value**
Cass County	No risk			**Clay County***	$548,204,300	$281,844,500	$830,048,800
Jackson County*	$728,474,540	$205,133,266	$933,607,806	**Platte County***	$507,312,546	$63,719,224	$571,031,770
Ray County*	$28,052,341	$27,726,259	$55,778,600	**Liberty***	$46,700	$1,771,200	$1,817,900
Birmingham	$26,280,600	$4,640,500	$30,921,100	**Missouri City**	$1,164,500	$463,700	$1,628,200
Camden	$0	$63,680	$63,680	**North Kansas City***	$345,595,200	$207,965,200	$553,560,400
Farley*	$1,101,561	$4,403,306	$5,504,867	**Parkville***	$10,967	$1,148,209	$1,159,176

Table 4.10.5: Potential Loss Estimates for County/City Structures and Land Protected by Levees							
City	**Total Building Value**	**Total land Value**	**Total Value**	**City**	**Total Building Value**	**Total land Value**	**Total Value**
Fleming	$0	$468,040	$468,040	**Randolph**	$2,217,800	$4,104,300	$6,322,100
Harden	$16,600,690	$593,120	$17,193,810	**Riverbend**	$0	$98,900	$98,900
Henrietta	$6,281,660	$437,210	$6,718,870	**Riverside***	$204,336,624	$36,368,504	$240,705,128
Independence*	$25,332,006	$13,217,713	$38,549,719	**Sugar Creek**	$9,742,229	$1,361,080	$11,103,309
Kansas City*	$875,002,623	$248,542,150	$1,123,544,773	**Weston***	$20,855	$136,407	$157,262

Data limitations: Since no good modeling exists to more accurately determine potential loss of the levee systems, the loss estimates below assume a total loss of all buildings within the leveed area. While this may be slightly extreme, it is not unrealistic to assume a total levee failure would cause massive if not catastrophic damage to the protected area.

4.10.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for Levees:

- Several local levees don't have public sponsors identified; upkeep and maintenance for these levees is unclear.
- Unregulated private levees, or those installed without the coordination of a levee district may have negative downstream impacts.
- Property owners may be unaware of public information resources about levee safety.

4.11 Dam Failures



The National Dam Safety Act defines a dam as "an artificial barrier which impounds or diverts water and: (1) is more than 6 feet high and stores 50 acre feet or more [of water] or (2) is 25 feet or more high and stores more than 15 acre-feet [of water]." Dam construction varies widely, ranging from small earthen dams containing farm ponds to large structures of reinforced concrete used for hydroelectric power. Between these two extremes are larger earthen dams reinforced with a core of concrete or asphalt. The majority of dams in Missouri, including those in the Kansas City metropolitan area, are of earthen construction.[lxxxi]

Dam failures are most likely to happen for the following reasons:[lxxxii]

Piping – Piping is caused when seepage through a dam is not properly filtered and soil particles continue to progress and form sink holes in the dam. Piping failures are usually caused by embankment leakage, foundation leakage and/or the deterioration of structures on the dam.
Structural Failure – Structural failure of materials used in dam construction may be caused by an earthquake, slope instability or poor construction.
Cracking – Cracking of dams may be caused by movement, such as the natural settling of a dam, or by earthquakes.
Overtopping – Overtopping is water spilling over the top of a dam. This condition can deteriorate dams made of earth, rock or mine tailings.
Inadequate maintenance and upkeep – Inadequate maintenance and upkeep can result in one or more of the aforementioned problems, causing failure of the dam.
Erosion – Erosion of dams is generally caused by inadequate capacity of a spillway, resulting in overtopping of the dam, flow erosion or inadequate slope protection.[lxxxiii]

These types of failures may be interrelated. Erosion, for example, may weaken the dam and lead to structural failure. Similarly, structural failure of a dam may shorten the seepage path and lead to a piping failure. Many of the region's dams are old, and with age come a greater likelihood of deterioration and the failure of a dam's structure and systems.[lxxxiv]

Structural failure is the most common cause of dam failure, and flooding is the most common hazard that interacts with dam failure. According to SEMA, "prolonged rains and flooding can saturate earthen dams . . . producing much the same breaching effect as that which occurs with earthen levees. Flooding can also result in overtopping of dams when the spillway and reservoir storage capacities are exceeded by the excess water. A large slide may develop in either the upstream or downstream slope of the embankment, and threaten to release the impounded water." Other natural hazards, such as earthquakes or tremors, can also severely damage dams, including complete structural collapse.[lxxxv]

In the 1970s, three major dam failures occurred within a 15-month period, prompting the development of a national dam safety program. Among the most catastrophic were the failures of the Teton Dam in Idaho in 1976, which killed 14 people and caused more than $1 billion in damage, and the Kelly-Barnes Dam in Georgia in 1977, which left 39 dead and $30 million in property damage. In Missouri, dam failures occurred in Lawrenceton in 1968, Washington County in 1975, Fredricktown in 1977, and on December 14, 2005, with the collapse of the Upper Reservoir of Ameren UE's Taum Sauk hydroelectric

complex in Reynolds County. Many of Missouri's smaller dams are becoming a greater hazard as they continue to age and deteriorate. Hundreds of dams are in need of rehabilitation; however, a lack of funding and questions of ownership have made it difficult to implement the necessary maintenance.[lxxxvi]

The Missouri Department of Natural Resources (MDNR) Water Resources Center is responsible for ensuring that all new and existing non-agricultural, non-federal dams 35 feet or higher meet the minimum safety standards established by the Dam and Reservoir Safety Law. The MDNR has three classifications for all state-regulated dams:

Class 1 – The area downstream from the dam that would be affected by inundation contains 10 or more permanent dwellings or any public building. Inspection of these dams must occur every two years.
Class 2 – The area downstream from the dam that would be affected by inundation contains one to nine permanent dwellings, or one or more campgrounds with permanent water, sewer and electrical services, or one or more industrial buildings. Inspection of these dams must occur once every three years.
Class 3 – The area downstream from the dam that would be affected by inundation does not contain any of the structures identified for Class I or Class II dams. Inspection of these dams must occur once every five years.

4.11.1 Historical Occurrences

There are no historical occurrences of dam failures in Cass, Clay, Platte, Jackson or Ray counties.

4.11.2 Probable Locations

The National Inventory of Dams (NID),[lxxxvii] developed and maintained by the U.S. Army Corps of Engineers (USACE), and distributed by the Missouri Office of Dam Safety, includes 265 dams in the Kansas City metropolitan area, with 134 of those classified as *high hazard* and three classified as *significant hazard*. Seven dams were removed from the 2010 inventory, five of which were considered no-name dams. Three high-hazard dams were included in the 2015 inventory: two federal dams (Blue Springs Dam and Longview Dam) and one private dam (Forest Lake Dam) near Parkville. Table 4.11.1 summarizes the 265 dams in Cass, Clay, Jackson, Platte and Ray Counties.

Table 4.11.2 summarizes the 40 dams in the five-county planning area regulated by the state of Missouri by class and hazard. Table 4.11.3 lists all 40 state-regulated dams with select characteristics. The MDNR inventory of dams contains additional information on area dams that is not included in this table due to space limitations. Information from the MDNR inventory of dams is available from the Missouri Department of Natural Resources, Water Resources Program, P.O. Box 250, Rolla, MO 65401, (573) 368-2175, http://dnr.mo.gov/env/wrc/dam-safety/statemap.htm. As a mitigation measure, stakeholders are encouraged to review the MDNR information on local dams to develop and implement mitigation measures.

Table 4.11.1: Dams by Hazard Level, Owner Type and Height by County

Owner Type	High Hazard	>35'	Significant	>35'	Low Hazard	>35'
Cass County						
Local Government	5	1	0	0	3	0
Private	25	4	0	0	35	0

Table 4.11.1: Dams by Hazard Level, Owner Type and Height by County						
Owner Type	**High Hazard**	**>35'**	**Significant**	**>35'**	**Low Hazard**	**>35'**
Clay County						
Federal	1	1	0	0	0	0
State	1	1	0	0	1	1
Local Government	1	0	0	0	2	1
Private	16	2	0	0	16	0
Jackson County						
Federal	3	2	0	0	4	0
State	2	0	1	1	8	0
Local Government	5	3	0	0	1	0
Private	39	14	0	0	18	2
Platte County						
Local Government	1	1	0	0	0	0
Private	16	4	0	0	13	0
Ray County						
Local Government	8	2	0	0	7	1
Private	11	3	2	0	20	2
Total						
Federal	4	3	0	0	4	0
State	3	1	1	1	9	1
Local Government	20	7	0	0	13	2
Private	107	27	2	0	102	4
Total	**134**	**38**	**3**	**1**	**128**	**7**

Table 4.11.2: MDNR Regulated Dams by County (Class and Hazard Level)					
	Regulated Class			**Hazard Level**	
County	**Class 1**	**Class 2**	**Class 3**	**High**	**Low**
Cass	5	0	0	5	0
Clay	1	2	2	3	2
Jackson	16	2	2	18	2
Platte	4	1	0	5	0
Ray	2	3	0	5	0
Total	**28**	**8**	**4**	**36**	**4**

Data limitation: The information presented above and in the following sections represents the best available data to form a risk analysis. Conversation with MDNR Dam and Reservoir Safety Program representatives indicated that tremendous progress has been made since the 2010 Plan update. Emergency Action Plans (EAP) for High-Hazard Potential (HHP) dams have been completed and approved for each of the five counties.[lxxxviii] An EAP is a plan of action to reduce potential property damage and loss of lives in an area affected by a dam failure and should include a map of the potential inundation area along with procedures and information for warning downstream emergency management authorities. The process for rolling out EAPs to county officials has been staggered. As of this Plan update, only Jackson County inundation pathways were available for inclusion into this risk assessment.

Table 4.11.3: Missouri State-Regulated Dams in the Five County Planning Area											
County	Name	Class	Hazard	Owner Type	Height (Feet)	Storage (Acre-Ft.)	Primary Purpose	Dam Type	River	Nearest City	Distance (Miles)
Cass	Harrisonville City Lake Dam	1	High	Local Govt.	55	13520	Recreation	Earth	TR-Middle Big Creek	Pleasant Hill	4
Cass	Lake Winnebago Dam	1	High	Private	64	7150	Recreation	Earth	Middle Big Creek	Latour	21
Cass	Raintree Lake Dam	1	High	Private	55	7220	Recreation	Earth	Middle Big Creek	Pleasant Hill	8
Cass	Mill Creek Dam	1	High	Private	62	3850	Recreation	Earth	Mill Creek	Belton	-
Cass	Lake Winnebago Dam Extension	1	High	Private	63	13700	-	-	-	Lake Winnebago	-
Clay	Holly Lake Dam	1	High	Private	40	140	Recreation	Earth	TR-Little Shoal Creek	Liberty	-
Clay	Watkins Mill State Park Dam	2	High	State	56	2600	Recreation	Earth	TR-Williams Creek	Prathersville	6
Clay	Meadow Lake Estates Dam	2	High	Private	47	400	-	-	-	-	-
Clay	Williams Creek #4 Dam	3	Low	State	47	598	Flood Control	Earth	TR to Williams Creek	Mosby	3
Clay	Helvey Park Dam	3	Low	Local Govt.	36	203	Water Supply	Earth	TR-Wilkerson Creek	Smithville	1
Jackson	Prairie Lee Lake Dam	1	High	Local Govt.	69	6000	Recreation	Earth	East Fork Little Blue River	Blue Springs	-
Jackson	Lake Jacomo Dam	1	High	Local Govt.	74	38620	Recreation	Earth	East Fork Little Blue River	Lee's Summit	-
Jackson	Unity #1 Dam	1	High	Private	48	285	Water Supply	Buttress	TR-Little Cedar Creek	Unity Village	-
Jackson	Lake Tapawingo Dam	1	High	Private	55	2000	Recreation	Earth	TR-East Fork Little Blue River	Independence	-
Jackson	Whispering Hills Lake Dam	1	High	Private	40	190	Recreation	Earth	TR-Round Grove Creek	Kansas City	-
Jackson	Unity #2 Dam	1	High	Private	52	618	Recreation	Earth	TR-Little Cedar Creek	Kansas City	2
Jackson	Tom Smith Lake-East Dam	1	High	Private	55	127	Recreation	Earth	TR-Blue River	Kansas City	3
Jackson	View High Lake Dam	1	High	Private	37	148	Recreation	Earth	TR-Little Blue River	Kansas City	1
Jackson	Lakewood-West Dam	1	High	Private	84	6000	Recreation	Earth	West Fork of May Brook	Lee's Summit	1
Jackson	Lakewood-East Dam	1	High	Private	75	4810	Recreation	Earth	West Fork of May Brook	Lee's Summit	1
Jackson	Barber Lake Dam	1	High	Private	57	2186	Recreation	Earth	TR to West Fork Sni-A-Bar Creek	Lake Lotawana	2
Jackson	Lone Jack Lake Dam	1	High	State	47	660	Flood Control	Earth	TR to the Sni-A-Bar	Lone Jack	25
Jackson	Doutt Lake Dam	1	High	Private	38	86	Water Supply	-	TR to Rock Creek	Independence	-

Table 4.11.3: Missouri State-Regulated Dams in the Five County Planning Area											
County	Name	Class	Hazard	Owner Type	Height (Feet)	Storage (Acre-Ft.)	Primary Purpose	Dam Type	River	Nearest City	Distance (Miles)
Jackson	Rosenfelt Dam	1	High	Private	57	400	Recreation	Earth	Unnamed TR to Blue River	Grandview	1
Jackson	Tom Smith Lake-South Dam	1	High	Private	57	650.79	-	-	TR-Blue River	Stanley, Ks.	5
Jackson	Tom Smith Lake-West Dam	1	High	Private	50	302	-	-	TR-Blue River	Stanley, Ks.	5
Jackson	Lake Lotawana Dam	2	High	Private	58	11568	Recreation	Earth	West Fork Sni-A-Bar Creek	Tarsney Lakes	3
Jackson	Adams Dairy Parkway Dam	2	High	Local Govt.	48	876	Flood Control	Earth	TR-Blue Branch	Grain Valley	3
Jackson	Commandeer Lake Dam	3	Low	Private	42	56	Recreation	Earth	TR-East Fork Little Blue River	Independence	1
Jackson	Carp Lake Dam	3	Low	Private	45	83	Recreation	Earth	TR-Little Blue River	Lee's Summit	1
Platte	Weatherby Lake Dam	1	High	Private	85	5750	Recreation	Earth	Rush Creek	Parkville	3
Platte	Lake Waukomis Dam	1	High	Private	68	2292	Recreation	Earth	TR-Line Creek	Lake Waukomis	-
Platte	Riss Lake Dam	1	High	Private	93	7720	Recreation	Earth	White Aloe Branch	Parkville	1
Platte	Thousand Oaks Dam	1	High	Private	70	190	-	-	-	-	-
Platte	International Airport Dam	2	High	Local Govt.	45	1670	Flood Control	Earth	TR-Todd Creek	Platte City	16
Ray	Lawson City Lake Dam	1	High	Local Gvot.	45	380	Water Supply	Earth	Brushy Creek	Elmira	11
Ray	Crystal Lake Dam	1	High	Private	54	2846	Recreation	Earth	Fishing River	Excelsior Springs	1
Ray	Willow Creek Watershed Site A-1	2	High	Local Govt.	43	2000	Flood Control	Earth	Willow Creek	Henrietta	2
Ray	Hidden Valley Lake Dam	2	High	Private	52	454	Recreation	Earth	TR to Rocky Fork	Hardin	-
Ray	Hedges Lake Dam	2	High	Private	43	115	Recreation	Earth	TR-Shackleford Branch	Orrick	-

4.11.3 Extent, Severity, Magnitude

Severity: Medium
Magnitude: 1

There are 134 *high-hazard* dams plus one *significant-hazard* dam located in the five-county area. The vast majority of these are privately owned and, if they were to fail, would not cause widespread damage. Dam owners are required to notify MDNR of any problem for *inspection*. Problems deemed a serious nature require the *notification* of emergency personnel. Problems deemed immediate require *evacuation*. The transition between those of a serious nature to immediate can either be a slow or rapid transition. At all three reporting levels, efforts are made to save and repair the dam.

Although unlikely, the failure of one of the USACE's six main stem dams on the Upper Missouri River Basin may also impact the Kansas City metropolitan area. These dams with their respective reservoirs and storage capacity include:[lxxxix]

- Fort Peck Dam and Lake (18.7 million acre-feet of water) near Glasgow, Montana
- Garrison Dam and Lake Sakakawea (23 million acre-feet of water) near Bismarck, North Dakota
- Oahe Dam and Lake (23.5 million acre-feet of water) near Pierre, South Dakota
- Big Bend Dam and Sharpe Lake (1.9 million acre-feet of water) near Fort Thompson, South Dakota
- Fort Randall Dam and Lake Francis Case (nearly 5.5 million acre-feet of water) near Wagner, South Dakota
- Gavins Point Dam and Lewis and Clark Lake (492,000 acre-feet of water) near Yankton, South Dakota

Map 4.11.1 depicts the locations of the six main stem dams on the Upper Missouri River Basin. Each of these dams holds back large bodies of water — Lake Sakakawea and Oahe Lake are two of the largest reservoirs in the nation — and a sudden release of water from one of these reservoirs due to dam failure could have a cascading effect. Water might have to be released from downstream reservoirs to accommodate the additional water received from an upstream dam failure, increasing the flow and level of water in the Missouri River and contributing to the potential for flooding at downstream locations, such as the Kansas City metropolitan area.

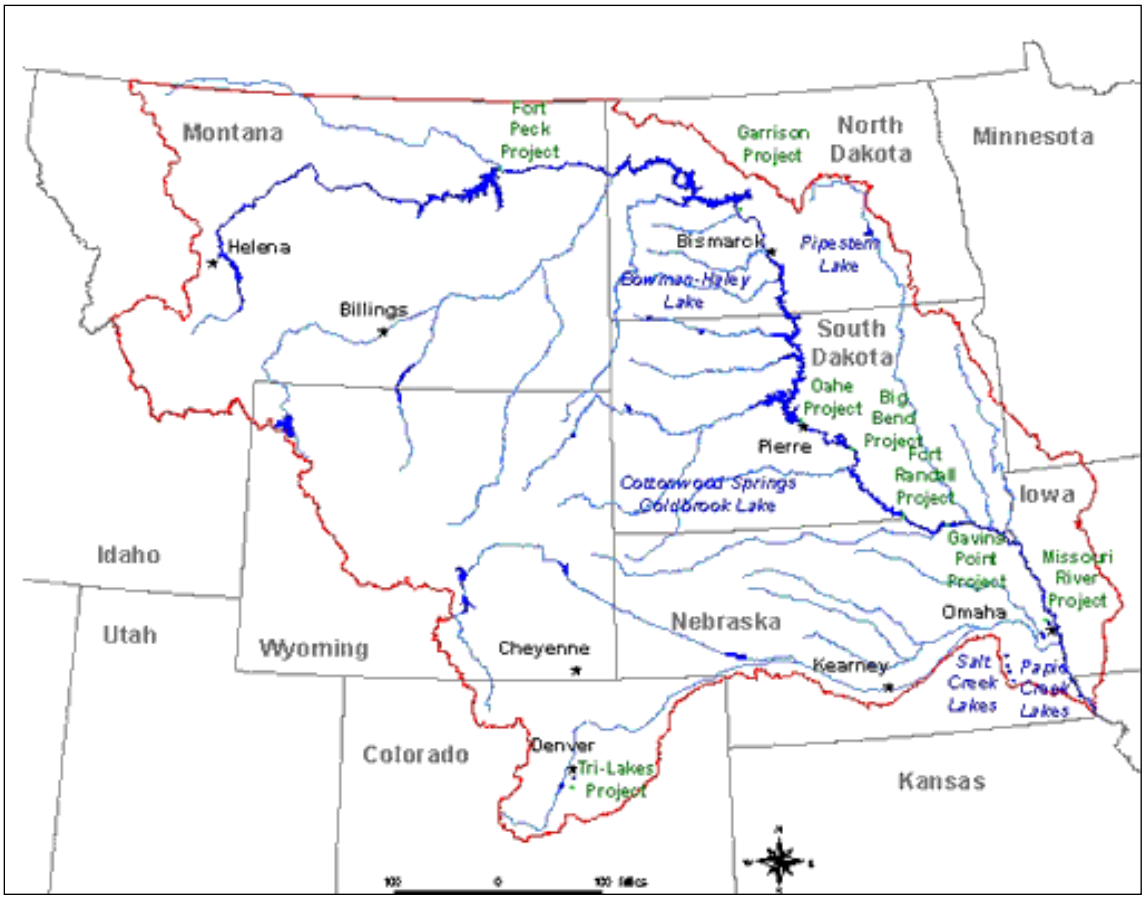
Potential speed of onset (probable amount of warning time):

- ☐ Minimal (or no) warning
- ☐ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ■ More than 24 hours warning

Community Assets

The rise and fall of rushing water can have disastrous impacts on life, property, the economy and the environment. Steps to prevent the loss of life and injuries in the event of a dam failure are similar to those for a tornado. However, instead of seeking shelter underground, evacuation for a dam failure requires people to seek high ground. Persons with disabilities, the elderly, and low-income individuals with limited means would be at a greater disadvantage.

A dam failure would result in damage to residential and commercial structures; critical infrastructure, including transportation and utility service interruptions; and economic losses to agricultural land and businesses. The natural environment could also be impacted by the force of the water damaging or destroying trees and vegetation.



Map 4.11.1: USACE Main Stem Dams on the Upper Missouri River Basin

4.11.4 Probability of Future Occurrence: Low

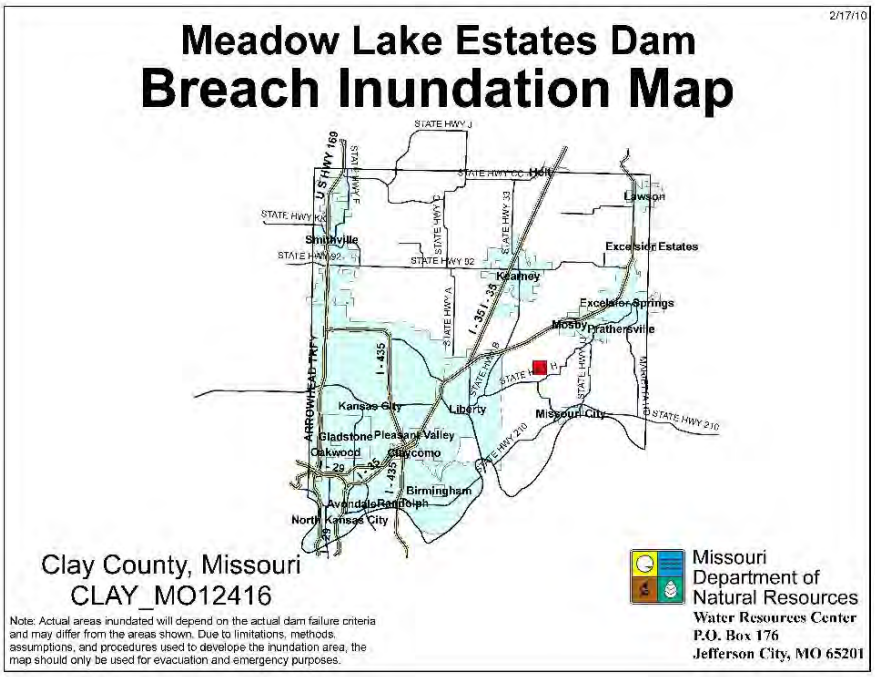
The most likely cause of dam failure is heavy rainfall. In the Kansas City metropolitan area, May, June, July and September receive the highest average monthly rainfall amounts. Consequently, the risk of dam failure may be greatest in these months. Although less likely, dam failure may also be caused by a strong earthquake; earthquakes, however, are not affected by climatic conditions and may occur at any time of the year. Older dams, particularly those holding back large amounts of water, may pose significant risk to downstream populations and structures.

4.11.5 Vulnerability Analysis and Potential Loss Estimates

The Missouri Dam Safety Program reports that all high-hazard dams in the five-county area have approved Emergency Action Plans with inundation maps. As a part of the EAP, dam owners are required to have an evacuation plan and make inundation maps available to the local jurisdiction. See Map 4.11.2

for a sample map. The state has completed inundation maps for 76 percent of these dams. Once the project is complete, inundation maps will be provided to each respective county in the state for planning and training purposes.[xc]

Inundation maps are currently available for Jackson County and are available in *Appendix C: Maps and References*.



Map 4.11.2: Sample Inundation Map (Meadow Lake Estates Dam)

Because inundation pathways were not largely available, the statistical risk assessment methodology was used to estimate loss for dam failures. Table 4.11.4 and Table 4.11.5 are the maximum and minimum loss estimate calculations. In addition, see *Appendix C: Maps and References* for jurisdiction flood analysis maps with parcel data which demonstrate the location and impact area of potential dam failures to the region.

Table 4.11.4: Maximum Loss Estimation, Dam Failure

County	Overall Risk (probability and severity)	Magnitude (percent of county affected)	Total Exposure ($ value, thousands)	Total Population (in thousands)	Maximum Loss Estimation
Cass	Medium = 2	<10% = 1	5,400,904 = 2	101 = 2	Medium
Clay	High = 3	<10% = 1	14,958,612 = 3	234 = 2	Medium
Jackson	High = 3	<10% = 1	76,612,242 = 3	683 = 3	High
Platte	Medium = 2	<10% = 1	7,907,587 = 2	95 = 1	Low
Ray	High = 3	<10% = 1	935,840 = 1	23 = 1	Low

Table 4.11.5: Minimum Loss Estimation, Dam Failure					
County	**Overall Risk (probability and severity)**	**Average Magnitude (percent of county affected)**	**Annualized Loss ($ value, thousands)**	**Average Deaths and Injuries**	**Minimum Loss Estimation**
Cass	Medium = 2	<10% = 1	0 = 1	0 = 1	Low
Clay	High = 3	<10% = 1	0 = 1	0 = 1	Low
Jackson	High = 3	<10% = 1	0 = 1	0 = 1	Low
Platte	Medium = 2	<10% = 1	0 = 1	0 = 1	Low
Ray	High = 3	<10% = 1	0 = 1	0 = 1	Low

Sources: Missouri Department of Natural Resources, Dam Safety Office and HAZUS-MH, 2015(Total Exposure 2015)

Data limitations: The statistical risk assessment methodology algorithm does not take into account the number of high-hazard dams in a county. As there have been no recorded incidents of dam failures in the metro area, it was assumed that a county with more high-hazard dams than its neighbor was at no significantly greater risk for failure. A lack of historic data therefore lends itself to generally overall low loss estimation, which may or may not be appropriate for use on a local level. Loss estimation is best conducted at the local level and should be incorporated accordingly. As inundation maps become more available they will be used to replace the statistical risk assessment methodology for assessing potential impacts.

4.11.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for dam failures:

- 134 high-hazard dams (in excess of 35 feet) that could cause significant damage in inundation pathways exist throughout the planning area. Many of these are unregulated.
- While government and private owners of high-hazard dams have inundation pathways and completed Emergency Action Plans (EAP), these may have not have been shared with local officials and potential affected parties.
- Local jurisdictions have little ability to require privately-owned dam owners to adequately maintain dams.
- Training and exercising of evacuation plans in the vicinity of high-hazard dams may be lacking.

4.12 Drought



Drought is "a period of abnormally dry weather which persists long enough to produce a serious hydrologic imbalance, such as crop damage or water supply shortage."[xci] A drought's severity is dependent on a variety of factors, including its duration, the degree of moisture deficiency and the size of the affected area. Drought can be exacerbated by other climatic conditions, including high temperatures, high winds and low humidity.

There are five categories of drought, each one relating the occurrence of drought to water shortfall in some component of the hydrological cycle. These categories are operational definitions and help to describe the onset, severity and end of droughts. Each category affects patterns of water and land use and refers to a repetitive climatic condition. The categories include:

Meteorological Drought – is a measure of precipitation's departure from normal over a period of time. This definition of drought is region-specific, i.e., a drought in one area may not be considered a drought in another area. According to the National Drought Mitigation Center (NDMC), meteorological measurements usually provide the first indication of drought.[xcii]

Agricultural Drought – occurs when there is not enough moisture in the soil to meet the needs of a particular crop at a particular time. According to the NDMC, agriculture is usually the first economic area to be affected by drought.

Hydrological Drought – occurs when surface and subsurface water supplies are below normal. Hydrological drought is determined by streamflow and by lake, reservoir and groundwater levels. Hydrological indicators do not provide early indications of drought, since there is a delay between periods with little or no precipitation and low levels of surface and groundwater.

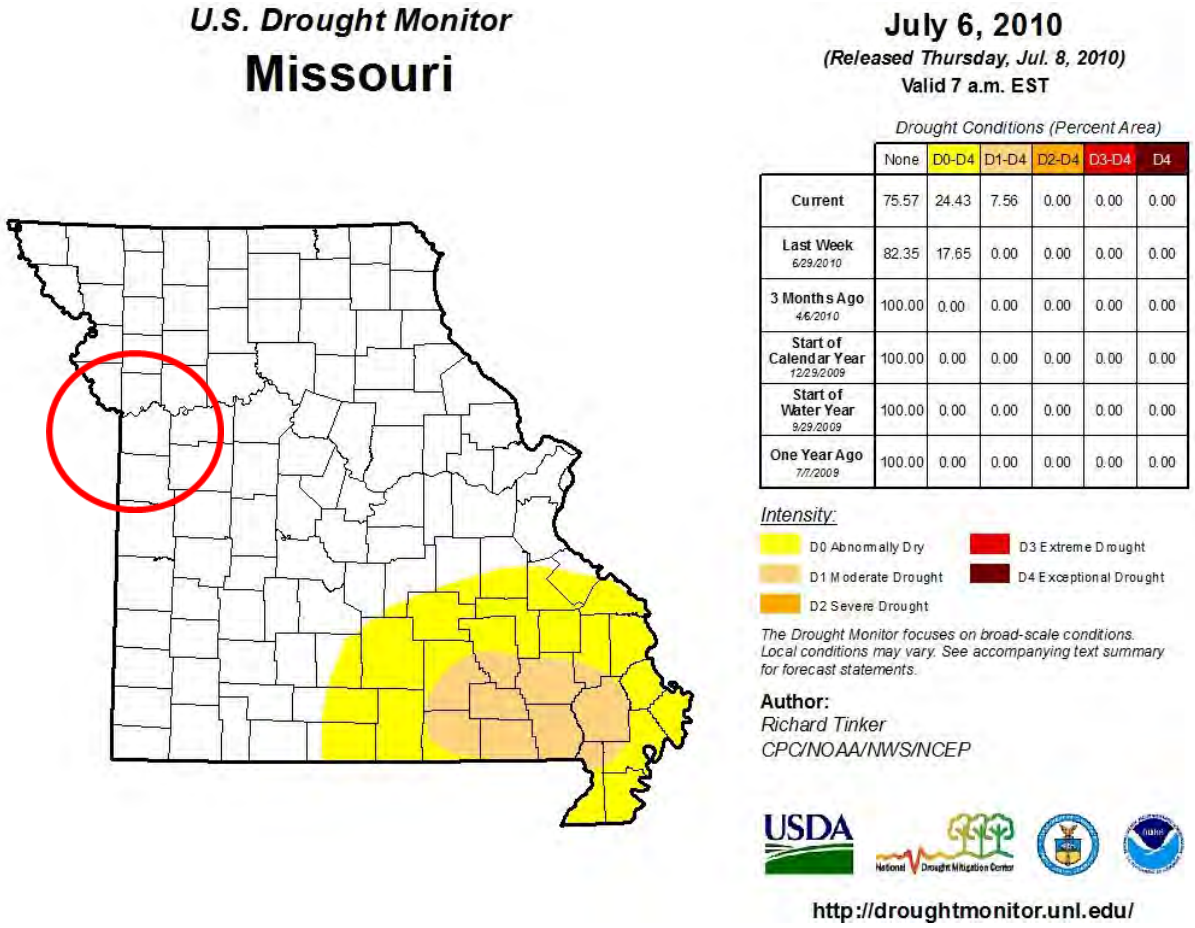
Hydrological Drought and Land Use – refers to a meteorological drought in one area that has hydrological impact in another area. For example, a drought in the Rocky Mountains may have a significant impact in Missouri, since the Missouri River and its tributaries are partly dependent upon precipitation upstream and snowmelt.[xciii]

Socioeconomic Drought – occurs when a physical water shortage begins to affect people.

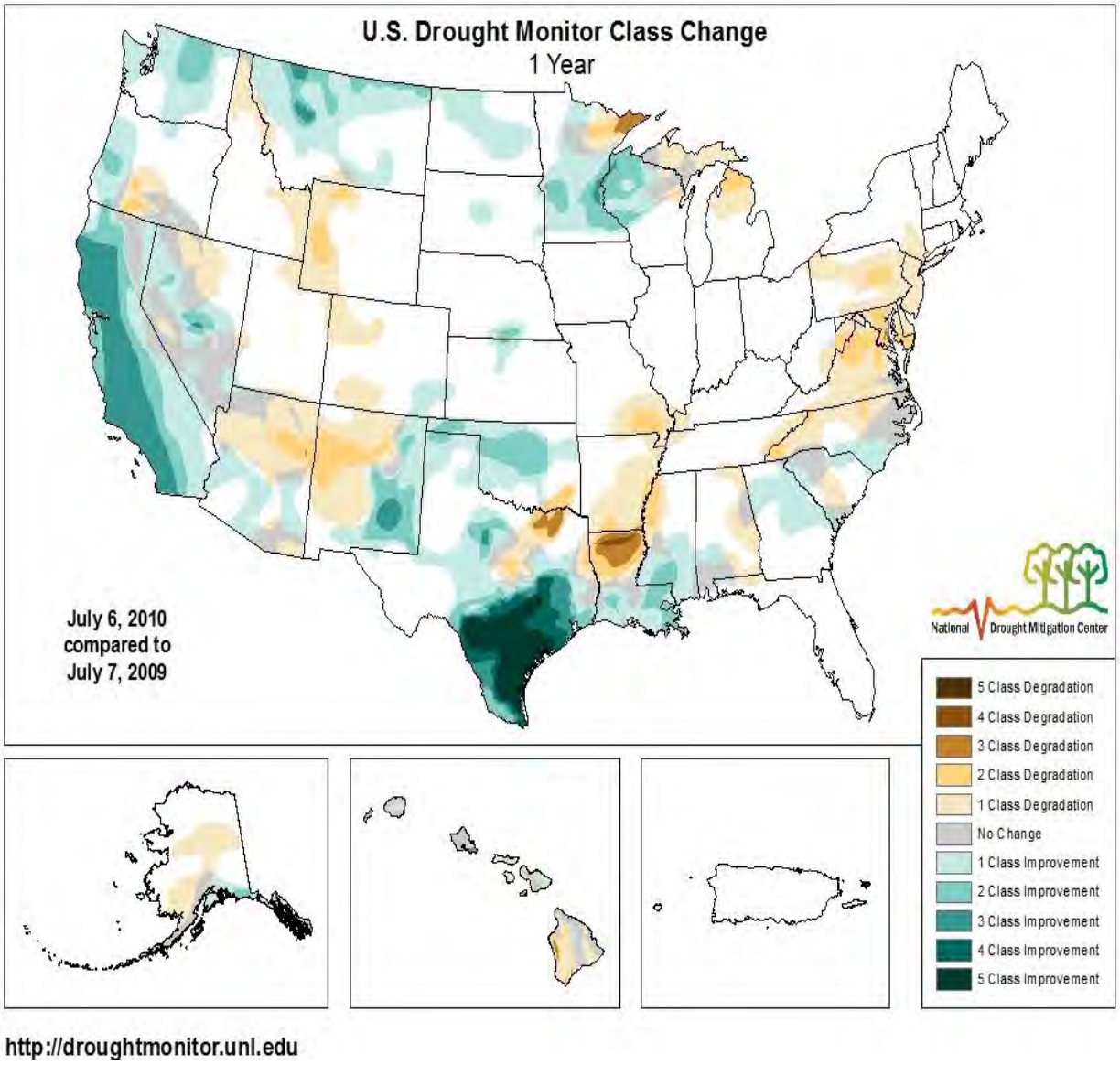
4.12.1 Historical Occurrences

Drought has been a recurrent climatic feature of the Kansas City metropolitan area for many years. Residents of the Kansas City area have experienced some of the nation's worst periods of drought, including the 1930s Dust Bowl drought, the drought of 1954–1956, the Great Drought 1988–1989 and the drought of 1999–2000. Background narrative on each of these historical events was presented in the 2010 Plan update, but removed from this 2015 Plan update in an effort to streamline information and focus on events occurring in the last five years. These historical narratives remain available for reference in the 2010 Plan update. A narrative section has been added covering the drought of 2012, which was one of the worst droughts to impact Missouri in over 30 years. To better display drought conditions over

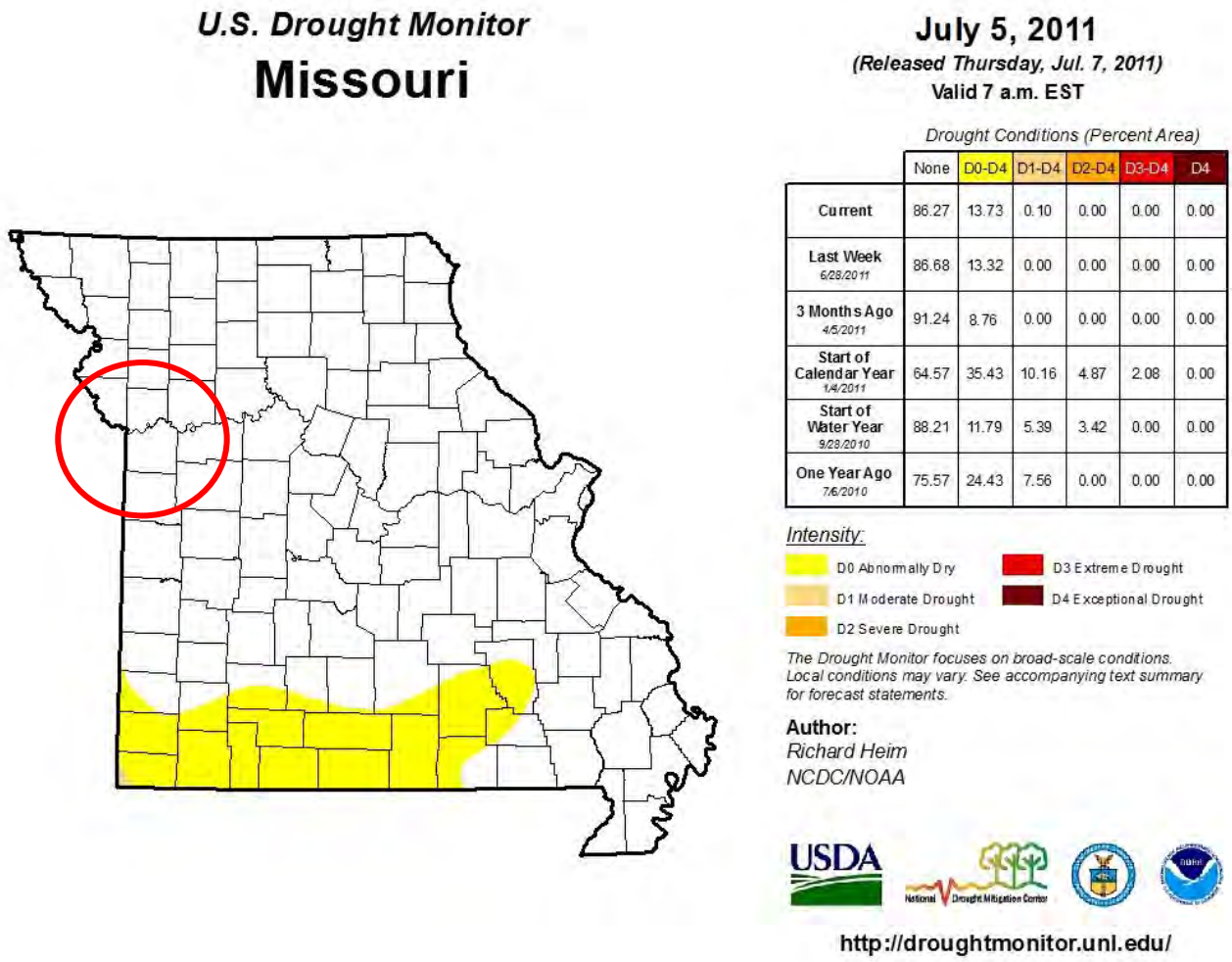
the last five years, Map 4.12.1 through Map 4.12.10 are two-map sets, with the first map depicting drought conditions for the first or second week in July and the second map depicting how those conditions changed from the previous year. The July time frame was chosen as the mid-point of the typical drought season to present a snapshot of conditions. The drought conditions map also includes information about the previous three months and proceeding two months covering the entirety of the drought season. Each two-map set provides a substantially accurate portrayal of how drought impacted the region over the last five years (2010-2014).



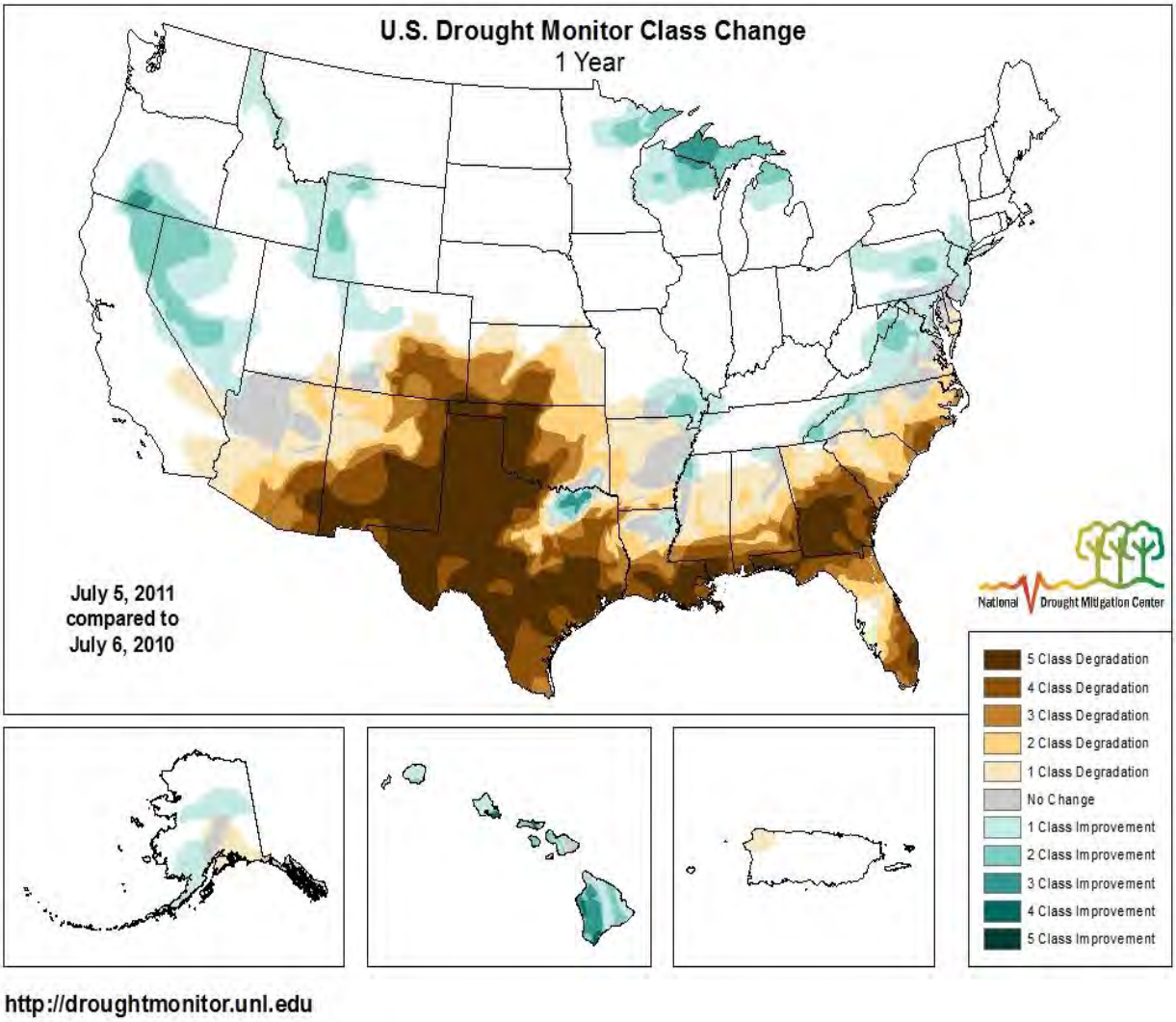
Map 4.12.1: Missouri Drought Conditions (2010)



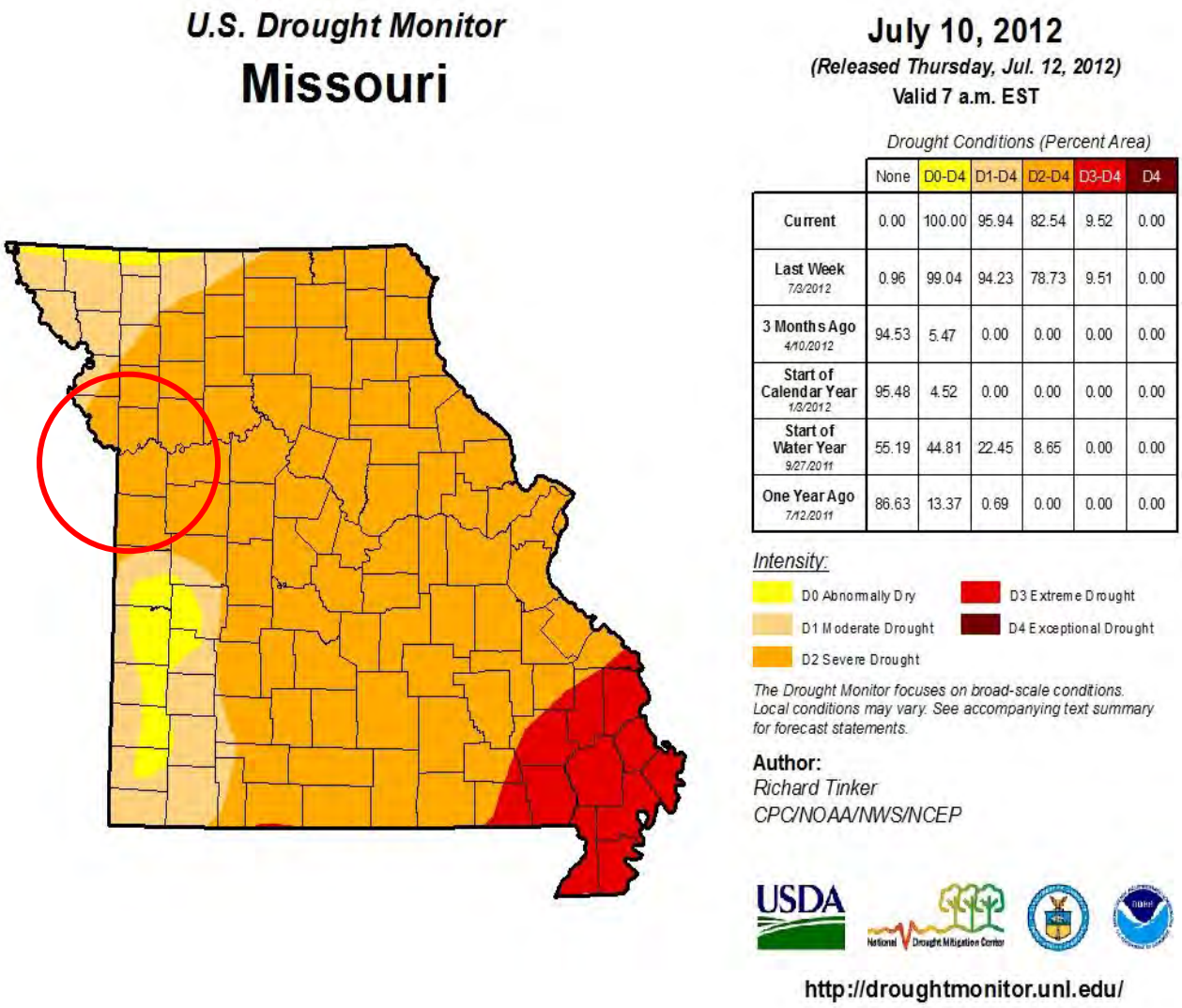
Map 4.12.2: Change in Drought Conditions (2009–2010)



Map 4.12.3: Missouri Drought Conditions (2011)



Map 4.12.4: Change in Drought Conditions (2010–2011)



Map 4.12.5: Missouri Drought Conditions (2012)

Drought of 2012

The drought of 2012 was one of the worst experienced in Missouri in nearly 60 years. It was precipitated by an unusually dry winter and exacerbated by one of the hottest summers on record. May 1 to July 20, 2012, marked the third-driest period on record since 1895. About 90 percent of the state was experiencing severe drought or worse and precipitation was eight to 12 inches below normal. (See Map 4.12.5) By August 26, conditions had further deteriorated, prompting the USDA to report 99 percent of pastures were poor or very poor. Hay and other roughages were 90 percent short or very short. Stock water supplies were 94 percent short or very short. 85 percent of corn and 78 percent of soybeans were rated poor to very poor.[xciv]

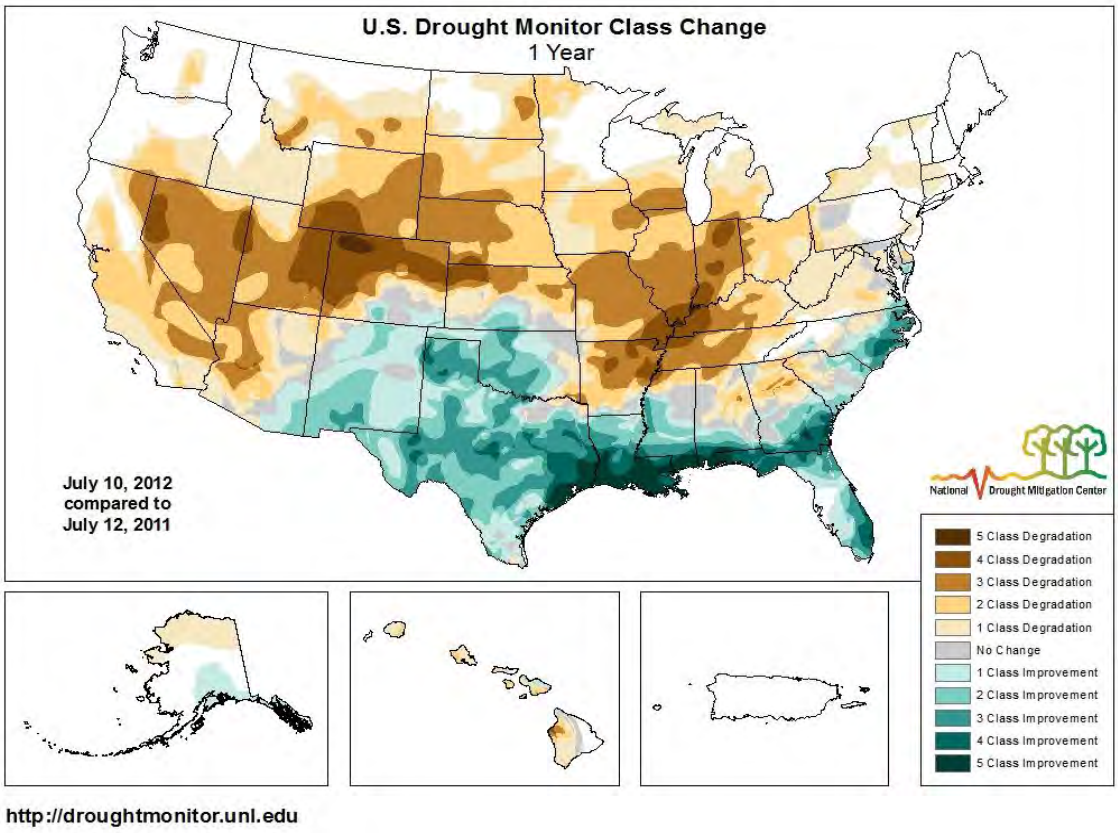
On July 10, 2012, Governor Jay Nixon requested a statewide assessment of drought conditions. Within a week, all of Missouri's 114 counties received a disaster declaration from the U.S. Secretary of

Agriculture. Missouri was the first state to receive a statewide designation. While impacts of the 2012 drought aren't fully known, an early estimate from University of Missouri economist Ron Plain and the Food and Agricultural Policy Research Institute predicted that financial losses to Missouri livestock and poultry operations will be more than $547 million.[xcv]

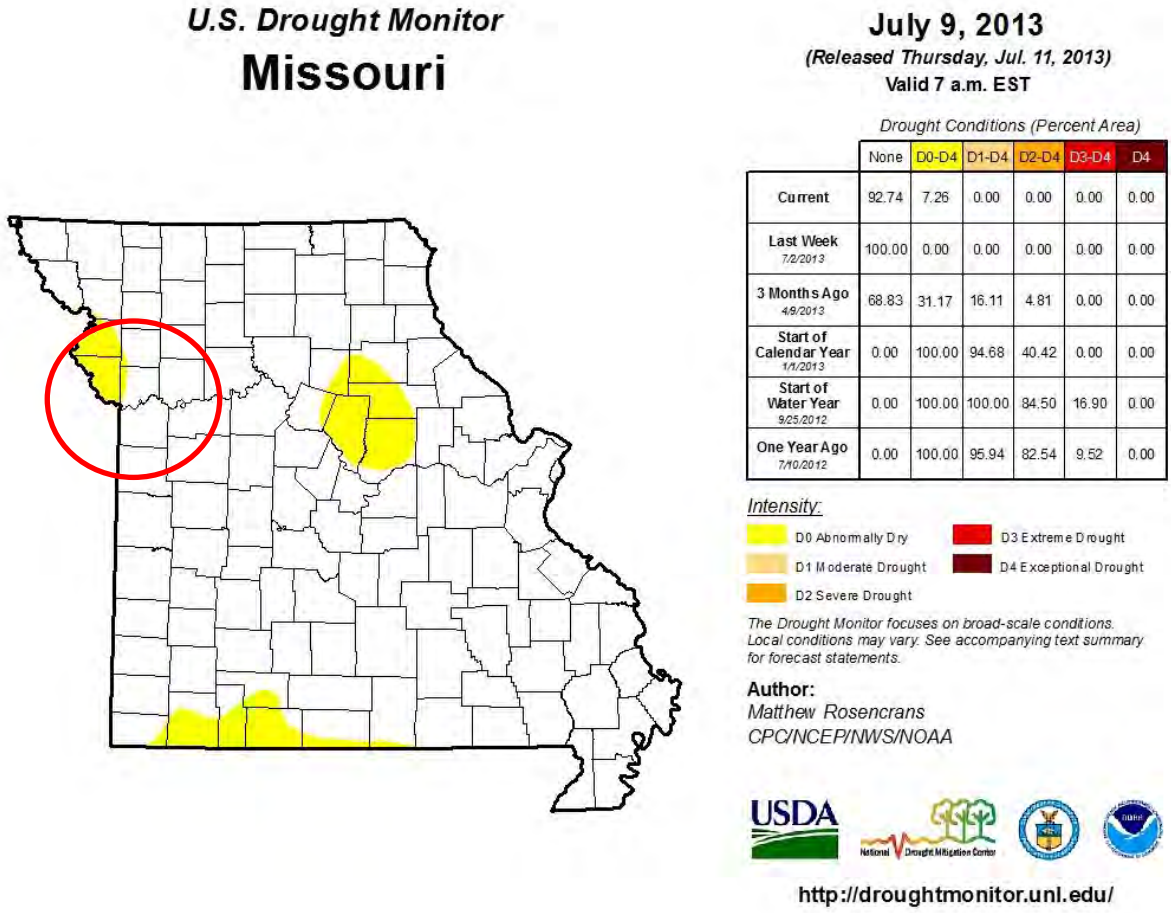
In addition to statewide impacts, Table 4.12.1 documents the following impacts some Plan participants reported in their local jurisdictions:

Table 4.12.1: Local Jurisdictions' Impact (Drought 2012)

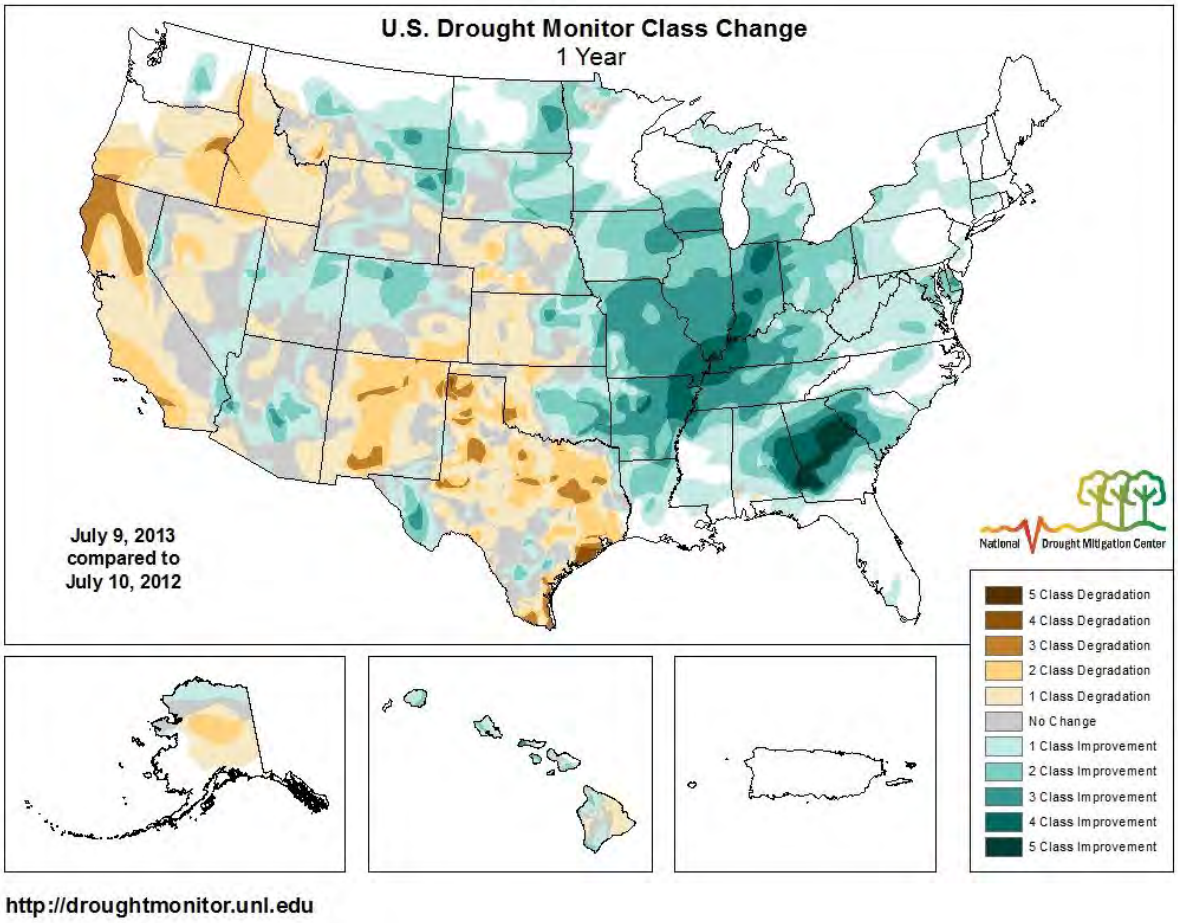
Jurisdiction	Drought Location	Date	Deaths	Injuries	Property Damage	Crop Damage
City of Peculiar	City wide	July 2012	0	0	$5,000	$10,000
City of Riverside	City wide	Summer 2012	0	0	Minor	None
Platte County	State wide	2012	0	0	no	Yes (totals unknown)
Lee's Summit	Region wide	Summer 2013	None	6	None	None



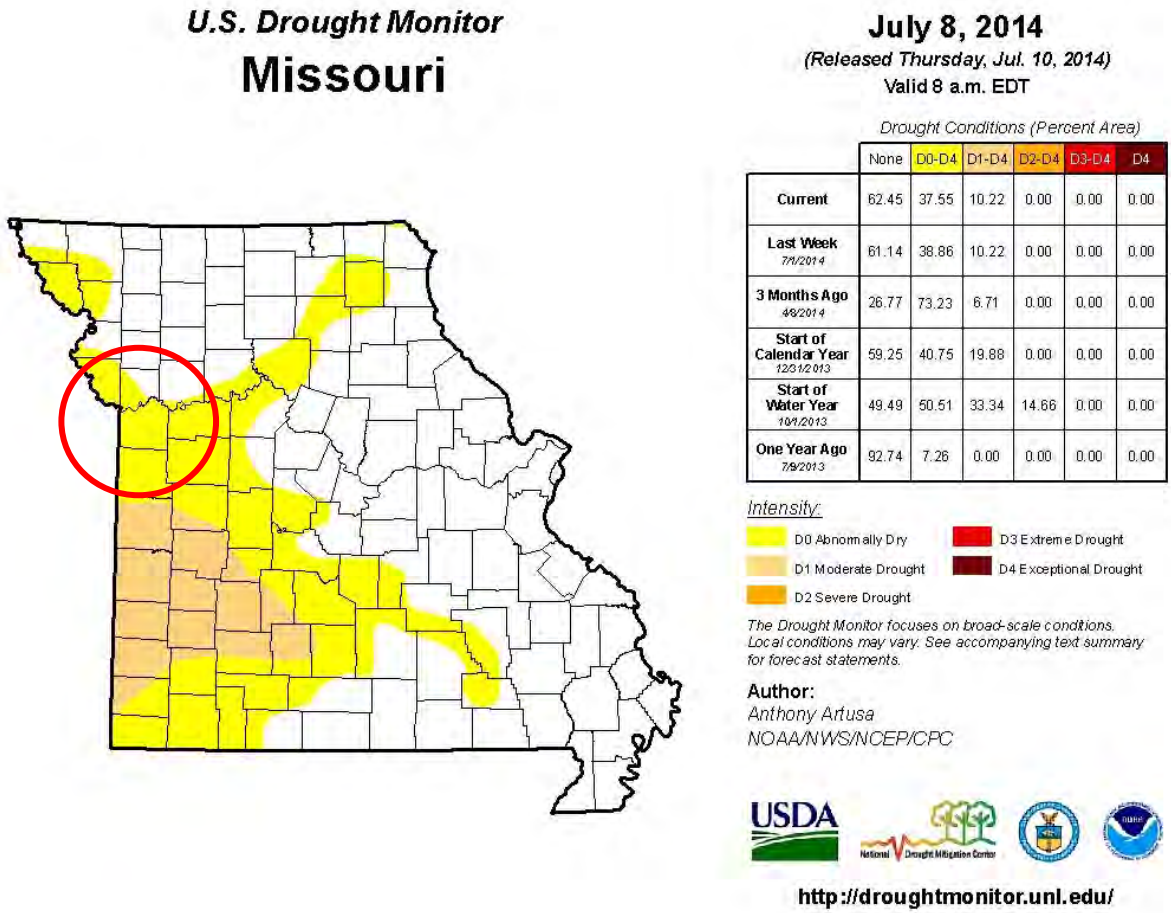
Map 4.12.6: Change in Drought Conditions (2011–2012)



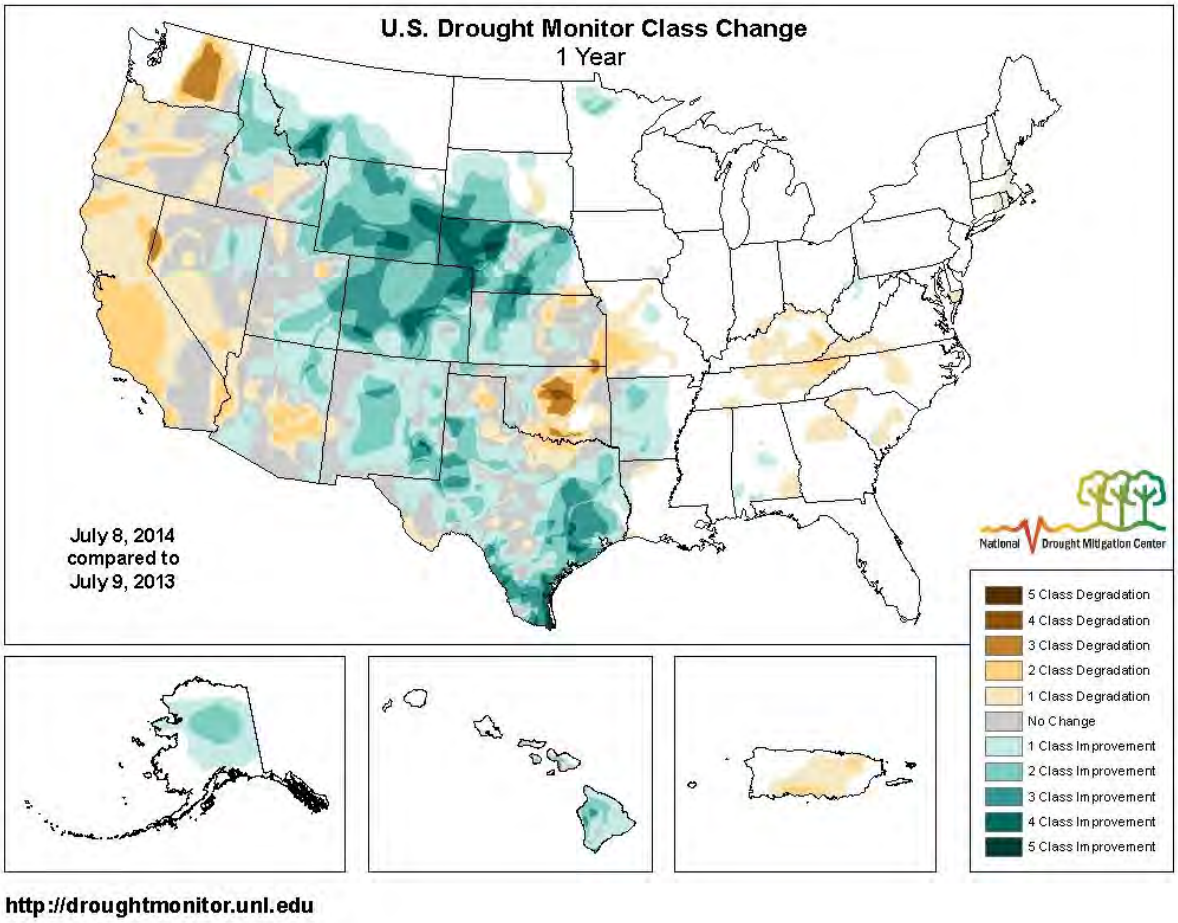
Map 4.12.7: Missouri Drought Conditions (2013)



Map 4.12.8: Change in Drought Conditions (2012–2013)



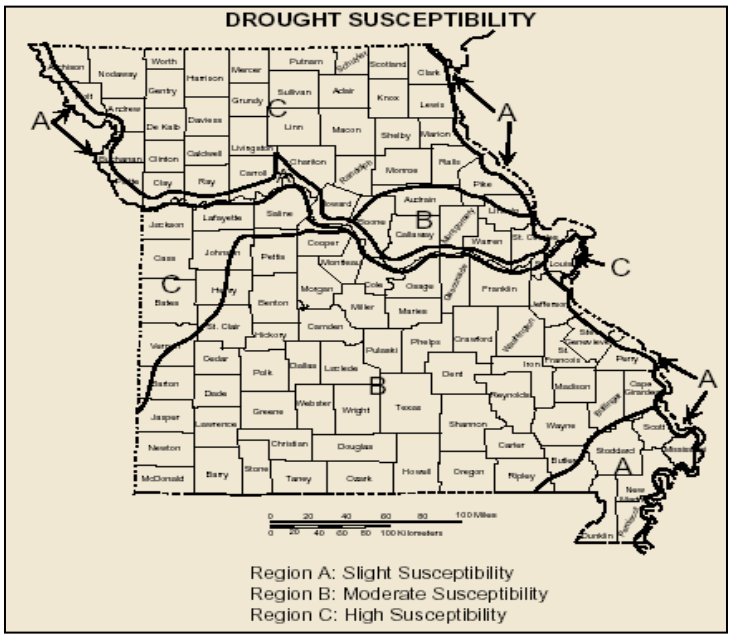
Map 4.12.9: Missouri Drought Conditions (2014)



Map 4.12.10: Change in Drought Conditions (2013–2014)

4.12.2 Probable Locations

As in the 2010 Plan, the entire planning area remains susceptible to drought. In its 2002 *Missouri Drought Plan*, MDNR divided the state into three regions of drought susceptibility: 1) Region A – Slight Susceptibility; 2) Region B – Moderate Susceptibility, and 3) Region C – High Susceptibility.[xcvi] These drought susceptibility regions are depicted in Map 4.12.11. Portions of Clay, Jackson, Platte and Ray counties along the Missouri River are in Region A and have minor surface and groundwater drought susceptibility. Because these areas are underlaid by alluvial deposits of saturated sands and gravels, surface and groundwater resources are generally adequate for domestic, municipal and agricultural water needs. All of Cass County and the majority of Clay, Jackson, Platte and Ray counties are in Region C and are highly susceptible to drought. According to MDNR, sources of surface water in Region C are usually inadequate during extended periods of drought and groundwater is generally of poor quality and may only supply enough water for domestic needs. Irrigation is generally not feasible in these areas and when it is practical, the withdrawal of groundwater may affect other users. In many areas of Region C, surface water sources are used to supplement irrigation supplied by groundwater.[xcvii] As of 2015, the Missouri Drought Plan has not been updated or altered.



Source: 2002 *Missouri Drought Plan*, MDNR Web site

Map 4.12.11: Missouri's Drought Susceptibility Regions

Specific locations within the regions described above may be more or less susceptible to drought, based on local water supplies and/or patterns of water use. A local area's susceptibility to drought and the severity of drought conditions may also be influenced by a variety of other factors, such as historical occurrences of drought; actual annual and seasonal rainfall amounts; current and projected water demands and uses; sources of available water; water reserves and accessibility to additional water supplies; and current population and projected population trends associated with water use amounts.[xcviii]

4.12.3 Extent, Severity, Magnitude

Severity: Medium

Magnitude: 4

Drought impacts are inherently difficult to quantify. A number of methods exist for quantifying the impacts of and economic losses caused by drought in the United States. For ease of comparison, this 2015 Plan update relies on the U.S. Drought Monitoring system classification to describe drought intensity, discussed below. (The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map courtesy of NDMC-UNL.)

> "Drought intensity categories are based on five key indicators, numerous supplementary indicators including drought impacts, and local reports from more than 350 expert observers around the country. The accompanying drought severity classification table (Table 4.12.2) shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what the majority of the indicators show and on local observations. The analysts producing the map also weigh the indices according to how well they perform in various parts of the country and at different times of the year. Additional indicators are often needed in the West, where winter

snowfall in the mountains has a strong bearing on water supplies. It is this combination of the best available data, local observations and experts' best judgment that makes the U.S. Drought Monitor more versatile than other drought indicators."[xcix]

Table 4.12.2: Drought Severity Classification							
			Ranges				
Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5

Table 4.12.2: Drought Severity Classification							
Ranges							
Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

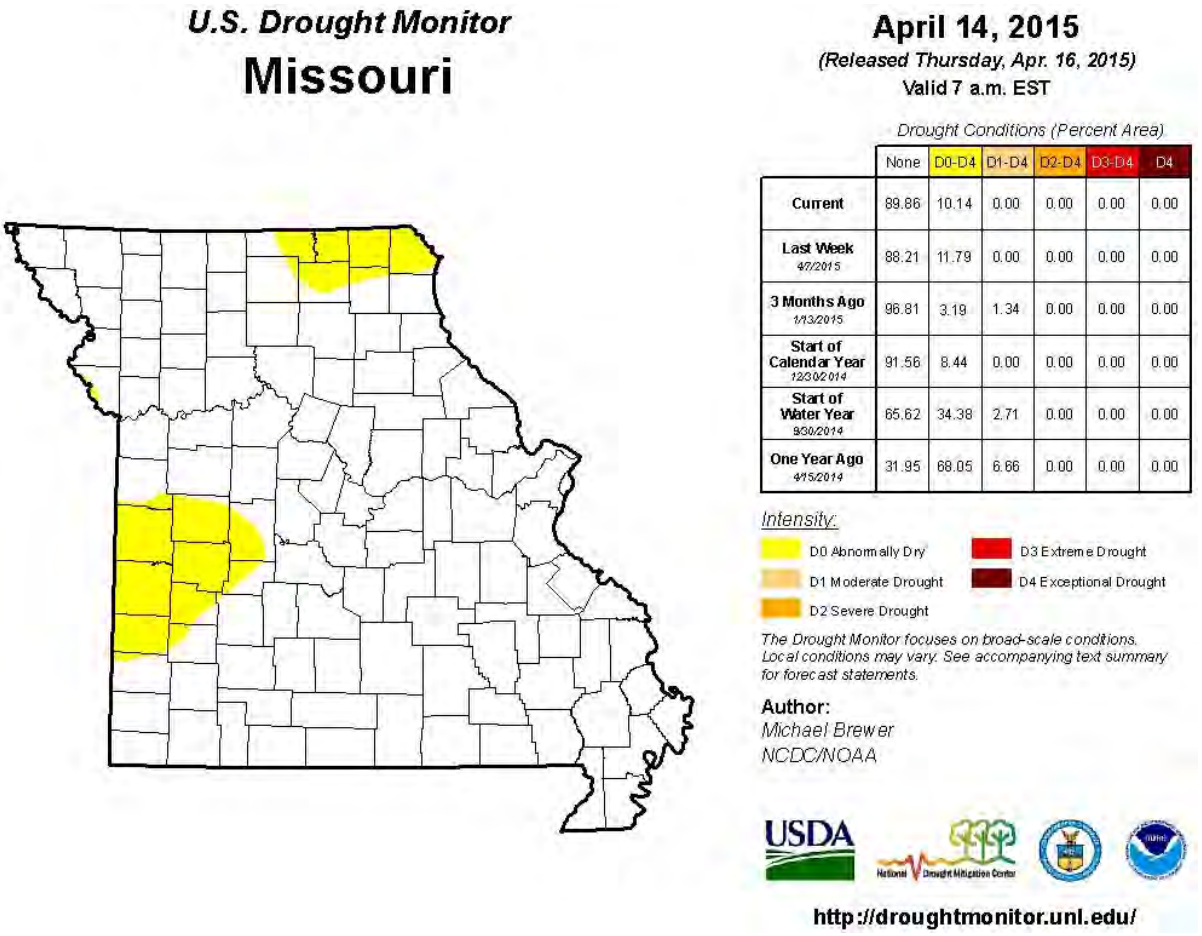
4.12.4 Probability of Future Occurrence: High

It is possible for Cass, Clay, Jackson, Platte and Ray counties to experience drought in any given year. The risk of experiencing the various levels of drought is shown below:

Drought Phase	Probability
D0: Abnormally dry	High
D1: Drought – Moderate	High
D2: Drought – Severe	High
D3: Drought – Extreme	Medium
D4: Drought – Exceptional	Low

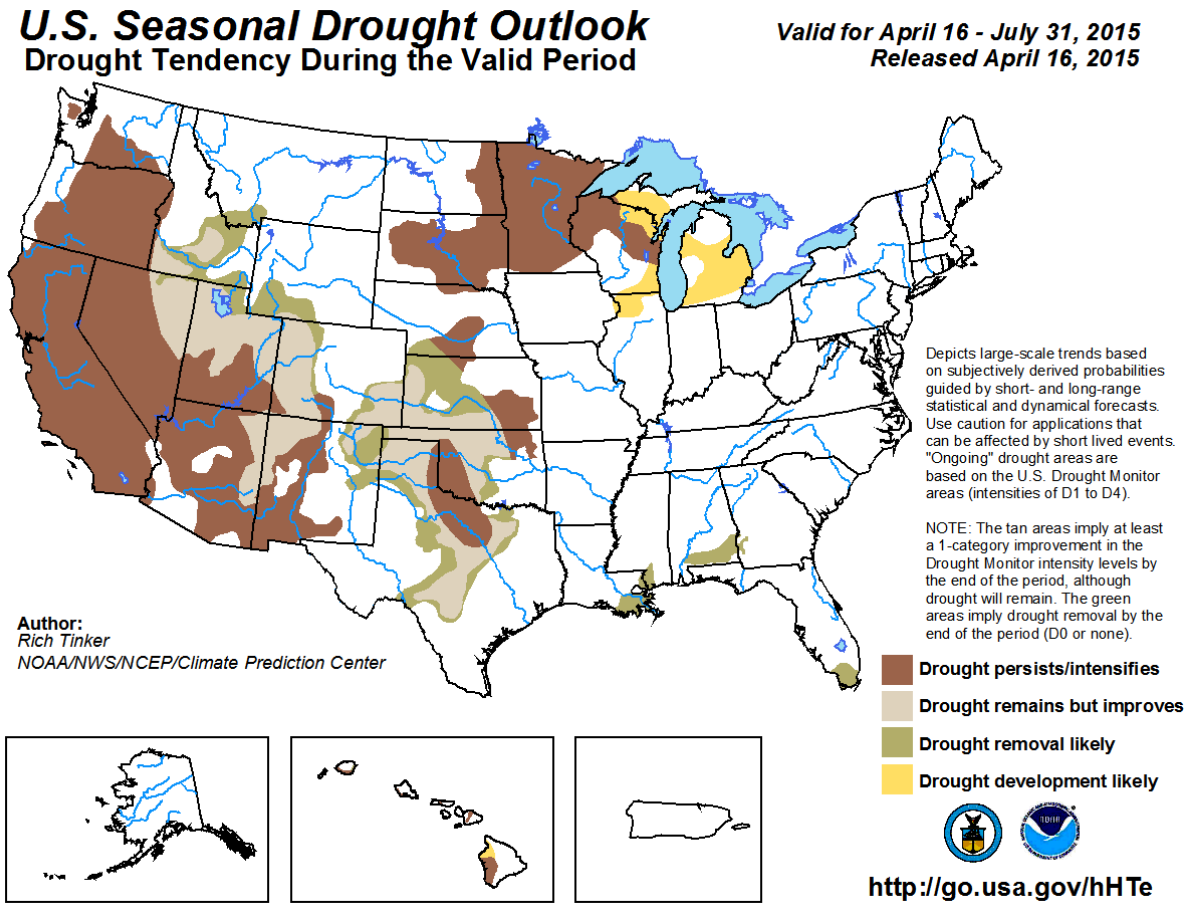
The probability of drought affecting the Kansas City metropolitan area remains high. The combination of moderate precipitation amounts and relatively short growing season (compared to other parts of the state), relatively high evaporation rates, deep soils, poor groundwater, reliance on surface water and historical occurrences (including current drought conditions), contribute to the region's vulnerability to drought. In many parts of the region, particularly rural areas within drought susceptibility Region C, drought conditions may have severe economic, environmental and social impacts. Mitigation measures, particularly those involving conservation and water system infrastructure improvements, may reduce the vulnerability of these areas to the effects of drought.

In the five years since this Plan's last update, the State of Missouri experienced two years (2011–2013) of significant drought impacting all or nearly all counties at one point or another. This drought has subsided in recent years with only a small portion of southwest Platte County experiencing abnormally dry conditions as of April 15, 2015 (See Map 4.12.12 below, planning area circled in red). The planning area is not expected to experience any further drought conditions this season (See Map 4.12.13 below).



Source: U.S Drought Monitor Website

Map 4.12.12: Current Drought Conditions, April, 2015



Source: NWS CPC Website

Map 4.12.13: U.S. Seasonal Drought Outlook, 2015

4.12.5 Vulnerability Analysis and Potential Loss Estimate/Drought Risk Assessment

A statistical risk assessment methodology could not be used to analyze droughts due to specific data set limitations. The onset, duration and end of droughts are difficult to classify because local conditions may vary from mathematical models used to determine when a drought has occurred. Using past drought events as a means to predict future probability is insufficient and does not allow for incorporation into the statistical risk assessment model developed in this report. As discussed in *Section 4.12.3*, there is not a consistent national methodology to determine the impact (severity) of droughts. In response to this gap, the National Drought Mitigation Center developed the Drought Impact Reporter to fulfill the need for a national drought impact database for the United States. The Drought Impact Reporter is an interactive web-based mapping tool designed to compile and display impact information across the United States in near real-time from a variety of sources such as media, government agencies, and the public. Launched in July 2005, this tool is the only nationwide, multi-source archive of drought impact information.[c]

For the 2010 Plan update, the Drought Impact Reporter was used as a measure of severity. At the time, the Reporter measured drought severity based on impacts across six categories: agriculture,

water/energy, environment, fire, social and other. It defined an impact as "an observable loss or change that occurred at a specific place and time because of drought."[ci]

In the fall of 2011, the Drought Impact Reporter was updated to collect and display more types of information, reclassifying some impact categories and adding new ones. Table 4.12.3 and Table 4.12.4 below show a comparison of drought impacts listed in the 2010 Plan, and the new impacts for the timeframe of this Plan (2010–2015) and are followed by a description of each of the new impact categories. Crop insurance indemnity payments — for which drought was the primary cause of loss — were also analyzed as an additional indicator of severity in the 2010 Plan. However, because these impacts are now included as part of the Drought Impact Reporter, they have been removed from this 2015 Update as a separate measure of severity.

Table 4.12.3: Drought Impacts 2005-2009

	Impact Category						
County	**Agricultural**	**Water/Energy**	**Environment**	**Fire**	**Social**	**Other**	**Total**
Cass	34	13	5	4	3	18	**77**
Clay	35	24	6	4	3	19	**91**
Jackson	35	27	5	4	3	21	**95**
Platte	35	24	6	4	3	19	**91**
Ray	35	21	5	4	3	18	**86**

Source: National Drought Mitigation Center Website

Table 4.12.4: Drought Impacts January 2010 – April 2015

	Impact Category								
County	**Agricultural**	**Business and Industry**	**Energy**	**Fire**	**Plants and Wildlife**	**Relief, Response & Restrictions**	**Society and Public Health**	**Tourism & Recreation**	**Water Supply and Quality**
Cass	131	35	1	3	15	51	41	3	24
Clay	128	35	1	4	13	51	40	3	22
Jackson	128	37	1	6	15	51	42	3	23
Platte	128	35	1	4	15	51	40	3	22
Ray	128	35	1	3	13	50	39	3	22

Source: National Drought Mitigation Center Website

4.12.5a Drought Impact Reporter Categories[cii]

Impacts and reports based on what sectors are involved. A report or an impact can have more than one category.

Agriculture – Drought effects associated with agriculture, farming, aquaculture, horticulture, forestry or ranching. Examples of drought-induced agricultural impacts include damage to crop quality; income loss for farmers due to reduced crop yields; reduced productivity of cropland; insect infestation; plant disease; increased irrigation costs; cost of new or supplemental water resource development (wells,

dams, pipelines) for agriculture; reduced productivity of rangeland; forced reduction of foundation stock; closure/limitation of public lands to grazing; and the high cost or unavailability of water for livestock, Christmas tree farms, forestry, raising domesticated horses, bees, fish, shellfish or horticulture.

Business & Industry – This category tracks drought's effects on non-agriculture and non-tourism businesses, such as lawn care, recreational vehicles or gear dealers, and plant nurseries. Typical impacts include reduction or loss of demand for goods or services, reduction in employment, variation in number of calls for service, late opening or early closure for the season, bankruptcy, permanent store closure, and other economic impacts.

Energy – This category concerns drought's effects on power production, rates and revenue. Examples include production changes for both hydropower and non-hydropower providers, changes in electricity rates, revenue shortfalls and/or windfall profits, and purchase of electricity when hydropower generation is down.

Fire – Drought often contributes to forest, range, rural or urban fires, fire danger, and burning restrictions. Specific impacts include enacting or easing burning restrictions, fireworks bans, increased fire risk, occurrence of fire (number of acres burned, number of wildfires compared to average, people displaced, etc.), state of emergency during periods of high fire danger, closure of roads or land due to fire occurrence or risk, and expenses to state and county governments of paying firefighters overtime and paying equipment (helicopter) costs.

Plants & Wildlife – Drought effects associated with unmanaged plants and wildlife, both aquatic and terrestrial, include loss of biodiversity of plants or wildlife; loss of trees from rural or urban landscapes, shelterbelts, or wooded conservation areas; reduction and degradation of fish and wildlife habitat; lack of feed and drinking water; greater mortality due to increased contact with agricultural producers, as animals seek food from farms and producers are less tolerant of the intrusion; disease; increased vulnerability to predation (from species concentrated near water); migration and concentration (loss of wildlife in some areas and too much wildlife in others); increased stress on endangered species; salinity levels affecting wildlife; wildlife encroaching into urban areas; and loss of wetlands.

Relief, Response & Restrictions – This category refers to drought effects associated with disaster declarations, aid programs, requests for disaster declaration or aid, water restrictions or fire restrictions. Examples include disaster declarations, aid programs, USDA Secretarial disaster declarations, Small Business Association disaster declarations, government relief and response programs, state-level water shortage or water emergency declarations, county-level declarations, a declared "state of emergency," requests for declarations or aid, nonprofit organization-based relief, water restrictions, fire restrictions, National Weather Service Red Flag warnings, and declaration of drought watches or warnings.

Society & Public Health – Drought effects associated with human, public and social health include health-related problems related to reduced water quantity and/or quality, such as increased concentration of contaminants; loss of human life (e.g., from heat stress, suicide); increased respiratory ailments; increased disease caused by wildlife concentrations; increased human disease caused by changes in insect carrier populations; population migration (rural to urban areas, migrants into the United States); loss of aesthetic values; change in daily activities (non-recreational, like putting a bucket in the shower to catch water); elevated stress levels; meetings to discuss drought; communities creating

drought plans; lawmakers altering penalties for violation of water restrictions; demand for higher water rates; cultural/historical discoveries from low water levels; prayer meetings; cancellation of fundraising events; cancellation/alteration of festivals or holiday traditions; stockpiling water; public service announcements and drought information websites; protests; and conflicts within the community due to competition for water.

Tourism & Recreation – Drought effects associated with recreational activities and tourism include closure of state hiking trails and hunting areas due to fire danger; water access or navigation problems for recreation; bans on recreational activities; reduced license, permit, or ticket sales (e.g. hunting, fishing, ski lifts, etc.); losses related to curtailed activities (e.g. bird watching, hunting and fishing, boating, etc.); reduced park visitation; and cancellation or postponement of sporting events.

Water Supply & Quality – Drought effects associated with water supply and water quality include dry wells, voluntary and mandatory water restrictions, changes in water rates, easing of water restrictions, increases in requests for new well permits, changes in water use due to water restrictions, greater water demand, decreases in water allocation or allotments, installation or alteration of water pumps or water intakes, changes to allowable water contaminants, water line damage or repairs due to drought stress, drinking water turbidity, change in water color or odor, declaration of drought watches or warnings, and mitigation activities[ciii].

4.12.6 Problem Statements

Drought will continue to impact the Kansas City region, most notably in the agricultural sector and areas of the region with high drought susceptibility. Due to the region's general abundance of potable water via the Kansas and Missouri Rivers and alluvial wells, short-term droughts are not likely to have direct, lasting impacts on the entire region, but may have meaningful impacts on individual communities. "Some preparatory measures and policies may help communities and infrastructure assets and systems (especially aging infrastructure) to cope with the impacts."[civ]

Problem statements, such as those below, can support development of mitigation strategies for drought:

- Older infrastructure could be impacted by drought conditions (such as soil or substructure constriction).
- For agricultural communities, inefficient/aging irrigation systems can waste excessive amounts of water and increase the severity of drought impacts.
- Public information campaigns typically don't include water conservation measures.

4.13 Heat Waves



Almost every summer, heat waves affect the Kansas City metropolitan area. Although the entire region is affected by heat waves, the impact of these prolonged periods of heat and humidity tends to be more severe in urban areas because they absorb and retain more heat than rural or natural areas. In addition, elderly, sick and low-income residents — especially those who live in the urban core or other urbanized areas of the Kansas City region — are more susceptible to the hazards of heat waves than those who are young, healthy or have access to adequate air conditioning or ventilation.

The National Weather Service defines a heat wave as a period of abnormally and uncomfortably hot and unusually humid weather. Typically a heat wave lasts two or more days. The NWS will initiate three types of heat alert products, depending on local conditions:

Excessive Heat Outlooks – issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to those who need considerable lead-time to prepare for the event.

Excessive Heat Watches – issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.

Excessive Heat Warning/Advisories – issued when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life. Warnings are issued within 12 hours of the onset of the following criteria: 1) heat index of at least 105 degrees F for more than three hours per day for two consecutive days, or 2) heat index more than 115 degrees F for any period of time.[cv]

In the Kansas City metropolitan area, these types of high temperatures generally occur between June and September, but are most likely to occur in July and August. Based on data from the High Plains Regional Climate Center covering the past 64 years, from 1948 to 2012, the Kansas City metropolitan area experiences approximately 46.2 days per year above 90 degrees, with a significant number of those days with humidity levels between 50 and 70 percent.[cvi] During this period, July averaged the most days with temperatures above 90 degrees (16.1 days), followed by August with an average of 14.5, June with an average of six, and September with an average of 4.9.[cvii] According to this climatological data, the Kansas City metropolitan area is subject to heat waves during the summer months of any given year.

Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. Of all the other natural hazards discussed in this Plan, only extreme cold kills more Americans annually.

In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the disastrous heat wave of 1980, more than 1,250 people died. To provide warning about the potentially devastating effects of heat waves, the NWS devised the "Heat Index" (HI), shown in Table 4.13.1, which is sometimes referred to as the "Apparent Temperature." The HI, given in degrees Fahrenheit, is an accurate measure of how hot it really feels when the effects of relative humidity (RH) are added to the actual air temperature.[cviii]

Table 4.13.1: Heat Index degrees (degrees C°)													
	RELATIVE HUMIDITY (%)												
Temp.	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
110 (47)	136 (58)												
108 (43)	130 (54)	137 (58)											
106 (41)	124 (51)	130 (54)	137 (58)										
104 (40)	119 (48)	124 (51)	131 (55)	137 (58)									
102 (39)	114 (46)	119 (48)	124 (51)	130 (54)	137 (58)								
100 (38)	109 (43)	114 (46)	118 (48)	124 (51)	129 (54)	136 (58)							
98 (37)	105 (41)	109 (43)	113 (45)	117 (47)	123 (51)	128 (53)	134 (57)						
96 (36)	101 (38)	104 (40)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	132 (56)					
94 (34)	97 (36)	100 (38)	103 (39)	106 (41)	110 (43)	114 (46)	119 (48)	124 (51)	129 (54)	135 (57)			
92 (33)	94 (34)	96 (36)	99 (37)	101 (38)	105 (41)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	131 (55)		
90 (32)	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	103 (39)	106 (41)	109 (43)	113 (45)	117 (47)	122 (50)	127 (53)	132 (56)
88 (31)	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	98 (37)	100 (38)	103 (39)	106 (41)	110 (43)	113 (45)	117 (47)	121 (49)
86 (30)	85 (29)	87 (31)	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	102 (39)	105 (41)	108 (42)	112 (44)
84 (29)	83 (28)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	92 (33)	94 (34)	96 (36)	98 (37)	100 (38)	103 (39)
82 (28)	81 (27)	82 (28)	83 (28)	84 (29)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	91 (33)	93 (34)	95 (35)

Source: NWS Web site

*Note: Because HI values were devised for shady, light-wind conditions, exposure to full sunshine can increase HI values by up to 15 degrees. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Heat waves can pose a dangerous health threat to the residents of the Kansas City metropolitan area, especially at-risk population groups such as:

- People with medical/physical conditions or disabilities.
- People who work or conduct leisure activities outside.
- People who are difficult to reach through normal communications.
- People who are elderly.
- People with a lack of access to air-conditioning or other cooling mechanisms due to low incomes.

According to the NWS, the severity of heat-related disorders tends to increase with age. For example, heat cramps in a 17-year-old can become heat exhaustion for someone in his forties, and may result in heat stroke for someone in his sixties.[cix] Table 4.13.2 below describes the possible health risks from prolonged heat exposure.

Table 4.13.2: Heat Index/Heat Disorders

Category	Heat Index	Possible heat disorders for people in high risk groups
Extreme Danger	130 degrees or higher (54 C or higher)	Heat stroke or sunstroke likely.
Danger	105–129 degrees (41–54 C)	Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.
Extreme Caution	90–105 degrees (32–41 C)	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	80–90 degrees (27–32 C)	Fatigue possible with prolonged exposure and/or physical activity.

In addition to heat-related illnesses, heat waves pose a number of other problems. Pets and livestock may suffer disorders similar to those experienced by humans due to prolonged exposure to heat and humidity. High demand for electricity for cooling purposes can lead to blackouts or brownouts. The resultant loss of power can lead to an even greater risk of heat-related illnesses and fatalities due to loss of cooling and ventilation. In urban areas, the opening of fire hydrants can result in a system-wide loss of water pressure. Increased water use may result in water shortages and drought-like conditions. (Heat waves commonly take place during actual droughts, as was the case in the Kansas City area and elsewhere during major droughts of the mid-1930s and mid-1950s.) Extreme heat can cause asphalt on roads and parking lots to soften and buckle. If large numbers of people are affected by heat-related illnesses, local EMS systems and hospital emergency rooms may become overwhelmed, affecting the level of care available to people. Finally, studies indicate that civil disturbances, riots and incidents of domestic violence and abuse are more likely to occur during heat waves.[cx]

4.13.1 Historical Occurrences

Like severe winter weather, heat waves are virtually an annual occurrence in the Kansas City metropolitan area. The region has experienced significant heat waves in the past, including record-setting periods of high temperatures, such as Aug. 4–8, 1934, when the average high temperature was 108 degrees; Aug. 12–15, 1936, with an average high temperature of 110.5 degrees (the region's record high temperature of 113 degrees occurred on Aug.14, 1936); Aug. 22–27, 1936, when the average high temperature was 105.6 degrees; and July 11–14, 1954, with an average high temperature of 110

degrees for the period.[cxi] Background narrative on each of these historical events was presented in the 2010 Plan update, but removed from this 2015 Plan update in an effort to streamline information and focus on events occurring in the last five years. Summarized below in Table 4.13.3 is a listing of heat events from 2009–2014. In total, there have been 69 deaths and 55 injuries from heat waves recorded from 1994 (earliest year data is available) to 2014 across the region.

Data limitation. In the 2010 Plan update, the National Climatic Data Center (NCDC) Storm Events Database was used to quantify impacts from heat waves. At the time, NOAA provided the data in aggregate form for forecasting zones, of which Cass, Clay, Jackson, Platte, Ray and several other counties are a part. This made it difficult to attribute heat related deaths to a particular county based on the provided data. Therefore, heat deaths were considered across the total planning area. The data has since improved and heat-related deaths can now be seen on a county level. However, data prior to 2007 does not appear in the searchable database.

Table 4.13.3: Heat Events (2009–2014)

Impacted County	Begin Date	End Date	Deaths	Injuries	Property Damage	Crop Damage	Additional Information
Platte	7-4-12	7-7-12	0	0	0	0	High temperatures in the 100-to-105 degree range, combined with humidity, produced afternoon and early evening heat indices in the 102-to-107 degree range. Overnight low temperatures were in the upper 70s to lower 80s.
Jackson			3	0	0	0	
Clay			0	0	0	0	
Platte	7-18-12	7-25-12	0	0	0	0	High temperatures in the 100-to-110 degree range, combined with humidity, produced afternoon and early evening heat indices in the 100-to-110 degree range. Overnight low temperatures were in the 70s to lower 80s.
Ray			0	0	0	0	
Jackson			7	0	0	0	
Cass			0	0	0	0	
Clay			0	0	0	0	

Source: NCDC Web site

4.13.2 Probable Locations

The entire Kansas City region is subject to the hazards associated with heat waves.

4.13.3 Extent, Severity, Magnitude

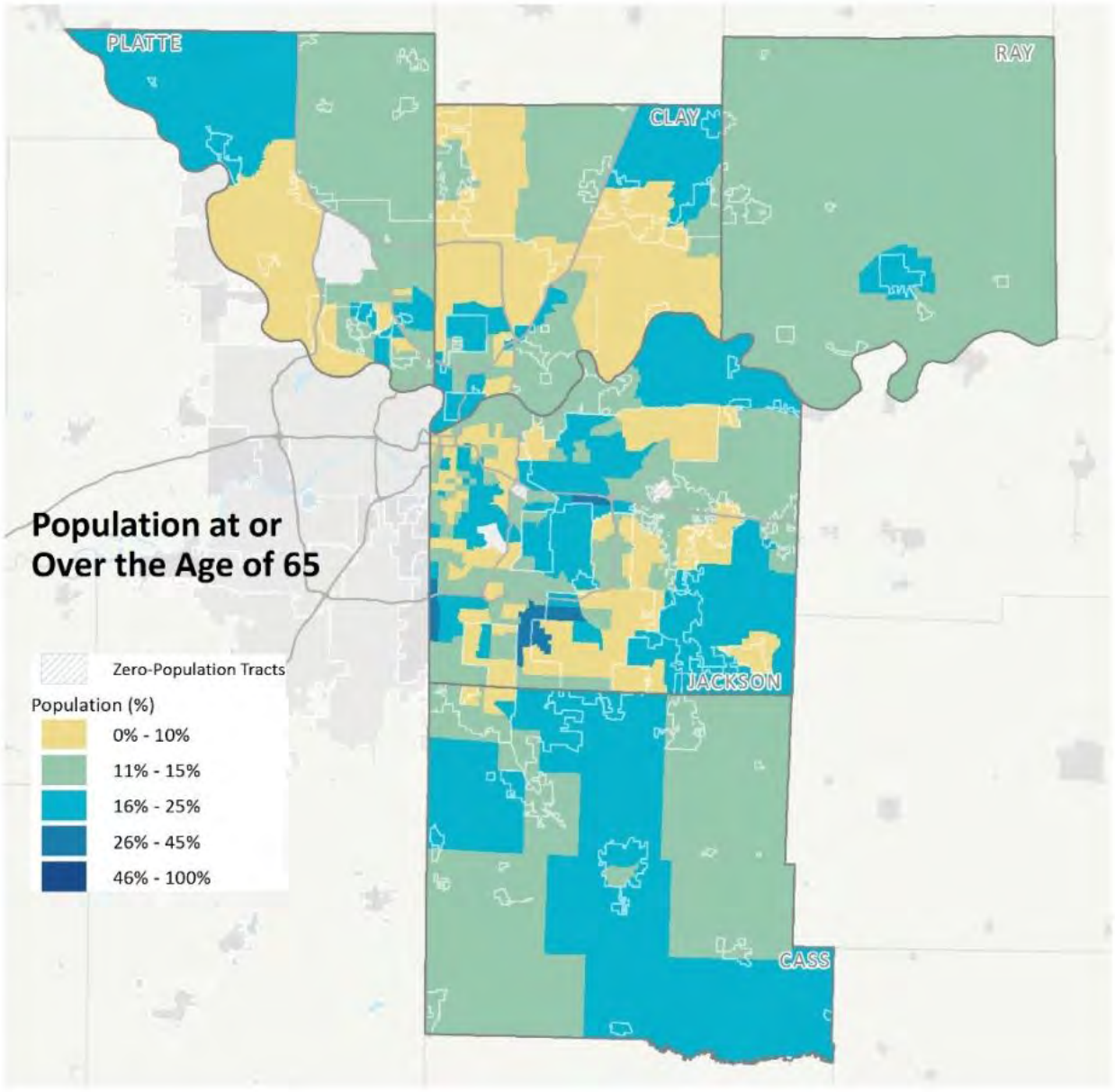
Severity: Medium

Magnitude: 4

The severity of heat waves is generally limited for the majority of the population in the metropolitan area, although they can be more severe for the urban areas and at-risk groups described above. Socioeconomic problems associated with certain urban populations exacerbate the hazards of heat waves. Many people in the urban core of Kansas City and elsewhere across the metropolitan area, especially the elderly and poor, do not have air conditioning or do not use their air conditioners because

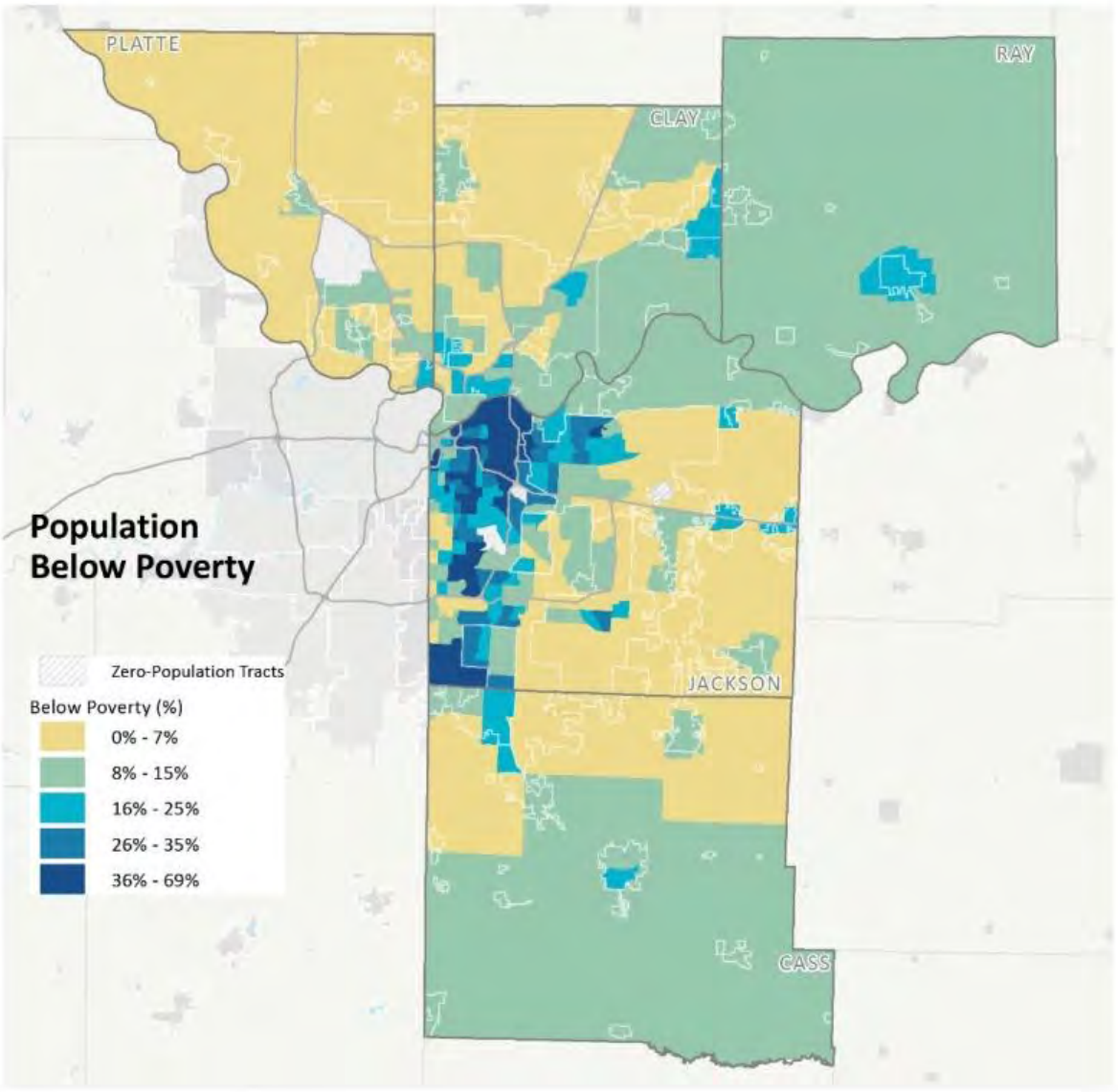
of the high cost of electricity. In addition, some residents in high crime areas, particularly the elderly, may be afraid to open their windows or venture outside to seek cooler locations. People with disabilities or other medical needs may also be more susceptible to the effects of heat waves and tend to live more in urban areas. Because of these conditions and problems, most heat-related deaths occur in cities.[cxii]

Map 4.13.1 depicts the population in the Kansas City metropolitan area over the age of 65. Map 4.13.2 depicts those with incomes below the poverty level. Figure 4.8.5 depicts the population with a disability. As indicated above, these population groups are among those most at risk to the hazards associated with heat waves.



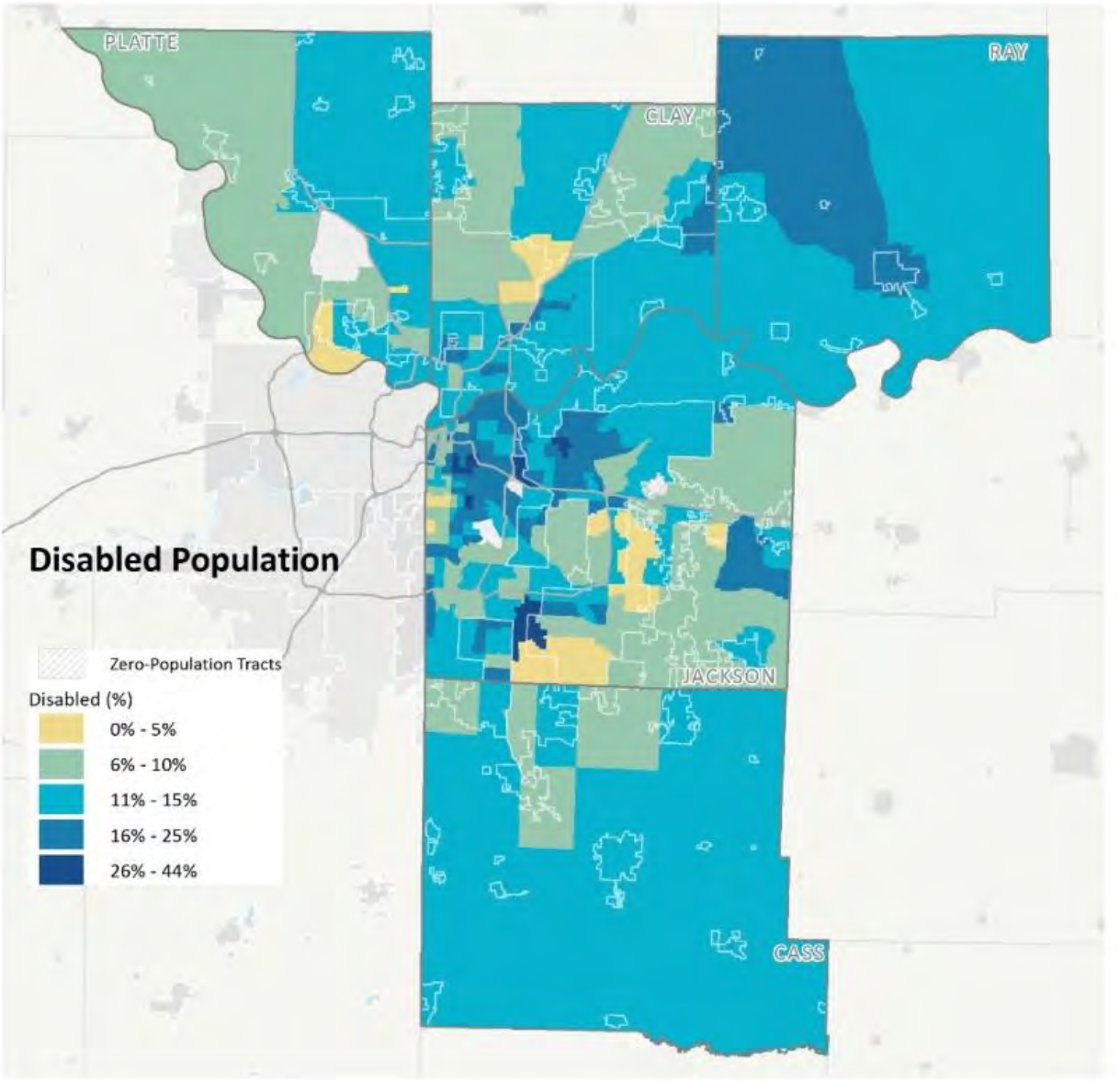
Source: MARC Research Services Department

Map 4.13.1: Population Over age 65 in the Kansas City Metropolitan Area



Source: MARC Research Services Department

Map 4.13.2: Population in Poverty in the Kansas City Metropolitan Area



Source: MARC Research Services Department

Map 4.13.3: Population with a Disability in the Kansas City Metropolitan Area

4.13.4 Probability of Future Occurrence: High

Historical occurrences of heat waves, climatological and meteorological data, demographic data and medical statistics associated with heat-related disorders and deaths provide useful information about the people and places vulnerable to the effects of heat waves. Based on this information, the probability that a heat wave will occur in the Kansas City metropolitan area in any given year is high.

4.13.5 Vulnerability Analysis and Potential Loss Estimate/Heat Wave Risk Assessment

In the 2010 Plan update, the statistical risk assessment methodology was used for heat waves. As noted above, there were limitations to this methodology, particularly in the way NOAA aggregated data on a forecasting zone level vs. a county level, which made estimating impacts to counties difficult. For this update, NOAA has resolved the forecasting zone/county discrepancy, making it possible to quantify impacts on an individual county basis. Additionally, in reviewing the statistical risk assessment methodology, including building exposure as a variable for estimating vulnerability to heat waves likely yielded no substantive measure of risk, since the major impacts of heat waves primarily involve death or injury to the population. Although prolonged heat waves can impact structural integrity to certain types of infrastructure, there is no available data to quantify these impacts.

To better illustrate the risk of heat waves, this 2015 Plan update slightly revised the statistical risk assessment, replacing building stock with percent of population over 65, percent of population with a disability, and percent of population in poverty. These three categories were added as these demographics tend to be more vulnerable to the effects of heat waves as discussed in *Section 4.13.3* above. Total population remained a contributing factor to the overall maximum loss estimation. As in previous loss estimation categories, simple numeric values were assigned to the population percentage categories — the larger percentage of these populations in a community, the greater the potential for loss of life or injury from heatwaves. Population percentages were assigned values as follows:

Less than 5 percent = **1**;
6 to 10 percent = **2**;
11 to 15 percent = **3**;
More than 16 percent = **4**

Similarly, for the minimum loss estimation, annualized building loss was replaced with the same three population percentage categories as the maximum loss estimation. Total population was replaced with a combined average of deaths/injuries from 1994–2014 as a lower boundary for the minimum loss estimation. As discussed above, heat related deaths/injuries prior to 2007 were aggregated across the entire region. Because of this aggregation, a constant average of 6.2 deaths/year was applied to all counties. This average was arrived at by adding the total number of deaths (69) to the total number of injuries (55) and dividing the result by 20 (number of years with available data). This same logic was applied for the 2010 Plan update.

Data limitation: As discussed in the 2010 Plan, the use of the constant 6.2 deaths/year average for all counties likely overestimates risk to individual counties.

It is worth noting that the average number of deaths has decreased from the 7.6 deaths/year identified in the 2010 Plan update to 6.2 deaths/year for this 2015 Plan update. There are likely a number of factors influencing this reduction including: increase in the time period used to calculate average, fewer recorded events for last five years, and data discrepancies. However, it is also likely some mitigation measures have had an impact on the reduction, such as the increased use of cooling centers; wider access to air conditioning; information campaigns to encourage neighbors to check on neighbors, etc.

Table 4.13.4 and Table 4.13.5 contain the maximum and minimum loss estimations for heat waves.

Table 4.13.4: Maximum Loss Estimation, Heat Wave							
County	**Overall Risk (probability and severity)**	**Magnitude (percent of county affected)**	**Percent of Population over 65**	**Percent of Population with a disability**	**Percent of Population in Poverty**	**Total Population (in thousands)**	**Maximum Loss Estimation**
Cass	High = 3	4	14.1% = 3	11.81% = 3	8.9% = 2	98.9 = 1	2.6 = High
Clay	High = 3	4	11.6% = 3	11.13% = 3	9.0% = 2	223.4 = 2	2.83 = High
Jackson	High = 3	4	12.7% = 3	12.77% = 3	17.4% = 4	669.4 = 3	3.33 = High
Platte	High = 3	4	11.7% = 3	9.86% = 2	7.4% = 2	89.8 = 1	2.5 = High
Ray	High = 3	4	15.3% = 3	14.72% = 3	11.6% = 3	22.9 = 1	2.83 = High

Sources: NOAA National Climatic Data Center Storm Event Database and 2010 Census

Table 4.13.5: Minimum Loss Estimation, Heat Wave							
County	**Overall Risk (probability and severity)**	**Magnitude (percent of county affected)**	**Percent of Population over 65**	**Percent of Population with a disability**	**Percent of Population in Poverty**	**Avg. Combined Deaths / Injuries**	**Minimum Loss Estimation**
Cass	High = 3	4	14.1% = 3	11.81% = 3	8.9% = 2	6.2 = 3	3 = High
Clay	High = 3	4	11.6% = 3	11.13% = 3	9.0% = 2	6.2 = 3	3 = High
Jackson	High = 3	4	12.7% = 3	12.77% = 3	17.4% = 4	6.2 = 3	3.33 = High
Platte	High = 3	4	11.7% = 3	9.86% = 2	7.4% = 2	6.2 = 3	2.83 = High
Ray	High = 3	4	15.3% = 3	14.72% = 3	11.6% = 3	6.2 = 3	3 = High

Sources: NOAA National Climatic Data Center Storm Event Database and 2010 Census

4.13.6 Problem Statements

Heat waves can pose a dangerous health threat to the residents of the Kansas City metropolitan area, especially at-risk population groups:

- People with medical/physical conditions or disabilities.
- People who work or conduct leisure activities outside.
- People who are difficult to reach through normal communications.
- People who elderly.
- People with a lack of access to air-conditioning or other cooling mechanisms due to low-income.

Given the locations and vulnerabilities of these populations, problem statements, such as those below, can support development of mitigation strategies for heat waves:

- If not already identified, cooling centers should be strategically located in order to maximize coverage for those citizens most vulnerable to heat waves.
- Low-income families may not have the ability to acquire air conditioning and may need alternative solutions to mitigate the dangers from heat waves (e.g., cooling centers).
- Those most vulnerable to heat waves are often the most difficult to reach with information or warnings about heat waves.

4.14 Wildland Fires

A wildland fire (also known as "wildfire") is any non-structure fire, other than prescribed fire, that occurs in the wildland. There are three types of wildland fires:[cxiii]



Ground fires—burn organic matter in the soil beneath surface litter and are sustained by glowing combustion.
Surface fires—spread with a flaming front and burn leaf litter, fallen branches and other fuels located at ground level.
Crown fires—burn through the top layer of foliage on a tree, known as the canopy or crown fires. Crown fires, the most intense type of fire and often the most difficult to contain, need strong winds, steep slopes and a heavy fuel load to continue burning.

In the Kansas City metropolitan area, wildland fires can occur in forests, woodlands, savannas and grasslands. Although wildland fires are primarily a hazard of rural areas, they can occur in urban and suburban settings with a wildland/urban interface. "Wildland/urban interface describes any area where potentially dangerous wildland fuels, such as forests, old fields, and grasslands, are found next to homes and other outbuildings. Because of their location, these structures are extremely vulnerable to fire should a wildfire occur in the surrounding area."[cxiv]

Wildland fires are caused by both natural phenomena, such as lightning strikes, and human activity, such as unattended or out-of-control brush or debris pile fires, negligence, or arson.[cxv]

4.14.1 Historical Occurrences

In the 2010 Plan update, no reliable historical data could be found for wildland fires. For this update, a wildfire database maintained by the Missouri Department of Conservation was located and used. However, only data from 2002 to the present is available. In total, 1,548 wildfires were reported in the Kansas City metro that burned a total of 13,613.17 acres.[cxvi] The vast majority of these fires were extremely small (one acre or less) and caused minor property damage (three residences damaged, one destroyed; 3,012 outbuildings damaged, eight destroyed; two commercial buildings destroyed). Fishing River Fire Protection District (Clay County) reported 29 natural cover/wildfires in 2014 that burned several hundred acres, over 60 large bales of hay and two outbuildings.

Data limitation. The monetary value of buildings damaged/destroyed is unavailable; only a count of these impacted properties was provided.[cxvii] Each of the reported fires was attributed to one of 11 cause categories. The numbers of fires attributed to each cause are listed in Table 4.14.1 below:

Table 4.14.1: Wildfire Causes in the KC Metro Area (2002–2015)

Number of Fires	Cause	Number of Fires	Cause	Number of Fires	Cause
48	Arson	22	Campfire	27	Railroad
457	Debris	35	Smoking	10	Lightning
19	Children	257	Misc.	43	Not Reported
568	Unknown	61	Equipment		

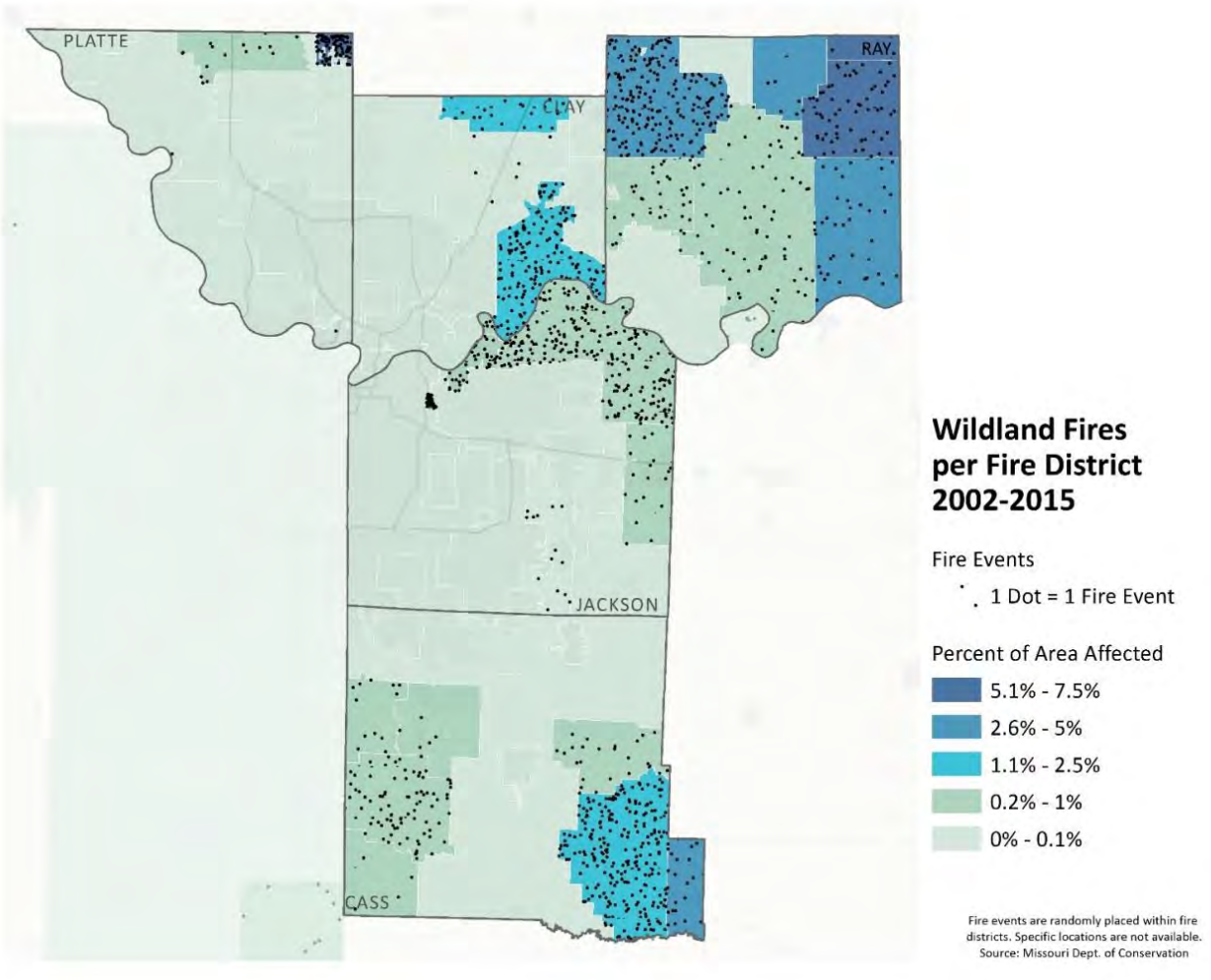
Source: MDC Fire Reporting, Online Data

Table 4.14.2 provides a summary of wildland fires by county, followed by Map 4.14.1 and Map 4.14.2 with GIS-mapped locations of wildfires from 2002 to 2015. The numbers of fires and properties damaged/destroyed within individual jurisdictions are discussed in *Section 4.14.5*.

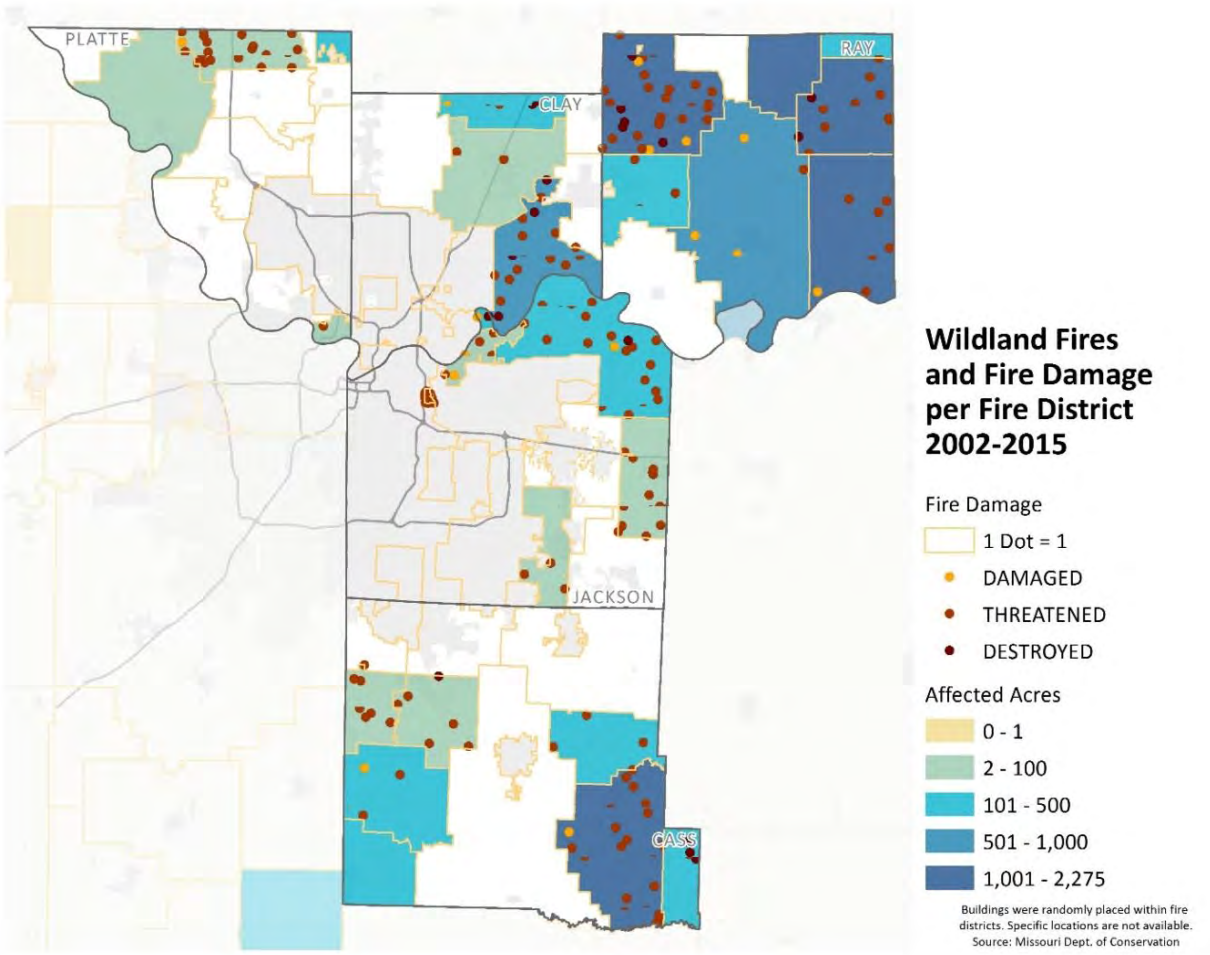
Table 4.14.2: Wildfires in the Kansas City Metro Area by County (2002–2015)

County	Total Fires	Causes		Total Acres Burnt	Property Damaged/Destroyed		
					Residences	Outbuildings	Commercial
Cass	405	15 72 0 21 81 11 64 13 1 2 8	Arson Debris Children Unknown Campfire Smoking Misc. Equipment Railroad Lightning Not Reported	2344.35	Damaged: 0 Destroyed: 0	Damaged: 3 Destroyed: 4	Damaged: 0 Destroyed:: 0
Clay	208	7 60 2 62 1 6 35 8 15 1 11	Arson Debris Children Unknown Campfire Smoking Misc. Equipment Railroad Lightning Not Reported	949.3713	Damaged: 0 Destroyed: 0	Damaged: 0 Destroyed: 6	Damaged: 0 Destroyed: 0
Jackson	380	14 127 13 116 16 7 59 16 6 1 5	Arson Debris Children Unknown Campfire Smoking Misc. Equipment Railroad Lightning Not Reported	653.09	Damaged: 2 Destroyed: 0	Damaged: 4 Destroyed: 2	Damaged: 0 Destroyed: 0
Platte	120	1 19 0 72 1 1 15 3 1 4 3	Arson Debris Children Unknown Campfire Smoking Misc. Equipment Railroad Lightning Not Reported	581.925	Damaged: 0 Destroyed: 0	Damaged: 1 Destroyed:	Damaged: 0 Destroyed: 0

Table 4.9.2 Wildfires in the Kansas City Metro Area by County (2002–2015)							
County	Total Fires	Causes		Total Acres Burnt	Property Damaged/Destroyed		
					Residences	Outbuildings	Commercial
Ray	434	11 179 4 100 3 10 84 21 4 2 16	Arson Debris Children Unknown Campfire Smoking Misc. Equipment Railroad Lightning Not Reported	9084.438	Damaged: 1 Destroyed: 1	Damaged: 3004 Destroyed: 2	Damaged: 0 Destroyed: 2



Map 4.14.1: Wildland Fires in the Kansas City Metro Area, 2002–2015 (by Fire District)



Map 4.14.2: Building Damages from Wildland Fires in K.C. Metro Area, 2002–2015 (by Fire District)

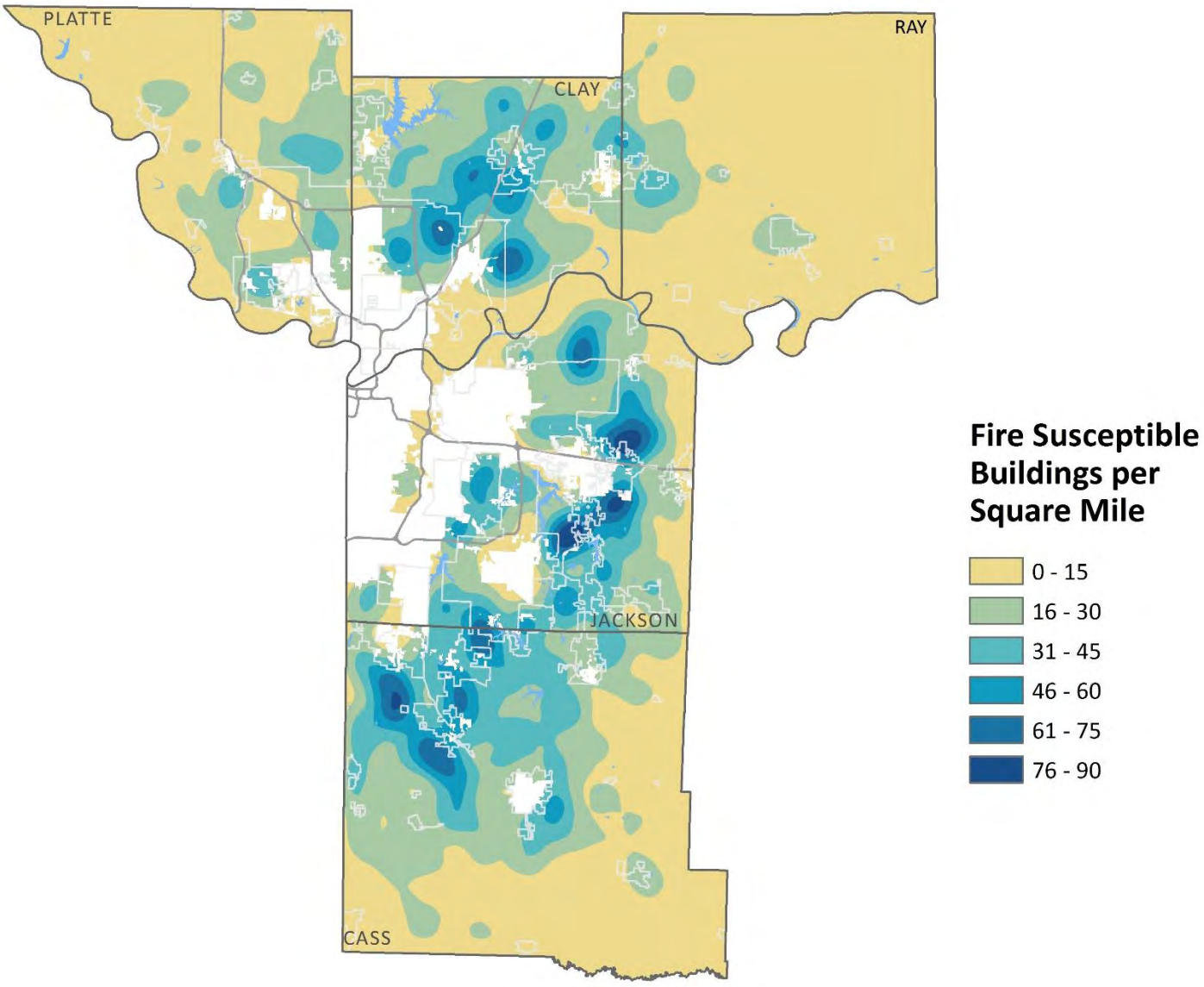
4.14.2 Probable Locations

To identify buildings susceptible to wildland fire within urban/wildland interface areas in the Kansas City metro, existing land-cover data from MARC's GIS database was used. Buildings were classified as susceptible to wildland fires if they were in a susceptible land cover patch of at least four acres, outside of the developed area, and in a large lot. 2013 land-cover classes were grouped by general fire susceptibility, where coniferous forest, herbaceous, mixed forest, shrub-scrub, and upland herbaceous/cultivated classes were considered susceptible to wildland fires. Classes considered not susceptible are barren land, impervious buildings, impervious other, lowland deciduous forest, lowland herbaceous/cultivated, not classified, upland deciduous forest, and water.

Next, buildings were filtered to exclude urban and developed areas. Buildings were selected in fire-susceptible land-cover patches of at least four contiguous acres. Since the land-cover data includes right-of-way, the data includes roads as fire breaks. The remaining buildings were selected within residential single-family land-use areas of at least 1.35 acres, within parks, and within vacant/agricultural areas. Finally, buildings within the 'redevelopment area' defined by MARC were excluded from the set of fire-susceptible buildings.

Data Limitation: Only counts of susceptible buildings by type are available in the regional building outline data used to develop the maps below and define hazard areas; therefore, the specific property value of each building identified is unavailable. Future updates will seek to identify value of susceptible buildings to better describe potential loss.

Map 4.14.3 below is the resultant density of wildland fire susceptible buildings by acre within the Plan's five counties. White areas on the map indicate developed or urban areas not susceptible to wildland fires. Using this map, susceptible building counts by jurisdiction were tabulated and used to calculate potential loss estimations for described in *Section 4.14.5* below.



Source: MARC GIS

Map 4.14.3: Buildings Susceptible to Wildland Fire in Wildland-Urban Interface Areas

4.14.3 Extent, Severity, Magnitude

Severity: Low
Magnitude: 1

Although the Kansas City area has some degree of urban-wildland interface and tracts of wooded areas, these conditions are not present across the region to the same extent as in other parts of the state, such as the south-central portion of Missouri. Based on the region's topography, supply of wildfire fuel, continuing new development near forests and grasslands and availability of firefighting resources, the future probable severity of a wildland fire in Cass, Clay, Jackson, Platte and Ray counties is low. As stated above, the vast majority of wildland fires in the region have been small and contained and there are no historical records of significant wildland fires in Cass, Clay, Jackson or Platte counties. Ray County has experienced the most buildings damaged by wildfire with a total of 3,010. However, 3,000 of these buildings were damaged in a single, 25-acre fire. The severity of future wildfires is expected to decrease with future land-use development trends and shrinking urban/wildland interfaces.

4.14.4 Probability of Future Occurrence: High

According to the Missouri State Hazard Analysis, "forest and grassland fires can occur any day throughout the year. Each year, an average of about 2,800 wildfires burn more than 43,300 acres of forest and grassland in Missouri. Most of the fires occur during the spring season, normally between February 15 and May 10. The length and severity of burning periods largely depend on the weather conditions. Spring in Missouri is noted for its low humidity and high winds. These conditions, together with below-normal precipitation and high temperatures, result in extremely high fire danger. In addition, due to the continued lack of moisture throughout many areas of the state, conditions are likely to increase the risk of wildfires. The second most critical period of the year is fall."[cxviii]

As indicated in Historical Occurrences *Section 4.14.1*, there have been 1,548 wildfires in the region over the last 13 years, making the probability of future occurrences high. The risk may increase during certain periods, such as spring, late fall, or under conditions of excessive heat, dryness or drought. These fires, however, will probably be small and will be contained and eliminated quickly, as has been the case for the overwhelming number of events over the last 13 years.

4.14.5 Wildland Vulnerability Analysis and Potential Loss Estimates

As in the 2010 Plan update, the statistical risk assessment methodology was used to calculate loss estimation for wildland fires. With the addition of historical data, this loss estimation has been improved for the 2015 Plan update. In the 2010 Plan update, total exposure of all assets in a county was used for the maximum loss estimation along with total population. However, this greatly exaggerated the potential risk of wildland fires to infrastructure, as only buildings within the wildland/urban interface are truly susceptible. To refine this risk, wildland/urban interface areas were mapped with GIS to count building infrastructure within these interfaces (see *Section 4.14.2* above). The total building count in these interface areas was then used as one of the maximum loss metrics for this 2015 update. Since there have been no reported deaths or injuries from wildfires, population was dropped as a measurement of vulnerability.

In *Section 3.3.3.a* of the 2010 Plan, separate potential loss estimates were calculated to understand potential loss in terms of building values at an individual jurisdiction level for certain "area-specific"

hazards. These hazards included flooding, dam failure, earthquakes and wildland fire. A number of discrepancies were identified with this approach in 2010. To resolve some of these discrepancies, this methodology was removed and attempts were made to better quantify potential losses where possible to these area-specific hazards. For wildland fire, since the identification of susceptible areas has much improved since the 2010 Plan, individual jurisdictions are included in the maximum and minimum loss estimations below. Since only building counts and not property valuations are available, potential losses could only be calculated using the statistical risk assessment methodology (see Table 4.14.5 for a breakdown of building type by jurisdiction). Only current participants in the Plan update are included in the tables below; non-participating jurisdictions and unincorporated areas are accounted for under each county. Participating school districts are not separately listed, but are accounted for in county data.

For the minimum loss estimation, the combined average number of buildings damaged and destroyed per fire (number of buildings damaged and destroyed divided by number of fires) was used as the annualized building loss metric, replacing the property valuations used in 2010. This was done to account for lack of actual property valuation loss amounts.

Table 4.14.3 and Table 4.14.4 provide the maximum and minimum loss estimations for wildland fires.

Table 4.14.3: Maximum Loss Estimation, Wildland Fire

Jurisdiction	Overall Risk (probability and severity)	Magnitude (percent of area affected)	Total Number Susceptible Buildings*	Maximum Loss Estimation
Kansas City	Low = 1	1	4,981 =3	1.6 = Medium
CASS COUNTY (Includes unincorporated area, school districts and non-participating jurisdictions)	Low = 1	1	15,044 = 3	1.6 = Medium
Belton	Low = 1	1	236 = 3	1.6 = Medium
Harrisonville	Low = 1	1	99 = 3	1.6 = Medium
Lake Winnebago	Low = 1	1	14 = 2	1.3 = Low
Peculiar	Low = 1	1	0 = 1	1 = Low
Pleasant Hill	Medium = 2	1	144 = 3	2 = Medium
Raymore	Low = 1	1	599 = 3	1.6 = Medium
CLAY COUNTY (Includes unincorporated area, school districts and non-participating jurisdictions)	Low = 1	1	9,261 = 3	1.6 = Medium
Excelsior Springs	Medium = 2	1	121 = 3	2 = Medium
Gladstone	Low = 1	1	0 = 1	1 = Low
Kearney	Low = 1	1	239 =3	1.6 = Medium
Liberty	Low = 1	1	562 = 3	1.6 = Medium
Mosby/Fishing River FPD	High = 3	1	15 = 2	2 = Medium
North Kansas City	Low = 1	1	0 = 1	1 = Low
Smithville	Medium = 2	1	358 = 3	1.6 = Medium

Table 4.14.3: Maximum Loss Estimation, Wildland Fire				
Jurisdiction	**Overall Risk (probability and severity)**	**Magnitude (percent of area affected)**	**Total Number Susceptible Buildings***	**Maximum Loss Estimation**
JACKSON COUNTY (Includes unincorporated area, school districts and non-participating jurisdictions)	Low = 1	1	12,901 = 3	1.6 = Medium
Blue Springs	Low = 1	1	437 = 3	1.6 = Medium
Grandview	Medium = 2	1	116 = 3	2 = Medium
Independence	Low = 1	1	1,133 = 3	1.6 = Medium
Lee's Summit	Medium = 2	1	1311 = 3	2 = Medium
Oak Grove/Sni-Valley FPD	Medium = 2	1	80 = 3	2 = Medium
Raytown	Low = 1	1	2 = 1	1.6 = Medium
PLATTE COUNTY (Includes unincorporated area, school districts and non-participating jurisdictions)	Low = 1	1	4,640 = 3	1.6 = Medium
Edgerton	Low = 1	1	35 =2	1.3 = Low
Farley	Low = 1	1	42 = 2	1.3 = Low
Ferrelview	?	1	2 =1	1 = Low
Houston Lake	Low = 1	1	1 =1	1 = Low
Lake Waukomis	Low = 1	1	0 = 1	1 = Low
Northmoor	Low = 1	1	0 = 1	1 = Low
Parkville	Low = 1	1	127 = 3	1.6 = Medium
Platte City/Northland RAD	Medium = 2	1	12 = 2	1.6 = Medium
Platte Woods	Medium = 2	1	0 = 1	1.6 = Medium
Riverside	Low = 1	1	27 = 2	1.3 = Low
Tracy	Low = 1	1	5 = 1	1 = Low
Weatherby Lake	Low = 1	1	2 =1	1 = Low
Weston/ West Platte FPD	Medium = 2	1	39 = 2	1.6 = Medium
RAY COUNTY (Includes unincorporated area, school districts and non-participating jurisdictions)	Low = 1	1	430 = 3	1.3 = Low
Richmond	Low = 1	1	1 = 1	1 = Low

*See Table 4.14.5 for susceptible buildings by type

Sources: MDC, MARC GIS

Table 4.14.4: Minimum Loss Estimation, Wildland Fire							
Jurisdiction	Overall Risk (probability and severity)	Magnitude (percent of area affected)	Annualized Loss (Average Buildings Damaged/Destroyed Divided by Number of Fires)				Minimum Loss Estimation
			Buildings Destroyed	Number of Fires	Result	Loss Rank	
Kansas City	Low = **1**	**1**	0	1	0.00	**1**	1 = Low
CASS COUNTY	Low = **1**	**1**	7	405	0.02	**1**	1 = Low
Belton	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Harrisonville	Low = **1**	**1**	1	11	0.09	**1**	1 = Low
Lake Winnebago	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Peculiar	Low = **1**	**1**	2	6	0.00	**1**	1 = Low
Pleasant Hill	Medium = **2**	**1**	0	3	0.00	**1**	2 = Medium
Raymore	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
CLAY COUNTY	Low = **1**	**1**	6	208	0.03	**1**	1 = Low
Excelsior Springs	Medium = **2**	**1**	1	22	0.05	**1**	1.3 = Low
Gladstone	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Kearney	Low = **1**	**1**	0	10	0.00	**1**	1 = Low
Liberty	Low = **1**	**1**	2	35	0.00	**1**	1 = Low
Mosby/Fishing River FPD	High = **3**	**1**	0	31	0.00	**1**	1.6 = Medium
North Kansas City	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Smithville	Medium = **2**	**1**	0	0	0.00	**1**	1.3 = Low
JACKSON COUNTY	Low = **1**	**1**	6	380	0.02	**1**	1 = Low
Blue Springs	Low = **1**	**1**	1	8	0.13	**1**	1 = Low
Grandview	Medium = **2**	**1**	0	0	0.00	**1**	1.3 = Low
Independence	Low = **1**	**1**	0	51	0.00	**1**	1 = Low
Lee's Summit	Medium = **2**	**1**	0	9	0.00	**1**	1.3 = Low
Oak Grove/Sni-Valley FPD	Medium = **2**	**1**	0	44	0.00	**1**	1.3 = Low
Raytown	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
PLATTE COUNTY	Low = **1**	**1**	1	120	0.01	**1**	1 = Low
Dearborn	Low = **1**	**1**	1	17	0.06	**1**	1 = Low
Edgerton	Low = **1**	**1**	0	55	0.00	**1**	1 = Low
Farley	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Ferrelview	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Houston Lake	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Lake Waukomis	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Northmoor	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Parkville	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Platte City/Northland RAD	Medium = **2**	**1**	0	1	0.00	**1**	1.3 = Low

Table 4.14.4: Minimum Loss Estimation, Wildland Fire							
Jurisdiction	Overall Risk (probability and severity)	Magnitude (percent of area affected)	Annualized Loss (Average Buildings Damaged/Destroyed Divided by Number of Fires)				Minimum Loss Estimation
			Buildings Destroyed	Number of Fires	Result	Loss Rank	
Platte Woods	Medium = **2**	**1**	0	0	0.00	**1**	1.3 = Low
Riverside	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Tracy	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Weatherby Lake	Low = **1**	**1**	0	0	0.00	**1**	1 = Low
Weston/ West Platte FPD	Medium = **2**	**1**	0	8	0.00	**1**	1.3 = Low
RAY COUNTY	Low = **1**	**1**	3010	434	6.94	**1**	1 = Low
Richmond	Low = **1**	**1**	0	65	0.00	**1**	1 = Low

Sources: MDC, 2010 Census

Table 4.14.5: Fire Susceptible Buildings by Type and Jurisdiction													
Jurisdiction	Commercial	Condominium	Industrial/Business Park	Multi-Family	Office	Parks, Open Space	Public/Semipublic	Right-of-Way	Railroad Right-of-Way	Single Family	Single Family Low Density	Vacant/Agriculture	Total
Cass County	23	0	6	64	0	66	8	5	0	2,907	4,665	7,300	**15,044**
Belton	3	0	3	13	0	12	1	0	0	58	33	113	**236**
Harrisonville	2	0	1	4	0	5	0	0	0	39	5	43	**99**
Lake Winnebago	0	0	0	0	0	0	0	0	0	4	0	10	**14**
Peculiar	0	0	0	0	0	0	0	0	0	0	0	0	**226**
Pleasant Hill	3	0	0	2	0	5	0	0	0	76	16	41	**143**
Raymore	2	0	2	21		17	1	1	0	240	84	231	**599**
Clay County	9	0	3	98	1	230	3	16	8	2,971	1,969	3,953	**9,261**
Excelsior Springs (pt.)	0	0	0	0	0	1	0	0	0	41	25	54	**121**
Gladstone	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Kearney	0	0	0	0	0	11	0	0	1	83	13	131	**239**
Liberty	3	0	1	0	0	26	1	0	3	228	104	196	**562**
Mosby	0	0	0	0	0	0	0	0	0	0	0	15	**15**
North Kansas City	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Smithville (pt.)	0	0	1	3	0	8	0	0	0	124	68	154	**358**
Jackson County	21	63	44	75	16	400	11	17	0	4,522	3,962	3,770	**12,901**
Blue Springs	0	0	3	14	0	9	1	0	0	213	20	177	**437**
Grandview	1	0	6	4	0	2	0	0	0	45	23	35	**116**

Table 4.14.5: Fire Susceptible Buildings by Type and Jurisdiction													
Jurisdiction	**Commercial**	**Condominium**	**Industrial/Business Park**	**Multi-Family**	**Office**	**Parks, Open Space**	**Public/Semipublic**	**Right-of-Way**	**Railroad Right-of-Way**	**Single Family**	**Single Family Low Density**	**Vacant/Agriculture**	**Total**
Independence (pt.)	0	0	2	11	2	7	0	0	0	399	353	359	**1,133**
Kansas City (pt.)	10	0	11	11	2	226	5	11	0	573	622	742	**2,213**
Lee's Summit (pt.)	2	63	6	9	12	45	1	0	0	505	247	421	**1,311**
Oak Grove (pt.)	0	0	0	3	0	3	0	0	0	29	30	15	**80**
Raytown	0	0	0	0	0	0	0	0	0	2	0	0	**2**
Platte County	3	0	4	16	2	68	4	9	0	1,487	118	2,929	**4,640**
Edgerton	0	0	0	0	0	2	0	3	0	19	2	9	**35**
Farley	0	0	0	0	0	0	0	0	0	8	8	26	**42**
Ferrelview	0	0	0	0	0	0	0	0	0	2	0	0	**2**
Houston Lake	0	0	0	0	0	0	0	0	0	1	0	0	**1**
Lake Waukomis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Northmoor	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Parkville	0	0	1	0	1	14	0	0	0	56	7	48	**127**
Platte City	0	0	0	1	0	1	0	0	0	2	0	8	**12**
Platte Woods	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Riverside	0	0	0	0	0	0	0	0	0	8	0	19	**27**
Tracy	0	0	0	0	0	0	0	0	0	0	4	1	**5**
Weatherby Lake	0	0	0	0	0	0	0	0	0	2	0	0	**2**
Weston	0	0	1	0	0	6	0	0	0	21	7	4	**39**
Ray County	0	0	0	0	0	0	0	0	0	0	207	223	430
Richmond	0	0	0	0	0	0	0	0	0	0	0	1	1

4.14.6 Problem Statements

The greatest known cause of wildfires across the region is debris buildup on private property, with a total of 457 wildfires attributed to this cause. Problem statements, such as those below, can support development of mitigation strategies for wildland fires:

- Some communities may not have burn bans or property ordinances. Where they don't exist or are ineffective, burn bans or property ordinances should be reviewed/adopted to dissuade debris buildup.
- Certain incentives for property owners can help ensure debris piles are managed; some communities may not have the ability to provide incentives.
- Targeted public information campaigns should focus on the threats of wildland fires and preventive measures.

4.15 Earthquakes



According to the United States Geological Survey (USGS), "earthquake is a term used to describe both sudden slip on a fault, and the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth"[cxix]. In an earthquake, the amount of shaking is controlled by the magnitude of the event, the distance of the affected area from the epicenter and the type of soil in the affected area.

The shaking can last from a few seconds up to five minutes and can cause ground failure, landslides, liquefaction, uplifts and sand blows. It is also common for earthquakes to have aftershocks, which are essentially smaller earthquakes that follow the main shock of an earthquake sequence. Aftershocks normally occur within one to two fault lengths distance from the main shock fault and may continue for weeks, months or years after the initial main shock. In general, the larger the main shock of an earthquake, the larger and more numerous the aftershocks, and the longer they will continue.[cxx]

The earth's crust is made up of gigantic "plates," commonly referred to as tectonic plates. These tectonic plates form the lithosphere — the outer solid part of the earth, including the crust and upper mantle — and vary in thickness from 6.5 miles (beneath oceans, for example) to 40 miles (beneath mountain ranges), with an average thickness of 20 miles. The tectonic plates float over a partly melted layer of crust called the asthenosphere. Boundaries are formed where one tectonic plate meets another. Convergent plate boundaries occur where tectonic plates move toward each other; divergent plate boundaries exist where the plates move away from each other.[cxxi]

Plate movements release built-up energy in the form of earthquakes, tremors and volcanic activity. Fault lines such as the San Andreas come all the way to the surface and can be readily seen and identified. Some fault lines do not come all the way to the surface, yet all faults store and release energy when they move. Many of the faults in the central United States are characterized this way.[cxxii]

Subterranean faults, or faults that do not make it to the surface, were formed many millions of years ago on or near the surface of the earth. Subsequent to that time, these ancient faults subsided, while the adjacent areas were pushed up. As this fault zone (also known as a rift) sank, sediments filled in the lower areas. Under pressure, sediments hardened into limestone, sandstone and shale, thus burying the rifts. With the pressure on the North Atlantic Ridge affecting the eastern side of the North American Plate, and the movements along the San Andreas Fault by the Pacific Plate, one such rift system in the Mississippi embayment has reactivated. This particular rift system is now called the Reelfoot Rift. Eight earthquake seismic zones are located in the central United States, two of which are located in Missouri. The most active zone is the New Madrid Seismic Zone, which is also the most active seismic area in the United States east of the Rocky Mountains, according to the U.S. Geological Survey. By some measures, the New Madrid Zone has as high a risk for tremors as seismic zones in California. It runs from northern Arkansas through southeast Missouri and western Tennessee and Kentucky to the Illinois side of the Ohio River Valley.[cxxiii]

The southeastern (Bootheel) section of Missouri is most susceptible to earthquakes because it overlies the New Madrid Seismic Zone. It is at risk to strong ground motions and has a high potential for soil liquefaction due to the presence of sandy, loosely consolidated sediments and a high water table. The

immediate vicinity of the Ozarks is also at risk from earthquakes in the New Madrid Seismic Zone because, like in the Bootheel, subsurface conditions of the Mississippi and Missouri river valleys tend to amplify earthquake ground shaking. Earthquake hazards in the western part of the state also exist because of the historical earthquakes in eastern Kansas and Nebraska. No area of Missouri is immune from the danger of earthquakes. Minor, but potentially damaging, earthquakes can occur anywhere in the state.[cxxiv]

In addition to the New Madrid Seismic Zone, other seismic zones that affect Missourians and potentially the Kansas City region include the Wabash Valley Seismic Zone, the South Central Illinois Seismic Zone, and the Nemaha Uplift. The Wabash and Illinois seismic zones are not as active as the New Madrid Seismic Zone based on microseismic activity, but they are considered capable of producing earthquakes in the range of M 6.0 to 6.8. An earthquake of this magnitude on the South Central Illinois Seismic Zone could potentially cause more damage to the St. Louis metropolitan area than a New Madrid Seismic Zone event. This is because St. Louis metropolitan area is closer to the South Central Illinois Seismic Zone than it is to the New Madrid Zone. The Nemaha Uplift is of concern to Missourians because it runs parallel to the Missouri/Kansas border from Lincoln, Nebraska, to Oklahoma City, Oklahoma. Earthquakes from the Nemaha Uplift are not as severe as those associated with the historic New Madrid Seismic Zone.[cxxv]

The specific hazards associated with earthquakes include ground shaking, landslides, liquefaction and amplification. The severity of these hazards depends on several factors, such as soil and slope conditions, an affected area's proximity to the fault and earthquake magnitude. Ground shaking is the motion felt on the Earth's surface; it is caused by seismic waves generated by the earthquake and is the primary cause of earthquake damage. The strength of ground shaking depends on the magnitude of the earthquake, the type of fault producing the earthquake and the affected area's distance from the earthquake's epicenter (i.e., the origination point of the earthquake). Buildings and infrastructure on poorly consolidated and thick soils will typically incur more damage than buildings and infrastructure on consolidated soils and bedrock.[cxxvi]

Liquefaction is a phenomenon where saturated sand and silt take on the characteristics of a liquid during the intense shaking of an earthquake. The highest hazard areas are concentrated in regions of man-made landfill, especially fill that was placed many decades ago in areas that were once submerged bay floor. Other potentially hazardous areas include larger stream channels, which produce the loose young soils that are particularly susceptible to liquefaction.[cxxvii]

Amplification occurs when shaking levels at a site are increased by the focusing of seismic energy caused by the geometry of the sediment velocity structure, such as basin subsurface topography, or by surface topography.[cxxviii]

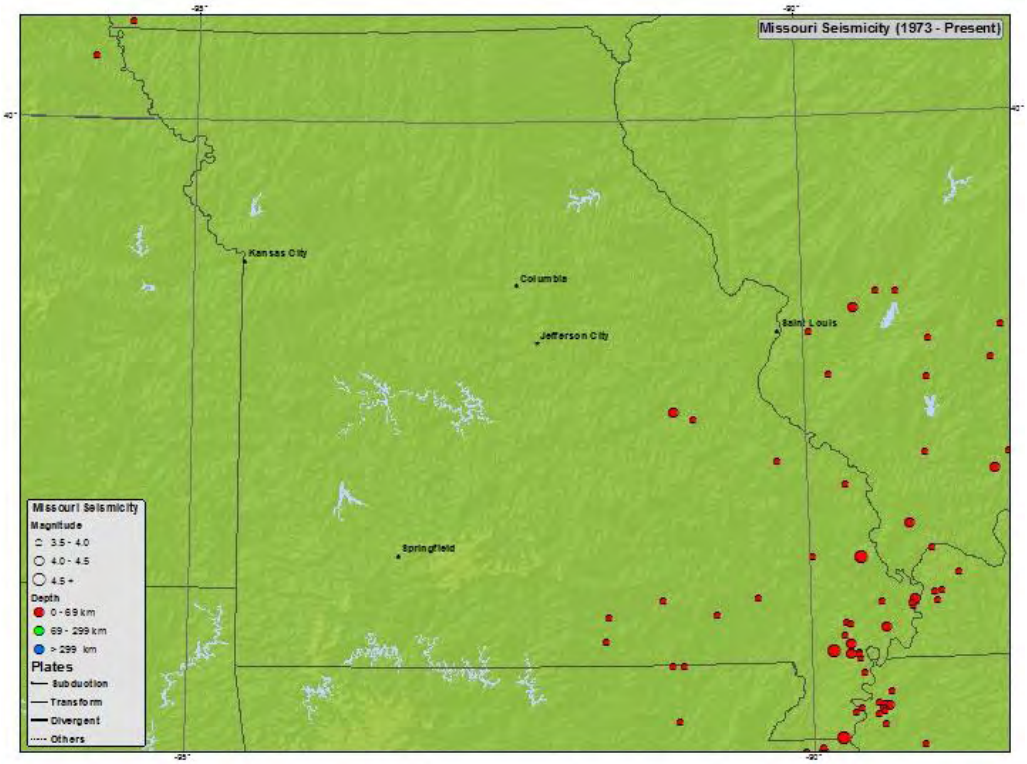
4.15.1 Historical Occurrences

According to the USGS National Earthquake Information Center, there are no historic occurrences of earthquakes in which the Kansas City region was an epicenter or directly impacted. There have been several earthquakes in the central United States that have affected Missouri, and to a lesser extent, the Kansas City region. Table 4.15.1 below lists these earthquakes and Map 4.15.1 displays seismic activity in Missouri from 1973 to 2015.

Table 4.15.1: Earthquakes Occurring in the Central United States Affecting Missouri (1811–2012)				
DATE	**LOCALITY**	**MAGNITUDE**	**MAXIMUM INTENSITY**	**SOURCE ZONE**
December 16, 1811	New Madrid, MO	7.7	XII	New Madrid Fault
January 23, 1812	New Madrid, MO	7.7	XII	New Madrid Fault
February 7, 1812	New Madrid, MO	7.7	XII	New Madrid Fault
June 9, 1838	Southern Illinois	5.7	VI	Illinois Basin
January 4, 1843	Western Tennessee	6.3	VIII	New Madrid Fault
Unknown, 1860	Central Minnesota	5.0	Unknown	Colorado Lineament
August 17, 1865	Southeastern Missouri	5.3	VII	New Madrid Fault
April 24, 1867	Lawrence, KS	5.1	VII	Nemaha Uplift
June 18, 1875	Western Ohio	5.3	VII	Cincinnati Arch
November 15, 1877	Eastern Nebraska	5.0	VII	Nemaha Uplift
October 22, 1882	Arkansas - Texas	5.5	VI - VII	Ouchita - Wichita Fault
July 26, 1891	Illinois - Indiana	5.9	VI	Wabash Valley Fault
October 31, 1895	Charleston, MO	6.7	VIII	New Madrid Fault
May 26, 1909	Illinois	5.1	VII	Cincinnati Arch
April 9, 1917	Eastern Missouri	5.0	VI	St. Francois Uplift
March 8, 1937	Western Ohio	5.0	VII - VIII	Cincinnati Arch
April 9, 1952	Enid, OK	5.1	VII	Nemaha Uplift
November 9, 1968	South Central IL	5.5	VII	Wabash Valley Fault
March 24, 1976	Marked Tree, AR	5.0	V – VI	New Madrid Fault
July 27, 1980	North Central Kentucky	5.2	VII	Cincinnati Arch
January 31, 1986	Anna, OH	5.0	VI	Cincinnati Arch
June 9, 1987	Lawrenceville, IL	5.2	V – VI	Wabash Valley Fault
September 26, 1990	New Hamburg, MO	4.8	IV – V	New Madrid Fault
May 3, 1991	Risco, MO	4.6	IV – V	New Madrid Fault
June 26, 2000	Harrison, AK	3.9	VIII	Ouchita – Wichita Fault
December 7, 2000	Evansville, IN	3.9	V	Wabash Valley Fault
May 4, 2001	Conway, AR	4.4	VI	Ouchita - Wichita Fault
February 8, 2002	Lewton, OK	3.9	V	Nemaha Uplift
June 18, 2002	Evansville, IN	4.6	VI	Wabash Valley Fault
November 3, 2002	O'Neill, NE	4.3	V	Nemaha Uplift
June 6, 2003	Cairo, IL	4.0	VI	New Madrid Fault
August 16, 2003	West Plains, MO	4.0	V	New Madrid Fault
June 15, 2004	Sikeston, MO	3.7	V	New Madrid Fault
June 28, 2004	Ottawa, IL	4.2	VI	Illinois Basin
September 17, 2004	Middlesboro, KY	3.7	V	New Madrid Fault
February 10, 2005	Blytheville, AR	4.1	V	New Madrid Fault
May 1, 2005	Blytheville, AR	4.1	V	New Madrid Fault
June 2, 2005	Dyersburg, TN	4.0	IV	New Madrid Fault
August 24, 2005	Greeneville, TN	3.7	IV	New Madrid Fault
January 2, 2006	Harrisburg, IL	3.6	II-III	Wabash Valley Fault
April 18, 2008	Ogden, IL	4.6	VI	Wabash Valley Fault
April 21, 2008	Gards Point, IL	4.0	V	Wabash Valley Fault
April 25, 2008	Ogden, IL	3.7	V	Wabash Valley Fault
February 10, 2010	Maple Park, IL	3.8	V	Unidentified
March 2, 2010	East Prairie, MO	3.7	IV	New Madrid Fault
October 11, 2010	Guy, AR	4.0	V	Guy-Greenbriar Fault
October 11, 2010	Guy, AR	3.6	V	Guy-Greenbriar Fault

Table 4.15.1: Earthquakes Occurring in the Central United States Affecting Missouri (1811–2012)				
DATE	**LOCALITY**	**MAGNITUDE**	**MAXIMUM INTENSITY**	**SOURCE ZONE**
October 15, 2010	Bald Knob, AR	3.8	IV	Guy-Greenbriar Fault
October 16, 2010	Guy, AR	3.5	IV	Guy-Greenbriar Fault
November 20, 2010	Old Texas, AR	3.9	V	Guy-Greenbriar Fault
February 16, 2011	Greenbriar, AR	3.5	IV	Guy-Greenbriar Fault
February 17, 2011	Greenbriar, AR	3.8	IV	Guy-Greenbriar Fault
February 18, 2011	Greenbriar, AR	3.9	V	Guy-Greenbriar Fault
February 18, 2011	Greenbriar, AR	4.1	IV	Guy-Greenbriar Fault
February 20, 2011	Greenbriar, AR	3.6	IV	Guy-Greenbriar Fault
February 25, 2011	Greenbriar, AR	3.6	IV	Guy-Greenbriar Fault
February 28, 2011	Greenbriar, AR	4.7	V	Guy-Greenbriar Fault
February 28, 2011	Greenbriar, AR	3.8	V	Guy-Greenbriar Fault
March 3, 2011	Greenbriar, AR	3.5	IV	Guy-Greenbriar Fault
March 9, 2011	Greenbriar, AR	3.5	IV	Guy-Greenbriar Fault
April 7, 2011	Greenbriar, AR	3.9	V	Guy-Greenbriar Fault
April 8, 2011	Greenbriar, AR	3.9	V	Guy-Greenbriar Fault
April 8, 2011	Greenbriar, AR	3.5	V	Guy-Greenbriar Fault
June 7, 2011	Sullivan, MO	3.9	V	Unidentified
September 22, 2011	Grandin, MO	3.6	IV	Unidentified
February 21, 2012	East Prairie, MO	3.9	IV	New Madrid Fault
October 29, 2012	Parkin, AR	3.9	VI	New Madrid Fault

Source: SEMA State Hazard Analysis, Section F (2013)



Source: USGS NEIC Website

Map 4.15.1: Seismic Activity in Missouri from 1973 to 2015

4.15.2 Probable Locations

While the entire region is susceptible to the effects of an earthquake, given the region's distance from major fault lines, the direct impacts will likely be minor.

4.15.3 Extent, Severity, Magnitude

Severity: Low
Magnitude: 1

Based on the Projected Earthquake Intensities map and Modified Mercalli damage scale, the future probable severity for each earthquake level is shown below (based on a hypothetical 7.6 magnitude earthquake occurring anywhere along the New Madrid seismic zone):

Modified Mercalli Level	Future Probable Severity
Modified Mercalli levels I-V	Low
Modified Mercalli levels VI	Low
Modified Mercalli levels VII	Low
Modified Mercalli levels VIII-XIII	Low

History has shown that the built environment of the Kansas City area may be susceptible to earthquakes emanating from seismic zones and faults some distance away from the region, such as the New Madrid seismic zone in southeastern Missouri and the Nemaha Uplift and its Humbolt Fault in eastern Kansas. The effects of an earthquake can be widespread, and an earthquake occurring along many of the known faults affecting Missouri or Kansas might be felt, and possibly have damaging effects, in the Kansas City area.

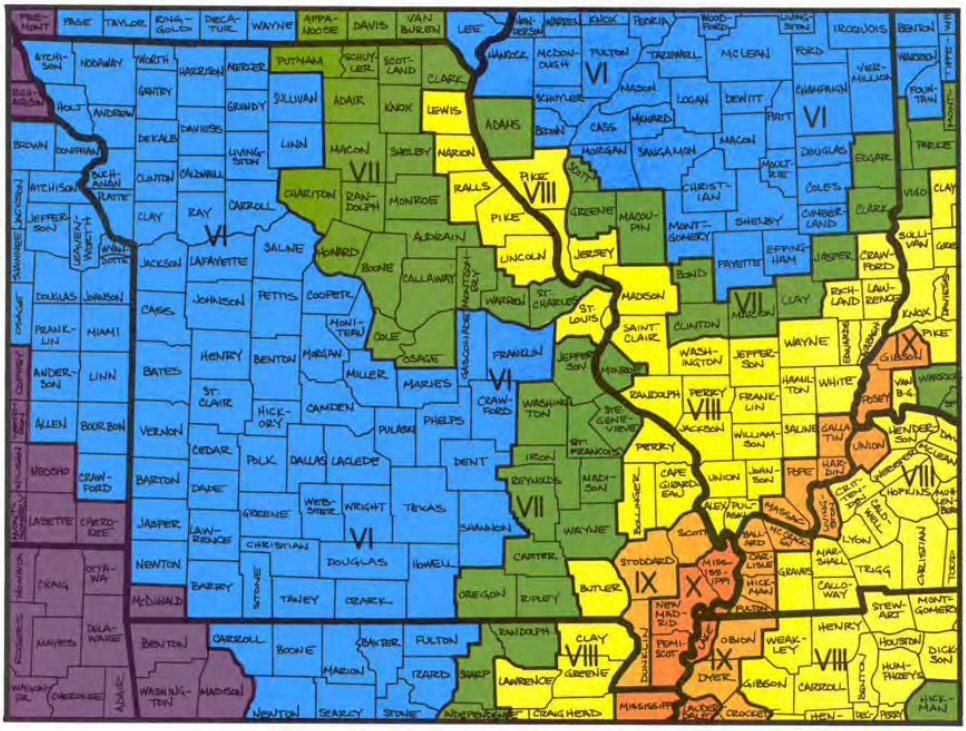
The degree to which earthquakes are felt in the Kansas City metro area and the damage associated with them vary, and are based on factors such as the magnitude and/or intensity of the earthquake, duration of the shock or shocks, proximity of the earthquake's epicenter to the Kansas City metropolitan area and the ability of structures and infrastructure to withstand seismic activity. In general, many elements of the built environment in the region may be susceptible to earthquake damage, such as old commercial and residential buildings (particularly those made from unreinforced masonry or stone); bridges, train trestles and overpasses; water, sewer, natural gas, petroleum and other pipelines, hazardous materials facilities; dams; and other critical facilities and infrastructure.

The potential damage associated with the various earthquake intensities (V through X) of the Modified Mercalli Intensity Scale are listed below (SEMA State Hazard Analysis, F-5):

Intensity	Potential Damage
V	Almost everyone feels movement. Most people are awakened. Doors swing open or closed. Dishes and glassware are broken. Pictures on the wall move. Windows crack in some cases. Small objects move or are turned over. Liquids may spill out of open containers.

VI	Everyone feels movement. Poorly constructed buildings are slightly damaged. Considerable quantities of dishes and glassware, and some windows, are broken. People have difficulty walking. Pictures fall off walls and objects fall from shelves. Plaster walls may crack. Some furniture is overturned. Small bells in churches, chapels and schools ring.
VII	People have difficulty standing. Poorly built or badly designed buildings, adobe houses, old walls, spires and other structures suffer considerable damage. Damage is slight to moderate in well-built buildings. Numerous windows are broken. Weak chimneys break at roof lines. Cornices from towers and high buildings fall. Loose bricks fall from buildings. Heavy furniture is overturned and damaged. Some sand and gravel stream banks collapse.
VIII	Drivers have trouble steering their vehicles. Poorly built structures suffer severe damage. Substantial buildings partially collapse. Damage is slight in structures built to withstand earthquakes. Tree branches break. Houses not bolted to their foundations may shift. Tall structures, such as towers and chimneys, may twist and collapse. Springs and wells may experience temporary or permanent changes. Sand and mud is ejected in small amounts.
IX	Most buildings suffer damage. Houses that are not bolted down move off their foundations. Some underground pipes are broken. The ground cracks conspicuously. Dams and reservoirs suffer severe damage.
X	Well-built wooden structures are severely damaged or destroyed. Most masonry and frame structures are destroyed, including their foundations. Some bridges are destroyed. Dams are seriously damaged. Large landslides occur. Water is thrown on the banks of canals, rivers, and lakes. Railroad tracks are bent slightly. Cracks are opened in cement pavements and asphalt road surfaces.

As an example of the potential effects an earthquake might have on the Kansas City metropolitan area, Map 4.15.2, from the Missouri State Hazard Mitigation Plan, depicts the projected intensities by county of a hypothetical 7.6 magnitude earthquake occurring anywhere along the New Madrid seismic zone. As indicated in Hazard Identification *Section 4.15* above, the New Madrid Fault is the most active seismic zone affecting Missouri.



Source: Missouri State HMP

Map 4.15.2: Projected Modified Mercalli Intensities from a 7.6 Magnitude Earthquake Along the New Madrid Seismic Zone

Based on this projection, the Kansas City metropolitan area would experience minor damage associated with an earthquake of intensity VI on the Modified Mercalli Scale. In this scenario, virtually everyone in the Kansas City metropolitan area would feel movement, and people would have difficulty walking. Poorly constructed buildings, buildings made from unreinforced masonry, and buildings that are old might be slightly damaged. Plaster walls might crack. Considerable quantities of dishes and glassware, and some windows could be broken. Pictures could fall off walls, objects could fall from shelves and furniture might be overturned.

4.15.4 Probability of Future Occurrence: Low

Scientists from the USGS and the Center for Earthquake Research and Information at the University of Memphis have updated their expectations for earthquakes in the New Madrid Seismic Zone. The new forecasts estimate a 7 to 10 percent chance, in the next 50 years, of a repeat of a major earthquake like those that occurred in 1811–1812, which likely had magnitudes of between 7.5 and 8.0. Based on the history of seismic activity along the New Madrid Fault Zone and the January 2003 USGS probability estimates, the Kansas City metropolitan area has a 25 to 40 percent chance of experiencing an earthquake of magnitude 6.0 or greater in the next 50 years.[cxxix]

According to USGS scientist Eugene Schweig:

> "More than fifteen years of research has given us the information to allow us to update our forecasts. But even though the chances of a mid-sized earthquake are reduced, the chances of a devastating earthquake in the region have risen.

> Given this new information, people should *absolutely not* drop their guard. The threat of an earthquake to Mid-America is still very real."[cxxx]

Minor earthquakes occurring along the New Madrid Fault Zone are normally not noticeable in the Kansas City metropolitan area because the region is located quite far from this area of seismic activity. A more significant threat to the region exists from an earthquake producing Modified Mercalli impact levels of VI to XIII. Because of the Kansas City metropolitan area's distance from the New Madrid Fault Zone, even an earthquake producing a Modified Mercalli impact level of VI would have relatively limited consequences for the metropolitan area. The probable risk of an earthquake for the Kansas City metropolitan area is estimated as:

Modified Mercalli Level	Future Probable Severity
Modified Mercalli levels I-V	Unlikely
Modified Mercalli levels VI	Possible to Likely
Modified Mercalli levels VII	Possible
Modified Mercalli levels VIII-XIII	Possible

4.15.5 Earthquake Vulnerability Analysis and Potential Loss Estimates

The state of Missouri, in the 2013 update to its State Hazard Mitigation Plan (*Section 3.5.4*), used HAZUS 2.1 to analyze vulnerability and estimate losses to earthquakes. The HAZUS runs included the counties of Cass, Clay, Jackson, Platte and Ray in the Kansas City region. The state's results and methodologies have been reproduced and quoted below to estimate loss from earthquakes for the planning area. Table and figure numbers have been changed to correspond to sequencing in this plan, and data not relevant to the planning area has been deleted:

> "All HAZUS analyses were run using an enhanced, Level 2 inventory database comprised of updated demographic and aggregated data based on the 2010 census. Additionally, site-specific essential facility data was updated based on 2011 HSIP inventory data. An annualized loss scenario that enabled an "apples to apples" comparison of earthquake risk for each county was run. A second scenario, based on an event with a 2% probability of exceedance in 50 years, was done to model a worst case earthquake using a level of ground shaking recognized in earthquake-resistant design. The Central United States Earthquake Consortium provided state-wide National Earthquake Hazards Reduction Program (NEHRP) site classification and soil liquefaction characteristics…These data sets were used as additional, Level 2 data inputs to enhance the accuracy of earthquake hazard modeling. It should be noted that some of the National Earthquake Hazard Reduction Program (NEHRP) site classification attributes were slightly altered for incorporation into the HAZUS platform. Areas that were classified as 'C to D' were re-attributed as 'D' since in these instances HAZUS does not allow the data in its original format.

Annualized Loss Scenario

The results of the updated annualized loss scenario [for the Kansas City metro counties] are shown in Table 4.15.2. HAZUS defines annualized loss as the expected value of loss in any one year. The software develops annualized loss estimates by aggregating the losses and their exceedance probabilities from the eight return periods. Annualized loss is the maximum potential annual dollar loss resulting from various return periods averaged on a 'per year' basis. It is the summation of all HAZUS-supplied return periods multiplied by the return period probability (as a weighted calculation). This is the scenario that FEMA uses to compare relative risk from earthquakes and other hazards at the county level nationwide. The trend shows dollar losses to be most significant in the southeastern portion of the State and in the urbanized areas near St. Louis. This is consistent with the southeastern portion of the State's proximity to the New Madrid Seismic Zone and the fact that the more developed areas in the region are likely to suffer the most building losses, particularly where there are large numbers of unreinforced masonry buildings.

Included in the table are the annualized loss ratio and a ranking based on this loss ratio. The loss-ratio column in Table 4.15.2 represents the ratio of the average annualized losses divided by the entire building inventory by county as calculated by HAZUS. The loss ratio is an indication of the economic impacts an earthquake could have, and how difficult it could be for a particular community to recover from an event.[cxxxi]

Table 4.15.2: HAZUS Earthquake Loss Estimation: Annualized Loss Scenario

County	Building Loss Total ($)*	Loss Ratio %**	Income Loss Total ($)*	Total Economic Loss to Buildings ($)*	Loss Ratio Rank
Cass	99	0.00	21	120	101
Clay	208	0.00	53	261	96
Jackson	776	0.00	219	995	80
Platte	78	0.00	18	96	58
Ray	20	0.00	4	24	53

Source: HAZUS 2.1

*All $ values are in thousands.

**Loss ratio is the sum of structural and nonstructural damage divided by the entire building inventory value within a county.

Note: Total loss numbers provide an estimate of total losses and due to rounding; these numbers may differ slightly from the global summary report outputs from HAZUS.

2% Probability of Exceedance in 50 Years Earthquake Scenario

"A second scenario, based on an event with a 2% probability of exceedance in 50 years, was done to model a worst case scenario. The methodology is based on probabilistic seismic hazard shaking grids developed by the U.S. Geological Survey (USGS) for the National Seismic Hazard Maps that are included with HAZUS. The USGS maps provide estimates of peak ground acceleration and spectral acceleration at periods of 0.3 second and 1.0 second, respectively, which have a 2% probability of exceedance in the next 50 years. The International Building Code uses this level of ground shaking for building design in seismic areas. This scenario

used a 7.7 driving magnitude in HAZUS-MH, which is the magnitude used for typical New Madrid fault planning scenarios in Missouri. While the 2% probability of exceedance in the next 50 years ground motion maps incorporate the shaking potential from all faults with earthquake potential in and around Missouri, the most severe shaking is predominately generated by the New Madrid Fault.

The results of this probabilistic scenario include total [statewide] losses exceeding $65 billion in building and income losses, with overall economic losses exceeding $77 billion. Over 20 percent (%) of the total number of buildings in the State would be at least moderately damaged. 19 percent (%) of the building and income losses would be related to business interruption.

HAZUS estimates direct damage to structural and non-structural building components separately. Structural components are the walls, columns, beams and flood systems that are responsible for holding up the building. In other words, the structural components are the gravity and lateral load resisting systems. Non-structural building components include building mechanical/electrical systems and architectural components such as partition walls, ceilings, windows and exterior cladding that are not designed as part of the building load carrying system. Equipment that is not an integral part of the building, such as computers, is considered building contents. Damage to structural components affects other losses differently than damage to non-structural components. For example, if the ceiling tiles fall down in a building, business operations can probably resume once the debris is removed. On the other hand, if a column in a building is damaged, there is a life safety hazard until the column is repaired or temporarily shored, possibly resulting in a long-term disruption.

Table 4.15.3 depicts loss ratio by county [for the Kansas City metro], which is the ratio of the building structure and nonstructural damage to the value of the entire building inventory. The loss ratio is a measure of the disaster impact to community sustainability, which is generally considered at risk when losses exceed 10 percent of the built environment (FEMA). Limitations to the HAZUS loss modeling include inability to accurately assess the impact to long-span bridges, such as those crossing the Mississippi River. Damage to major infrastructure, such as power and other utility distribution systems, is estimated based on a proxy of the population within the study area and not on actual data representing these systems. Improvements to future HAZUS software versions and data sets may include using more extensive geologic mapping (as it becomes available), using more extensive ground shaking mapping, adding utilities infrastructure, and adding groundwater depth maps to the analysis."[cxxxii]

Table 4.15.3: HAZUS-MH Earthquake Loss Estimation: 2% Probability of Exceedance in 50 Years Building Impacts by County, Ranked by Highest Building Losses

County	Structural Damage ($)*	Nonstructural Damage ($)* Contents	Damage and Inventory Loss ($)*	Loss Ratio (%)**	Income Loss ($)*	Total Economic Loss to Buildings ($)*,***	Loss Ratio Rank
Cass	18,117	53,639	16,034	0.70	15,836	103,626	90

Table 4.15.3: HAZUS-MH Earthquake Loss Estimation: 2% Probability of Exceedance in 50 Years Building Impacts by County, Ranked by Highest Building Losses							
County	Structural Damage ($)*	Nonstructural Damage ($)* Contents	Damage and Inventory Loss ($)*	Loss Ratio (%)**	Income Loss ($)*	Total Economic Loss to Buildings ($)*,***	Loss Ratio Rank
Clay	40,171	118,189	37,672	0.63	43,229	239,261	96
Jackson	139,943	427,463	144,419	0.68	174,461	886,286	92
Platte	15,151	46,173	13,993	0.60	15,157	90,474	98
Ray	3,950	11,217	3,288	0.64	3,694	22,149	95

Source: HAZUS 2.1

*All $ values are in thousands.

**Loss ratio is the sum of structural and nonstructural damage divided by the entire building inventory value within a county.

***Total economic loss to buildings includes inventory loss, relocation loss, capital-related loss, wages loss, and rental income loss.

Note: Total loss numbers provide an estimate of total losses and due to rounding; these numbers may differ slightly from the global summary report outputs from HAZUS.

"Table 4.15.4 shows social impact estimates by county for the same event. Table 4.15.5provides definitions for casualty severity, displaced households, and short-term shelter needs as used in Table 4.15.4. Casualties resulting from an earthquake will vary depending on if the earthquake occurs during the middle of the night, middle of the day, or rush hour. HAZUS provides casualty estimates for three different times of day: 2 a.m., 2 p.m., and 5 p.m. Table 4.15.4 represents the 2 a.m. timeframe. This scenario models the earthquake at 2am, when Missouri residents are in their homes and not at their workplace. During any given day or week, people spend more time in their homes than they do in their workplace; this scenario produces the most accurate social impact analysis. The MMI Zone is the Modified Mercalli Intensity Zone classification determined according to PeakGround Acceleration (PGA). The MMI zones I-XII indicate potential damage classifications which range from none to very heavy. Additional details on each MMI Zone are included in *Section 4.15.3*.[cxxxiii]"

Table 4.15.4: Social Impact Estimates by County from the 2% Probability of Exceedance in 50 Years Scenario 2 a.m. time of occurrence								
County	MMI Zone	Casualty Severity					Displaced Households	Short-Term Shelter Needs
		Level 1	Level 2	Level 3	Level 4	Total		
Cass	V	21	3	0	0	24	27	15
Clay	V	41	6	1	1	49	79	43
Jackson	V	160	22	2	4	188	325	204
Platte	V	16	2	0	0	18	41	21
Ray	V	5	1	0	0	6	6	4

Table 4.15.5: Social Impact Estimate Category Definitions	
Casualty Severity Level 1	Injuries will require medical attention but hospitalization is not needed.
Casualty Severity Level 2	Injuries will require hospitalization but are not considered life-threatening.
Casualty Severity Level 3	Injuries will require hospitalization and can become life threatening if not promptly treated.
Casualty Severity Level 4	Victims are killed by the earthquake.
Displaced Households	The number of households that are expected to be displaced from their homes due to the earthquake.
Short-Term Shelter Needs	The number of displaced people that will require accommodations in temporary public shelters.

4.15.5a Changes to Potential Loss Estimation from 2010 Plan

In *Section 3.3.3.a* of the 2010 Plan, potential loss estimates were calculated to understand potential loss in terms of building values on an individual jurisdiction level for certain area- specific hazards. These hazards included flooding, dam failure, earthquakes and wildland fire. For this 2015 update, earthquakes were removed as an area- specific hazard, given the reality that the entire planning is in a Modified Mercalli Zone VI, and no one jurisdiction is more susceptible to the effects of an earthquake than another. This is supported by the results of the Annualized Loss Scenario presented in Table 4.15.2 above, where the relatively minor projected damage simply corresponds to the differences in property valuations between each county, where Jackson has the highest building stock value and Ray the lowest. For this reason, potential loss is best characterized on a county level.

4.15.6 Problem Statements

Given the Kansas City metro's distance from major fault lines and the predictions of HAZUS-MH modeling, there are likely to be insignificant direct impacts from earthquakes in the Kansas City metro. However, depending upon severity, there is potential for building damage. More likely, jurisdictions in the planning area will be significantly impacted from the secondary effects of earthquakes—evacuee reception and care, resource allocation, disruption of services from impacted infrastructure in the eastern part of the state.
Problem statements, such as those below, can support development of mitigation strategies for earthquakes:

- Numerous emergency shelters equipped with backup powered will be needed to meet the mass care needs of evacuees from a New Madrid earthquake.
- Some critical facilities may be potentially at-risk for structural damage due to earthquakes.
- Injuries may occur from hazards within buildings if a large-scale earthquake in the New Madrid Seismic Zone is felt in the Kansas City region.

4.16 Emerging and Re-Emerging Infectious Diseases

Microorganisms, such as bacteria, viruses, parasites, fungi or prions, are all around in our environment. They can be found on and in our bodies. Most of them are either harmless or actually helpful in the natural functions of our bodies and our environment. However, some of these organisms are pathogenic, meaning that they cause or are capable of causing disease. *Infectious diseases* are caused by these pathogenic organisms and they can be spread from person to person either directly or indirectly.[cxxxiv] Direct transmission of disease occurs when there is actual physical contact with an infected person or his/her blood or bodily fluids. Indirect transmission of disease occurs when there isn't person-to-person contact but rather when an infected person contaminates a surface by sneezing or coughing, etc., and a non-infected person comes into contact with the infected surface. Another means of indirect transmission includes vectors, such as mosquitoes, flies, mites, ticks, fleas, rodents or dogs, which may carry the pathogenic microorganism and transmit it to people through a bite. *Zoonotic diseases* are infectious diseases that can cause disease when transmitted to humans. The microorganisms mutate in a fashion that makes them able to infect and cause illness in humans.

Infectious diseases can occur as primary events by themselves, or they may be a cascading result of other disasters such as tornadoes, floods or severe winter weather. These diseases can vary in severity and magnitude from localized outbreaks to pandemics. Infectious diseases contributed to three of the top 10 leading causes of death worldwide (lower respiratory infections, HIV/AIDS, and diarrheal disease) in 2012 (Figure 4.16.1). Combined, lower respiratory tract infections, diarrheal diseases, HIV/AIDS, tuberculosis, and malaria account for one-fifth of deaths globally.[cxxxv]

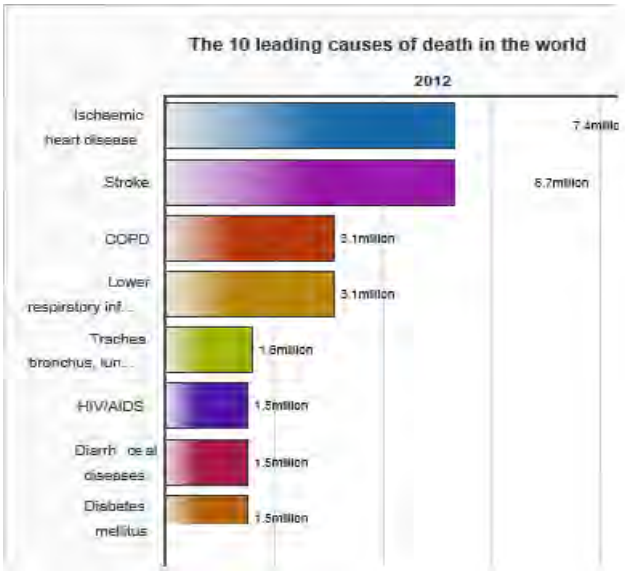


Figure 4.16.1: 10 Leading Causes of Death in the World[cxxxvi]

During the first three quarters of the 20th century in Western countries, the impact of infectious diseases diminished greatly due to improved sanitation and housing conditions, personal hygiene, vaccinations, and the use of antibiotics. The leading causes of death in the developed countries have shifted away from infectious or communicable diseases to non-communicable or chronic diseases. In the United States, chronic diseases make up nine of the 10 leading causes of death. Seasonal influenza and pneumonia combined rank number eight in the top 10 leading causes of death.[cxxxvii] Seasonal influenza is

a contagious respiratory disease that is caused by influenza virus. Symptoms can include coughing, fever, fatigue, headache, sore throat, stuffy or runny nose, and muscle aches. Pneumonia is a serious infection of the lungs. The air sacs in the lungs become inflamed with pus and other liquid, making it difficult for oxygen to reach the blood. (NOTE: Pneumonia is not always associated with influenza. It can have over 30 different causes including various chemicals, bacteria, other viruses, mycoplasmas and fungi.)[cxxxviii] Annually there are over 1,500 deaths from influenza and over 52,000 from pneumonia in the United States. People with weak immune systems are most at risk for serious illness or death related to influenza. Children and the elderly may be more likely to become ill with certain strains of influenza. For most people, though, seasonal influenza is usually not severe because they are already partly protected by having had a similar strain of the virus before. Influenza or flu vaccinations also play a key role in protecting people from seasonal flu. There are three types of influenza virus: Types A, B, and C. Type A is the most common, most severe, and the primary cause of flu epidemics. Type B cases occur sporadically and sometimes as regional or widespread epidemics. Type C cases are quite rare and hence sporadic, but localized outbreaks have occurred. Each year, scientists estimate which particular strain of flu is likely to spread, and they create a vaccine to combat it.

Even though the United States has had success in reducing the number of cases of seasonal influenza over time and the number of deaths that occur from the virus, this disease still affects millions of people every year. One effort to quantify the impact that seasonal influenza has on the U.S. economy concluded the following: "Direct medical costs averaged $10.4 billion (95% confidence interval [C.I.], $4.1, $22.2) annually. Projected lost earnings due to illness and loss of life amounted to $16.3 billion (C.I., $8.7, $31.0) annually. The total economic burden of annual influenza epidemics using projected statistical life values amounted to $87.1 billion (C.I., $47.2, $149.5)."[cxxxix]

The leading causes of death in Missouri for 2012 were all related to chronic (non-communicable) diseases. Table 4.16.1 lists the top seven causes of death in Missouri for that year.[cxl]

Table 4.16.1: Top Seven Causes of Death in Missouri

Leading Cause of Death	Number of Deaths Reported	Percent of Total Deaths Reported
Heart Disease	13,609	24.4%
Malignant Neoplasms	12,831	23.0%
Chronic lower respiratory disease	3,642	6.5%
Unintentional injury	3,012	5.4%
Cerebrovascular disease (stroke)	2,950	5.3%
Alzheimer's disease	1,854	3.3%
Diabetes Mellitus	1,371	2.5%

Seasonal influenza is clearly the most common infectious disease reported in Missouri as Table 4.16.2 shows:

Table 4.16.2: Case Counts of Selected Communicable Diseases in Missouri (2010-2012)

Disease	2010	2011[cxli]	2012[cxlii]
Campylobacteriosis	1,054	919	567
Cryptosporidosis	548	495	239
Ehrlichiosis	142	194	228
Giardiasis	426	344	330
Pertusis	604	438	815
Salmonellosis	843	900	1,071
Shigellosis	1,582	182	71

Table 4.16.2: Case Counts of Selected Communicable Diseases in Missouri (2010-2012)			
Disease	**2010**	**2011**[cxli]	**2012**[cxlii]
Influenza	17,739	20,474	37,037

An *emerging infectious disease* is one that has appeared in a population for the first time. A *re-emerging infectious disease* is one that may have previously existed in a population, but after levels dropped to the point where the disease was no longer considered a public health problem, the levels are once again increasing. During the last quarter of the 20th century, emerging and re-emerging infectious diseases have been on the rise. Table 4.16.3 presents the factors that have contributed to the increasing occurrence of emerging diseases.[cxliii]

Table 4.16.3: Contributing Factors to Increasing Occurrence of Emerging Diseases
Agent-related factors
• Evolution of pathogenic infectious agents (microbial adaptation and change. • Development of resistance to drugs. • Resistance of vectors to pesticides.
Host-related factors
• Human demographic changes (humans inhabiting new areas). • Human behavior (sexual practices and drug use). • Human susceptibility to infection (immunosuppression). • Poverty and social inequality.
Environment related factors
• Climate and changes in the ecosystem. • Economic development and land use (urbanization, deforestation). • Technology and industry. • International travel and commerce. • Breakdown of public health interest in certain situations (war, unrest, overcrowding). • Deterioration of surveillance systems.

Emerging and re-emerging infectious diseases are especially concerning because immunity to the emerging or re-emerging infectious disease may be low or non-existent in the population. A vaccine for an emerging disease may not be readily available when the disease first starts to spread. As a result, the potential for an emerging or re-emerging disease to escalate to pandemic levels is much higher. A pandemic situation is an epidemic (the number of cases of a disease is above what is normally expected, often suddenly) that has spread over several countries or continents, usually affecting a large number of people. The impact that one of these diseases may have, in terms of morbidity and mortality, may be more severe until some immunity is developed in the population, either through surviving the disease or through vaccination.

The Center for Disease Control and Prevention (CDC) identifies 50 emerging or remerging infectious diseases including the following:[cxliv]

Drug-resistant infections (anti-microbial resistance)
Mad cow disease and variant Creutzfeldt-Jakob disease
Campylobacteriosis
Chagas disease
Cholera
Cryptococcosis
Cryptosporidiosis (Crypto)
Cyclosporiasis
Cysticercosis
Dengue fever
Diphtheria
Ebola hemorrhagic fever
Escherichia coli infection
Group B streptococcal infection
Hantavirus pulmonary syndrome
Hepatitis C
Hendra virus infection
Histoplasmosis
HIV/AIDS
Influenza
Lassa fever
Leggionnaires' disease and Pontiac fever
Leptospirosis
Listeriosis
Lyme disease
Malaria
Marbug Hemorrhagic fever
Measles
Meningitis
Monkeypox
MRSA (Methicillin Resistant *Staphylococcus aureus*)
Nipha virus infection
Norovirus infection
Pertussis
Plague
Polio (poliomyelitis)
Rabies
Rift Valley fever
Rotavirus infection
Salmonellosis
SARS (Severe acute respiratory syndrome)
Shigellosis
Smallpox
Sleeping Sickness (Trypanosomiasis)
Tuberculosis
Tularemia
Valley fever (coccidioidomycosis)
VISA/VRSA – Vancomycin – Intermediate/Resistant *Staphylococcus aureus*
West Nile virus infection
Yellow fever

Influenza

Since influenza is the most common infectious disease in the United States, and since many believe that a pandemic flu event, caused by a new influenza virus for which there is no human immunity and no vaccine, is one of the most likely threats related to emerging infectious diseases, this section will focus on such a situation.

In 1996, a highly pathogenic H5N1 avian influenza was isolated from a goose in China. In 1997, 18 human infections with the same strain were reported in Hong Kong; six of those cases ended in death. Since then, efforts have been made to track the cases that have developed intermittently in both animals and humans. In 2003, the number of animal and human cases and deaths began to increase, primarily in Asian countries. As a result, the World Health Organization developed a global pandemic plan in 2005 which describes the progression of a pandemic in eight different phases. A year later, the president of the United States released a national strategy for pandemic influenza which introduced stages of a pandemic that would determine the type of response need. In 2007, the Centers of Disease Control and Prevention (CDC) refined the stages from the national strategy by developing CDC intervals laying out a common framework which the CDC, other federal agencies, and state and local governments could use to plan and coordinate pandemic response. Table 4.16.4 outlines the most recent crosswalk between the WHO stages, CDC intervals and the federal and state/local indicators related to the CDC intervals.

Table 4.16.4: Preparedness and response framework for novel influenza A virus pandemics[cxiv]			
World Health Organization phases	**CDC intervals**	**Federal indicators for CDC intervals**	**State/local indicators for CDC intervals**
Interpandemic phase: Period between influenza pandemics.	**Investigation:** Investigation of novel influenza A infection in humans or animals.	Identification of novel influenza A infection in humans or animals anywhere in the world with potential implications for human health.	Identification of novel influenza A infection in humans or animals in the United States with potential implications for human health.
Alert phase: Influenza caused by a new subtype has been identified in humans.	**Recognition:** Recognition of increased potential for ongoing transmission of a novel influenza A virus.	Increasing number of human cases or clusters of novel influenza A infection anywhere in the world with virus characteristics, indicating increased potential for ongoing human-to-human transmission.	Increasing number of human cases or clusters of novel influenza A infection in the United States with virus characteristics indicating increased potential for ongoing human-to-human transmission.
Pandemic phase: Global spread of human influenza caused by a new subtype.	**Initiation:** Initiation of a pandemic wave.	Confirmation of human cases of a pandemic influenza virus anywhere in the world with demonstrated efficient and sustained human-to-human transmission.	Confirmation of human cases of a pandemic influenza virus in the United States with demonstrated efficient and sustained human-to-human transmission.
	Acceleration: Acceleration of a pandemic wave.	Consistently increasing rate of pandemic influenza cases identified in the United States, indicating established transmission.	Consistently increasing rate of pandemic influenza cases identified in the state, indicating established transmission.
	Deceleration: Deceleration of a pandemic wave.	Consistently decreasing rate of pandemic influenza cases in the United States.	Consistently decreasing rate of pandemic influenza cases in the state.
Transition phase: Reduction in global risk, reduction in response activities, or progression toward recovery actions.	**Preparation:** Preparation for future pandemic waves.	Low pandemic influenza activity but continued outbreaks possible in some jurisdictions.	Low pandemic influenza activity but continued outbreaks possible in the state.

To aid pre-pandemic planning efforts, the CDC developed the Pandemic Severity Index as a tool for scenario-based contingency planning. Figure 4.16.1 provides a categorization of pandemic severity by case-fatality ratio — the key measurement in determining the Pandemic Severity Index— and excess mortality rate. This index was created to help identify the types of community or non-pharmaceutical interventions, such as encouraging voluntary isolation or quarantine, school/day care closures, working from home, and cancelling certain public gatherings, that would be appropriate based on the illness rate and the number of potential deaths expected.

Characteristics	Pandemic Severity Index				
	Category 1	Category 2	Category 3	Category 4	Category 5
Case Fatality Ratio (percentage)	<0.1	0.1 - <0.5	0.5 - <1.0	1.0 - <2.0	≥ 2.0
Excess Death Rate (per 100,000)	<30	30 - <150	150 - <300	300 - <600	≥600
Illness Rate (percentage of the population)	20 - 40	20 - 40	20 - 40	20 - 40	20 - 40
Potential Number of Deaths (based on 2006 U.S. population)	<90,000	90,000-<450,000	450,000-<900,000	900,000-<1.8 million	≥1.8 million
20th Century U.S. Experience	Seasonal Influenza (Illness rate 5-20%)	1957, 1968 Pandemic	None	None	1918 Pandemic

Source: *Community Strategy for Pandemic Influenza Mitigation*, CDC

Figure 4.16.2: Pandemic Severity Index by Epidemiologic Characteristics

In addition, Figure 4.16.2 displays ranges of illness rates with potential numbers of U.S. deaths per category, with recent U.S. pandemic experience and U.S. seasonal influenza to provide historical context. Figure 4.11.3 plots prior U.S. pandemics from the last century and a severe seasonal influenza season based on case-fatality ratio and illness rate and demonstrates the great variability in pandemics based on these parameters (and the clear distinctiveness of pandemics from even a severe influenza season). The illness rates figure provides a good illustration of the importance of the case fatality rate (in other words the rate at which people who have the illness die). For instance, even though the illness rate for the 1968 pandemic was almost 10 percent higher than the rate experienced in the 1918 pandemic, the 1918 pandemic had a case-fatality rate over 2.0 percent. Thus the number of deaths was dramatically higher, falling into Category 5 on the Pandemic Severity Index.[cxlvi]

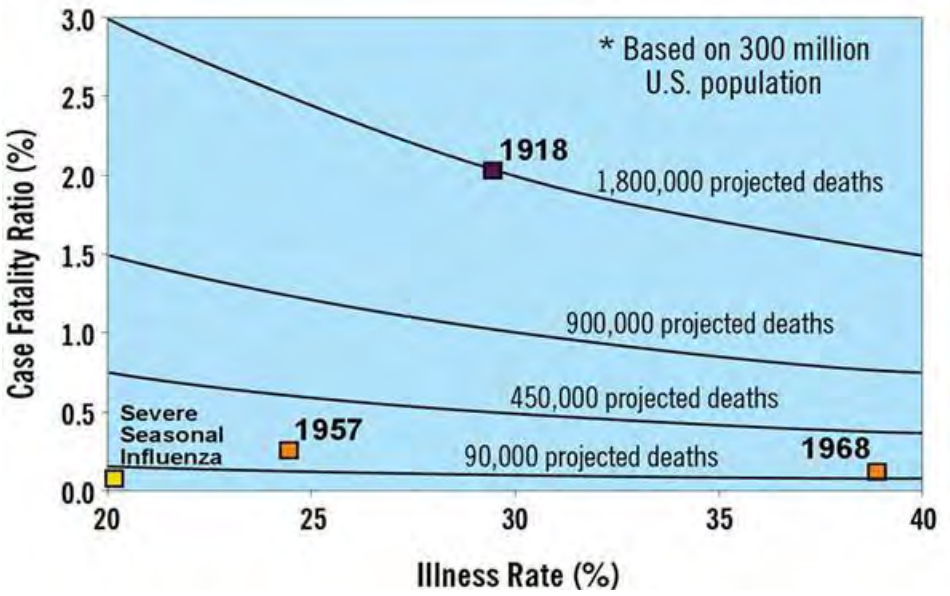


Figure 4.16.3: Illness Rates Based on Projected Deaths in the U.S.

A new evaluation tool, called the Influenza Risk Assessment Tool (IRAT) is being developed by CDC and external influenza experts. This tool is intended to assess the potential pandemic risk posed by influenza viruses that currently circulate in animals but not in humans. The IRAT assessment is based on two different scenarios: 1) Emergence, which is the risk of the new influenza virus gaining the ability to spread easily and efficiently from person to person; 2) Public health impact, which is defined as the potential severity of human disease (deaths and hospitalizations) as well as the impact on society (missed days of work, strain on medical services, interruption of basic services). Ten scientific criteria, which describe the properties of the virus, the attributes of the population, and the ecology and epidemiology of the virus, are used to measure the potential pandemic risk. When novel influenza viruses are identified, these criteria can be applied to give the viruses a composite score. This score can be used to rank and compare influenza viruses that are being monitored for pandemic potential.

Other Emerging or Re-Emerging Infectious Diseases

Of the selected communicable diseases for Missouri listed in Table 4.16.2 above, six are considered to be on the CDC's list of emerging or re-emerging infectious diseases. These diseases are:

Campylobacteriosis – a disease caused by the bacteria of the genus *Campylobacter*. Symptoms of this infectious disease include diarrhea, cramping, abdominal pain and fever, with possible nausea and vomiting. Most cases of this disease are associated with eating raw or undercooked poultry meat or unpasteurized dairy products. It is likely that many of the cases of Campylobacteriosis go undiagnosed in the United States and therefore are unreported. Most people recover from this illness without any specific medical treatment. People with compromised immune systems, however, are susceptible to severe complications.

Cryptosporidiosis – a disease caused by a parasite call *Cryptosporidium* which causes watery diarrhea, and possibly stomach cramps, dehydration, nausea, vomiting, fever and weight loss. Symptoms can come and go for up to 30 days. *Cryptosporidium,* or Crypto for short, can be found in water, food, soil or

on surfaces, or on dirty hands that have been contaminated with the feces of humans or animals infected with the parasite. People with compromised immune systems are most susceptible for developing serious complications or dying from this disease.

Shiga toxin-producing Escherichia coli (STEC) – *Escherichia coli (E. coli)* are a diverse group of bacteria. Most strains of this group of bacteria are harmless but several are known to cause disease in humans. Many of the disease causing strains of the bacteria produce toxins called Shiga toxins and are collectively referred to as Shiga toxin-producing *E. coli* (STEC). The primary source of STEC is cattle, but it can also come from sheep, goats, deer and other animal meat. Humans can also be a source of the bacteria. The primary strain in the United States is *E. coli* 0157:H7. The illness caused by STEC includes diarrhea ranging from mild to severe, severe stomach cramps and vomiting. Most persons infected with the bacteria get better within five to seven days. However, approximately 8 percent of persons, and up to 20 percent of children, diagnosed with *E. coli* 0157:H7 STEC infection will develop a potentially life-threatening complication called hemolytic uremic syndrome (HUS). This condition is often severe, resulting in the need for dialysis for half the people infected. Up to 5 percent of HUS cases will die.

Pertussis – A bacteria called *Bordetella pertussis* causes a very contagious respiratory illness called pertussis, also known as whooping cough. This disease is only found in humans. People who have the disease spread it by coughing and sneezing when they are in close contact with others. The disease usually starts with cold-like symptoms and possibly a mild cough or fever. After one or two weeks, severe coughing sets in. Coughing fits can last for weeks and can be violent and rapid in nature, causing a "whooping" sound in some cases. The intense coughing may cause vomiting and exhaustion. Infants and children are the most likely to develop serious or life-threatening complications. Infants may not experience a cough but instead may develop "apnea," which means that their breathing stops temporarily. There is a pertussis vaccine, and it is the most effective way of preventing this disease, but no vaccine is completely effective. If pertussis is circulating in a community, any fully vaccinated person has a chance of catching this disease, although usually in a less severe form. Pertussis is generally treated with antibiotics and early treatment can help lessen the severity of the symptoms.

Salmonellosis – a disease caused by bacteria called *Salmonella* which results in symptoms including diarrhea, fever and abdominal cramps. Most people recover from this disease without medical treatment. In cases where the diarrhea is severe, the bacteria may spread from the intestines into the blood stream, and then to other areas of the body. In these cases the patient needs to be hospitalized and treated with antibiotics immediately. The elderly, infants and those with compromised immune systems are most likely to have severe illness from this type of bacteria. Salmonellosis can be contracted by eating raw or undercooked food that is contaminated by a type of *Salmonella*, such as eggs or meat. The disease can also be spread by people who have the illness but do not practice good hygiene practices, such as hand washing. In addition, reptiles are likely carriers of this type of bacteria and people should wash their hands thoroughly after handling these animals.

Shigellosis – a diarrheal disease caused by a group of bacteria called *Shigella.* The most common species of this group in the United States is called *Shigella sonnei*. In addition to diarrhea, people infected with this type of bacteria may experience fever and abdominal pain. This disease is spread by people who are infected with the bacterium who do not wash their hands properly while they have the disease. If an infected person handles food that others eat or if they touch surfaces that others touch then the bacteria can be transferred from one person to another. Healthy people usually recover from this infection in five to seven days without the need for antibiotics. Children and people with compromised immune systems can experience serious complications from this disease.

4.16.1 Historical Occurrences

Influenza Pandemics
Since the early 1900s, four influenza pandemics have swept the globe:

1. 1918–1919 Spanish Flu
2. 1957–1958 Influenza
3. 1968–69 Hong Kong Flu
4. 2009–2010 H1N1 Swine Flu

The 1918–1919 Spanish Flu Pandemic is described in detail in the 2010 Hazard Mitigation Plan. It was clearly the worst pandemic in recent history. An estimated 50 million people worldwide died during this pandemic and 675,000 of those deaths were in the United States. The 1957–1958 influenza pandemic caused almost 70,000 deaths in the United States. When this virus began to spread worldwide it was predicted that those over the age of 65 might have some immunity to the virus. Children were more susceptible to the disease, although the elderly were more likely to die from it. In the 1968–69 Hong Kong Flu pandemic, 33,800 people died. The elderly were most likely to die from this virus as well.

The 2009–2010 H1N1 Swine Flu is the only pandemic to have occurred so far in the 21st century. The first case of this flu in the United States was identified in April 2009. Later that month, the CDC was working to develop a vaccine. On April 26, the United States government declared H1N1 a public health emergency. By June 2009, 74 countries were affected by the pandemic and 18,000 cases were reported in the United States. People with compromised immune systems were at highest risk for this disease and they received the first doses of the limited amount of vaccine available in the beginning. By November 2009, 48 states had reported cases of H1N1, mostly in young people. Eventually, 80 million people were vaccinated in the United States for this virus. The CDC estimates that somewhere between 43 million and 89 million people had H1N1 between April 2009 and April 2010. An estimated 8,870 to 18,300 deaths have been attributed to the disease.

Flu Scares: Swine Flu of 1976, Russian Flu of 1977, and Avian Flu of 1997
Three notable flu scares occurred in the 20th century:

1. 1976 Swine Flu
2. 1977 Russian Flu
3. 1997 Avian Flu

These episodes are described in the 2010 Hazard Mitigation Plan. No notable flu scares have occurred in the 21st century.

Other Emerging Infectious Diseases in History
In addition to the four flu pandemics that have occurred in past 120 years, five non-influenza epidemics or serious outbreaks have occurred nationwide since 1900.

1952 Polio Epidemic – Polio is a virus that affects the nervous system. In the United States, the first major polio epidemic occurred in 1916, but in the 1940s and 50s, polio outbreaks created chaos. Parents were frightened for their children and communities started prohibiting travel from city to city within the United States. Some towns quarantined their residents to protect them from anyone who might be infected. The epidemic peaked in 1952 when over 58,000 were reported, including 3,145 deaths. [cxlvii] Thanks to vaccination efforts polio has been eradicated from the United States since 1979.

1993 Cryptosporidium Outbreak in Milwaukee – In 1993, one of Milwaukee's two water treatment plants became contaminated with cryptosporidium. This contamination caused the largest waterborne outbreak in U.S. history, resulting in 403,000 people becoming ill and 100 deaths.[cxlviii]

2010 Whooping Cough Outbreak in California – Outbreaks of pertussis have been increasing since the 1980s, particularly among teens and children. In 2010, an outbreak in California caused 9,477 people to become ill and 10 infants to die.[cxlix]

1980s to Present AIDS Epidemic – Acquired Immune Deficiency (AIDS) is the final stage of an illness caused by a Human Immunodeficiency Virus (HIV) and is the sixth leading cause of death in the United States among people age 25 to 44 (U.S National Library of Medicine, 2012). The virus is passed through blood transfusions, the sharing of needles, sexual contact, or from an infected pregnant woman to her child. AIDS has been in the United States for more than 30 years. The progression from HIV infection to the development of AIDS has four phases: primary infection, clinical latent infection, early symptomatic HIV infection, and progression to AIDS. In the United States, where treatments have been developed for HIV and AIDS, chances for survival are greater than they were in the 1980s when the virus first came from Africa. Worldwide in 2013 there were 35.0 million cases of HIV/AIDS. African countries, particularly Sub-Saharan Africa, have the greatest number of HIV/AIDS cases. One in every 20 adults in Sub-Saharan Africa lives with HIV and they make up 71 percent of all the cases of HIV in the world.[cl]

In the past five years Missouri experienced many outbreaks of reportable communicable diseases. The following highlights the major events and special note is made when outbreaks occurred in the Northwest Health District of Missouri, which includes the five counties covered in this plan:

Campylobacter 2010 – The rate of campylobacteriosis cases reported during 2010 (17.6 per 100,000) set a record for the highest rate since data began to be collected on *Campylobacter* infections. Statewide, there were 1,054 cases of confirmed or probable campylobacteriosis reported. In comparison to the five-year median, the rate of reported campylobacteriosis increased by 46 percent. All districts reported increases, with notable increases in the Northwest District (111.5 percent over the five-year median).[cli] Missouri reported three *Campylobacter* outbreaks during 2010.

Shigellosis 2010 – Missouri experienced 1,582 cases of shigellosis in 2010 (rate of 10.1 per 100,000). 804 of those cases occurred in the Northwest District. Apparently shigellosis tends to increase in numbers every five or six years. Health officials watch for the cyclical nature of this disease and try to prepare for the years where there is a heightened occurrence. By contrast, in 2011 there were only 182 cases of shigellosis in Missouri.

Cryptosporidiosis 2010 and 2011 – Statewide in 2010, there were 548 cases of cryptosporidiosis reported, which is a 156 percent increase compared to the five-year median (2005-2009). The overall incidence rate was 9.2 per 100,000 for 2010, which was far higher than the national trend for that year. Almost 45 percent of those affected were in the age group of 1-14 years and another 22.1 percent were 25 to 39 years old.[clii]

In 2011, a total of 495 cases of cryptosporidiosis were reported in Missouri, a 130 percent increase above the five-year median for this particular disease. These cases largely occurred in the summer (73 percent) and nearly half of the cases reported some type of recreational water exposure prior to the onset of illness. Two outbreaks were reported in 2011. One of these outbreaks was attributed to a recreational water venue in the Northwest District.

Shiga toxin-producing *Escherichia coli* (STEC) infection 2010, 2011, 2012 – In 2010, 2011 and 2012 there were notable rates of STEC associated infections. In 2010, 236 cases were reported, which was a 55 percent increase in the number of cases compared to the previous five-year median. The incidence rate for the year was 3.9 cases per 100,000 population, which represented the highest rate of reported STEC cases observed during the previous decade. A total of 18 cases of HUS were reported among residents in Missouri in 2010, which was an increase of 125 percent compared to the previous five-year median. Seventy-eight percent of those cases were reported in children younger than 14 years old. The increase in STEC associated illness was particularly high in the Southeast and the Northwest Districts, with increases above the previous five-year median of 233 percent and 220 percent respectively.[cliii]

In 2011, a total of 282 cases of STEC associated infections were reported in Missouri, an 84 percent increase in the number of cases compared to the previous five-year median. A total of 20 cases of HUS were reported among Missouri residents that year. The increase in cases is in part due to three outbreaks that occurred across the state. One of these outbreaks was the fourth largest known *E. coli 0157:H7* outbreak in United States history.[cliv]

In 2012, there were 308 cases of STEC associated infections in Missouri, an increase of 101.3 percent from the five-year median (a rate of 5.1 per 100,000 people). Most of the cases in Missouri occurred between April and September. A total of 18 cases of HUS were diagnosed and three of those case resulted in death.[clv]

Salmonellosis 2012 – The number of cases of salmonellosis in Missouri in 2012 was 1,071, a 40.2 percent increase compared to the previous five-year median. Over half of the cases (63 percent) occurred between May through September. Nine separate salmonellosis outbreaks occurred in Missouri in this year and eight of those outbreaks were multistate outbreaks. This emphasizes the importance that travel and mobility have in the spread of disease. However, only 6.3 percent of the overall cases were related to the nine outbreaks. The remainder of the cases was non-outbreak infections. These cases emphasize the difficulty of determining sources of *Salmonella* infections because this type of organism is ubiquitous in the environment. In addition, most products contaminated with *Salmonella* do no look or taste differently that uncontaminated products.[clvi]

Pertussis 2012 – After a decline in cases in both 2010 and 2011, the number of reported cases of pertussis increased in Missouri to 815, which is an increase of 45 percent from the previous five-year median. Over half of the cases occurred between April and August. Two school-associated outbreaks took place that year. Factors that might have contributed to the increased number of reported cases include an increased awareness and improved recognition of the disease by clinicians, greater access to and use of laboratory diagnostics, and waning immunity from the pertussis vaccine.[clvii]

Measles 2014 – Between January and May 30, 2014 in the United States, 334 cases of measles were reported to the Centers for Disease Control and Prevention. This was the largest number of measles cases in the United States reported in the first five months of a year since 1994. Missouri was one of many states that reported measles that year. Nearly all of the measles cases were associated with international travel by unvaccinated persons or persons whose vaccination status was unknown. These cases are particularly distressing since measles was declared eliminated from the U.S. in 2000 due to high vaccination rates. The disease is still endemic, however, in many European countries, Africa, Asia and the Philippines. The increase in cases recently stresses the importance of the ongoing risk of importations, the need for high measles vaccine coverage, and the need for prompt public health

response to measles cases and outbreaks. Measles is a highly contagious, acute viral illness that is transmitted by contact with an infected person through coughing and sneezing. It can cause complications including pneumonia, encephalitis and death.[clviii]

4.16.2 Probable Locations

The entire region is vulnerable to emerging infectious diseases. Due to the fact that the population in our region is highly mobile —regionally, nationally and internationally — emerging and re-emerging infectious diseases could pop up anywhere within the region.

4.16.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 3

Measures have been developed during the last century to reduce severity by helping to curb or eliminate the effects of infectious diseases that cause severe illness and/or complications. However disease agents, like viruses and bacteria, change over time and the new strains of disease may result in rampant illness and possibly high death rates and/or serious health complications in the human population until an intervention can be identified and implemented.

During an average year, the percentage of the population that is affected by any of the reportable communicable diseases in Missouri is likely between 10 and 20 percent. Seasonal influenza itself varies from year to year between a 5 percent infection rate and a 20 percent infection rate. However, health officials are most concerned about the next new highly pathogenic strain of the influenza virus that could hit at any time in the future.

New strains of influenza virus can behave very differently in terms of how rapidly the different viruses achieve sustained transmissibility from human to human. For instance, it is believed that the 2009 H1N1 influenza strain emerged and spread rather rapidly between its detection in March or April of 2009 and when it was in full pandemic mode by the fall of 2009.[clix] By contrast, H5N1 avian influenza and other Highly Pathogenic Avian Influenza (HPAI) strains have been monitored for years to see if they will make the jump to becoming the next pandemic in humans.

Pandemics historically have been characterized by a relatively long duration. There may be several phases or waves of the illness over a one- to two-year period. The prolonged nature of some pandemics can make them especially challenging for populations to deal with physically and psychologically.

4.16.4 Probability of Future Occurrences/Events: Medium to High

Infectious diseases vary dramatically in the ways that they infect and spread from person to person. Some infectious diseases have a fairly predictable cycle that includes periods when more cases of disease may be observed. Others are more seasonally dependent.

Health officials agree that it is virtually impossible to predict when the next pandemic or major outbreak will happen. However, historical context can provide us with some clues. Given that only four influenza pandemics have occurred in the past 100 years, the likelihood that another deadly pandemic will happen in any given year is less than 10 percent. That said, the likelihood that a regional or localized

outbreak of a serious infectious disease will occur is high. These types of events, as noted in Historical Occurrences *Section 4.16.1* above are fairly common.

4.16.5 Vulnerability Analysis and Potential Loss Estimates

In an effort to estimate the future economic impact of pandemic influenza in the United States, researchers from the Centers for Disease Control in Prevention created a model in 1999 which estimated a range of impacts including deaths, hospitalizations, outpatient visits and additional illnesses. The impacts were calculated using different attack rates of the pandemic influenza virus. This model was used as the basis for software used nationally for pandemic influenza planning at the state and local levels. The model doesn't include economic impacts that might occur from disruptions to commerce and society as a result of a catastrophic pandemic. The software was called FluAid. Table 4.11.4 shows the mean values of these impacts for attack rates from 15 percent to 35 percent.[clx]

Table 4.16.5 depicts costs (direct and indirect) of influenza pandemic per gross attack rate: deaths, hospitalization, outpatients, illnesses, and total costs (in 1995 US dollars).[clxi]

Table 4.16.5: Cost Per Gross Attack Rate ($ millions)

	15%	20%	25%	30%	35%
Deaths	59,288	79,051	98,814	118,577	138,340
Hospitalizations	1,928	2,571	3,214	3,856	4,499
Outpatient Visits	5,708	7,611	9,513	11,416	13,318
Additional ill (no medical care sought)	4,442	5,896	7,370	8,844	10,317
Grand total	71,346	95,128	118,910	142,692	166,474

The 1918 Spanish Influenza Pandemic and the 2009 H1N1 Swine Flu Pandemics provide interesting historical comparisons to the scenarios considered in the models suggested by the CDC researchers. For these two pandemics, we do not have the level of detail that the model contains regarding hospitalizations, outpatient visits, etc. However, we do know that the number of U.S. deaths from the 1918 Influenza is estimated to be 675,000 — far more than the worst case considered in the model. The number of deaths from the 2009 H1N1 influenza is estimated to be 8,870 to 18,300 — much lower than the scenario with the least impact. (Note: the number of deaths attributed to the 2009 H1N1 influenza was actually lower than the number of deaths from seasonal influenza in seven of the 10 previous years.[clxii])

The impact of the next pandemic, depending on the virulence and transmissibility of the virus, could have a devastating effect on the health and well-being of citizens in the Kansas City region and the economy. If we were to apply a worst-case scenario, such as the 1918 pandemic, the percentage of people who are likely to become ill during a new pandemic is estimated to reach between 20 to 40 percent. The case-fatality ratio from a new virus may exceed 2.0 percent. In the five-county planning region, if 40 percent of the people were to get ill from a new virus it would result in approximately 454,000 cases. If 2.5 percent of those cases end in death, then the region would experience an estimated 11,300 fatalities.

In summary, assessing the vulnerability in the region from a serious emerging infectious disease, such as pandemic influenza, the following elements are considered in Table 4.16.6.

Table 4.16.6: Potential Loss Estimation, Emerging Infectious Disease					
County	Overall Risk (average)		Magnitude	Total Exposure (given a 2.5% case fatality ratio) (# of deaths)	Total Population (given a 40% attack rate) (# of cases)
	By County	By Participating Organization			
Cass	1.0	1.36	3	1,009	40,356
Clay	2.0	2.0	3	2,337	93,473
Jackson	3.0	2.18	3	6,832	273,276
Platte	2.0	1.4	3	948	37,915
Ray	3.0	2.0	3	229	9,180

The loss estimated would be greater than just lives lost, obviously, although certainly the years of potential life lost and the potential earnings would run into the billions. The economic impact on hospitals that would function well over capacity, businesses that suffer due to lost revenue and absent employees, and other disruptions that occur due to school closings and other cancellations would be disastrous to the community.

When asked to rank emerging infectious diseases as a hazard, the following participating organizations ranked this hazard as having a high risk for their community: Jackson County, Ray County, Blue Springs, North Kansas City, Independence, and Kansas City. The following school districts also noted the overall risk from emerging infectious diseases as high: Harrisonville School District, Independence School District, Kansas City, Missouri School District, and West Platte School District.

4.16.6 Problem Statements

- Large-scale epidemics will overwhelm existing healthcare infrastructure.
- High-case fatality rates will overwhelm fatality management systems.
- The effectiveness of non-pharmaceutical interventions is under debate and may be as economically disruptive as the disease itself.
- The long-term duration of emerging infectious disease will present significant challenges for communities.

4.17 Trans-Boundary Animal Disease

Many animal health officials define an exotic or foreign animal disease as an important transmissible livestock or poultry disease, believed to be absent from the United States and its territories, that has potentially significant health or economic impacts. To overcome the confusing terminology regarding *foreign,* since some diseases are already endemic to an area or new emerging animal diseases have *domestic* origins, many organizations are using the world-wide term *Trans-Boundary* Animal Diseases (TADs) instead of the term Foreign Animal Disease (FAD).

TADs are defined by the Food and Agriculture Organization of the United Nations (FAO) as "those diseases that are of significant economic, trade and/or food security importance for a considerable number of countries: which can easily spread to other countries and can reach epidemic proportions; and where control/management including exclusion, requires cooperation between several countries." TADs are also defined by the Office of International Epizootics (OIE) as "transmissible diseases with the potential for serious and rapid spread, irrespective of borders, of serious socio-economic or public health consequence and are of major importance in the trade of animals and animal products."

These types of animal diseases are considered a threat to the United States when they significantly affect human health or animal production and when there is an appreciable cost associated with disease control and eradication efforts. Such diseases could lead to food shortages and negative economic impacts depending on the animals infected and the geographic extent of the disease.

Historical information as well as microbial sequencing and phylogenetic constructions make it clear that infectious diseases have been emerging and reemerging over millennia, and that such emergences are driven by numerous factors. Notably, 60 to 80 percent of new human infections likely originated in animals.[clxiii] Several new emerging animal diseases appear every year worldwide. This is because of many factors including globalization of trade, movement of masses of people and agricultural products, changing weather patterns, rapid population growth in cities, intensive agriculture, limited genetic diversity in farm animals, changes in farm practices are creating new opportunities for the emergence and re-emergence and spread of infectious diseases.[clxiv]

The World Organization for Animal Health (OiE) has established a list of notifiable terrestrial and aquatic animal diseases (see Attachment 4.17.1) that must be reported should a disease outbreak occur in any of the 180 OiE members countries. The state of Missouri also has a list of reportable agricultural diseases (see Attachment 4.17.2) as required by the Missouri Department of Agriculture. These reportable diseases include such outbreaks as classical swine fever (hog cholera), Foot-and-Mouth Disease (FMD), and Highly Pathogenic Avian Influenza (HPAI). These diseases can cause high death rates in animals or severe illness and production losses.

The loss of animals and productivity can increase the cost of food products and resources obtained from animal sources. Pets and animal diseases cause the annual loss of more the 40 percent in the global food supply,[clxv] directly impacting the agricultural sector, compromising food security, impacting international trade and the export of living animals and their products, and causing a high economic impact on agricultural exporting nations.

The World Bank has estimated that zoonotic disease outbreaks in the past 10 years have cost more than $200 billion U.S. due to loss of trade, tourism and tax revenues.[clxvi] The cost of an animal disease outbreak can have a devastating effect on a county's economy. For example, in 2003 the discovery of an infected dairy cow in the United States with Bovine Spongiform Encephalopathy (BSE) caused a

substantial loss of exports to world markets for U.S.-produced beef, which demonstrates the economic impact animal health can have on livestock and related industries. The BSE incident resulted in immediate closure of major U.S. beef export markets (Japan, Korea, Mexico, and Canada). The U.S. exported over 1 million metric tons of beef in 2003 compared to only 200,000 metric tons in 2004 following discovery of the BSE-infected animal. U.S. beef industry loss estimates resulting from export restrictions during 2004 ranged from $3.2 billion to $4.7 billion.[clxvii]

The United Kingdom experienced a severe Foot-and-Mouth Disease (FMD) outbreak in 2001. Subsequent epidemiological analysis determined that at least 57 premises were infected by the time the first case was confirmed in February 2001. By September 2001 when the outbreak was eradicated, 2,026 cases of FMD had been confirmed with over 6 million animals destroyed. The disease spread to Ireland, France and the Netherlands. The estimated losses from FMD in the UK were $10.7 to $11.7 billion U.S.[clxviii].

The state of Missouri is not immune to animal diseases. The state has over 99,000 farms[clxix] and produces 4.5 percent of all hogs/pigs and 7.4 percent of all turkeys raised in the United States.[clxx] (See Table 4.17.1)

Table 4.17.1: Missouri's Rank among States, 2010 (National Agricultural Statistics Service)[clxxi]

Product	U.S. Ranking	Total	Unit Measure	Percent of U.S. Total
Cattle and Calves	6	3,950,000	Head	4.3
Hogs and Pigs	7	2,900,000	Head	4.5
Milk Cow Operations	7	2,600	Number	3.7
All Chickens	16	10,079,000	Head	2.3
Turkeys Raised	4	18,000,000	Head	7.4
Egg Production	15	1,194	Million	2.1

Should a TAD outbreak happen in Missouri, many adverse impacts and consequences would occur statewide because agriculture affects so much of the state and its local economies. An outbreak of a Foot and Mouth Disease (FAD) could devastate an entire class of animals for years as well as those businesses that depend on it. Subsequently, export markets would decrease, tax revenue generated directly and indirectly would diminish dramatically and consumer confidence could be compromised. In essence, a TAD could lead to economic losses of unprecedented proportions to local, regional, state and national economies as a whole, and potentially threaten human health. It is estimated that the impact of a 45-day FAD outbreak in feral swine in the state would have a total economic impact of $11.9 million dollars[clxxii] (see Table 4.17.2) and would threaten 4.3 million head of cattle and 3.1 million head of domestic hogs throughout the Missouri.

Table 4.17.2: Impact of 45-Day Foot and Mouth Disease Outbreak in Missouri

	Animals Lost	Direct Impact	Indirect Impacts	Total Economic Impact
Total Cattle	5,832	$6,337,558	-	-
Total Swine (Domestic)	12,115	$1,096,119	-	-
Sheep	570	$60,863	-	-
Goats	141	$12,691	-	-
Total	**18,658**	**$7,507,231**	**$4,434,037**	**$11,941,268**
Outbreak Duration	**45 (days)**			

In 2015, the Missouri Department of Conservation (MDC) reported that 11 new cases of another TAD called Chronic Wasting Disease (CWD) had recently been found in deer bucks. CWD infects only deer and other members of the deer family by causing degeneration of the brain. The disease has no vaccine or cure and is 100 percent fatal. These 11 new cases bring the total number of Missouri free-ranging deer that have tested positive for CWD to 14 animals this past season and 24 total since the disease was first discovered at a private hunting preserve in Linn County, Missouri, in February 2010.

Missouri offers some of the best deer hunting in the country and it is an important part of many Missourians' lives and family traditions. Infectious diseases such as CWD could reduce hunting and wildlife-watching opportunities for Missouri's nearly 520,000 deer hunters and almost 2 million wildlife watchers. Deer hunting is also an important economic driver in Missouri, giving a $1 billion annual boost to state and local economies.

Sometimes just the perception of possible effects from the zoonotic transmission of an animal disease can have devastating effect. Recently, hunters, farmers and venison consumers in Missouri have become concerned about eating deer and elk meat largely because of the connection between CWD, Bovine Spongiform Encephalopathy (BSE) and the variant Creutzfeldt-Jakob disease (vCjD). Creutzfeldt-Jakob disease occurs around the world at a rate of one to two cases per million humans. The majority of cases have occurred among British citizens and persons who have resided in the United Kingdom. All vCjd cases to date have lived in countries with BSE, but so far investigators have not seen higher numbers of human spongiform encephalopathy in CWD-endemic areas.

Lower deer numbers from infectious diseases such as CWD could hurt 12,000 Missouri jobs and many businesses that rely on deer hunting as a significant source of revenue, such as meat processors, taxidermists, hotels, restaurants, sporting goods stores, and others. CWD also threatens the investments of thousands of private landowners who manage their land for deer and deer hunting, and who rely on deer and deer hunting to maintain property values. The state of Wisconsin had an outbreak of CWD in 2002, with an estimated cost of $14.7 million to control the disease outbreak. The state suffered an economic impact of $53 and $79 million.[clxxiii]

As we move into the 21st century, many new issues and factors are affecting animal disease prevention, control, management and recovery. These factors include free-trade agreements, free-trade blocks, regionalization, increased international passenger travel, intensification of animal production, the constant evolution of infectious agents, and the uncertain impact of biotechnology and bioterrorism.

TADs can affect the entire spectrum of the animal population including terrestrial and marine animals along with birds and fish. During an incursion of a TAD, susceptible wild animals may become infected and act as reservoirs and vectors of new infections for livestock, thereby prolonging outbreaks and complicating eradication and control efforts, and amplifying the economic harm to livestock and related industries.

Over the last several decades there have been massive changes in animal health issues at the global, national, state and local levels. Threats from TAD incursions are larger than ever due to the dramatic increases of animal production and an increasing dependency on trade at the local, regional and international levels. Also as the various interfaces between wildlife, domestic animals and humans increase and become more complex, it can be anticipated that TADs will continue to occur in increasing complexities. New technology has allowed us to better control, stabilize and limit the spread of many emerging and re-emerging TADs. However, successfully stopping the many new emerging or mutation of

existing diseases that will inevitably appear is not practical. The many tools we have to fight TADs, including preparedness plans, surveillance, stockpiles of drugs and vaccines, may not be enough to control the unique challenges that each new disease brings. TADs force emergency managers to continually adapt mitigation, preparedness, planning, and response efforts to ever-shifting threats. Winning the battle against TADs does not mean stamping out every last disease, but it will be an ongoing process of identifying and getting ahead of the next outbreak.

4.17.1 Historical Occurrences

TAD outbreaks have occurred in the United States, and the Kansas City planning region has had numerous incidents of these diseases in recent years. See Attachment 4.17.3 for detailed list of recent TAD outbreaks in the region.

When TADs such as Foot and Mouth Disease do occur, the economic costs can be devastating. The United States has not experienced this type of outbreak since the 1920s,[clxxiv] but other developed countries have experienced outbreaks resulting in tremendous economic costs in recent decades. (See Table 4.17.3)

Table 4.17.3: Cases and Animals Slaughtered During the 2001 FMD Epidemic in the UK[clxxv]

Type of Case	Cattle	Sheep	Pigs	Goats, Deer and Other	Total
Infected	303,242	952,440	20,200	1,277	1,277,159
Dangerous Contact Contiguous	195,130	983,313	52,913	1,551	1,232,907
Dangerous Contact Non-Contiguous	81,113	1,296,490	69,083	978	1,447,664
Slaughter on Suspicion	14,346	110,803	2,543	299	127,991
Welfare Disposal	169,033	1,586,983	286,912	5,429	2,048,357
Total	**762,864**	**4,930,029**	**431,651**	**9,534**	**6,134,078**
Percentage	**12.44%**	**80.37%**	**7.04%**	**0.16%**	**100.00%**

In December 2003, the first case of Mad Cow Disease was discovered in the United States. The International Trade Commission said trade restrictions put in place because of this disease cost the U.S. beef industry between $1.5 billion and $2.7 billion in annual revenue between 2004 and 2007.[clxxvii] In 2006, the CREATE Homeland Security Center estimated the cost of a Mad Cow Disease outbreak to the Missouri economy would be $10.257 million over a two-year period.[clxxviii]

The Porcine Epidemic Diarrhea Virus, also known as PED, was thought to exist only in Europe and China, but Missouri and 14 other states began reporting cases of the virus in 2013, and officials confirmed its presence in May 2013. The virus causes severe diarrhea, vomiting and severe dehydration in young pigs, and can be fatal.[clxxix] During the first months of this epidemic, PED losses contributed to a 2.5 percent and 4.2 percent decline in the national pork markets.[clxxx] Recent research has shown PED Virus can be contagious in feed and airborne particles,[clxxxi] making it harder to prevent the spread of the virus, especially during animal transport to and from markets. Numerous cases of this disease have occurred in the planning region.

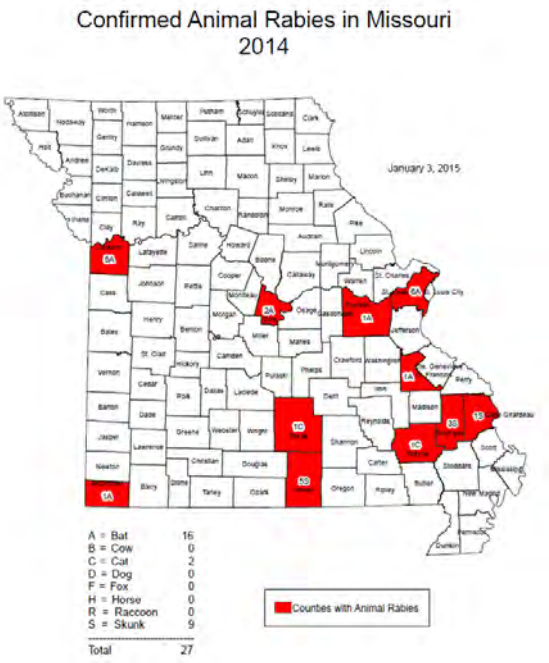
Table 4.17.4: Total Missouri Positive Rabies Results per Year[clxxvi]

2014	27	2008	64
2013	39	2007	38
2012	28	2006	66
2011	29	2005	73
2010	63	2004	59
2009	65		

Rabies was most likely present in the New World before European colonization. Reports of Spanish conquistadors dying after being bitten by vampire bats exist as early as 1514. However, canine rabies was most likely introduced after colonization of North America. Wildlife have accounted for more than

80 percent of reported rabid animals in the United States since 1975. The primary reservoir species responsible for maintaining rabies are raccoons, bats, skunks, and foxes.[clxxxii] (See Table 4.17.4 and Map 4.17.1)

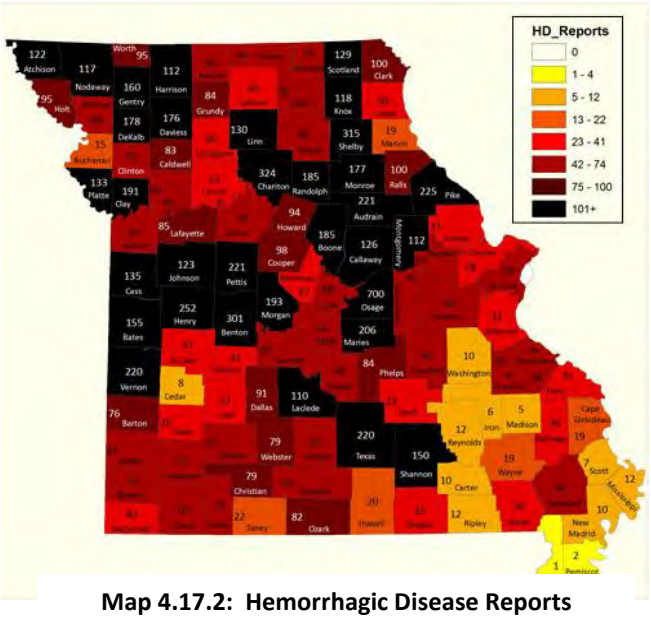
New and emerging diseases will continue to occur. In March 2015 the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) confirmed the presence of highly pathogenic H5N2 avian influenza (HPAI) in a wild Canada goose in Laramie County, Wyoming. This is the first finding of the Eurasian-lineage avian influenza viruses in wild birds in the central flyway of the United States. CDC considers the risk to people to be low from these HPAI H5 infections in wild birds, backyard flocks and commercial poultry. No human infections with the virus have been detected at this time. In March 2015, the Kansas Department of Agriculture reported that a backyard flock containing both chickens and ducks in Leavenworth County (part of the Kansas City metropolitan area) tested positive for the HPAI-H5N2 virus.



Map 4.17.1: Confirmed Animal Rabies in Missouri, 2014

The current viruses are related to the HPAI H5N8 virus which originated in Asia and spread rapidly along wild bird migratory pathways during 2014, including the Pacific flyway. In the Pacific flyway, the HPAI H5N8 virus has mixed with North American avian influenza viruses, creating new mixed-origin viruses. These mixed-origin viruses contain the Asian-origin H5 part of the virus, which is highly pathogenic to poultry. The "N" parts of these viruses came from North American low-pathogenic avian influenza viruses.[clxxxiii] For additional information regarding influenza outbreaks see the Emerging Infectious Disease *Section 4.16*.

In 2012, an outbreak of the epizootic hemorrhagic disease and bluetongue virus were discovered in Missouri. Both diseases are closely related, have similar clinical signs and are spread by a small, biting midge fly. White-tailed, mule, black-tailed deer, elk, and pronghorn antelope are susceptible to hemorrhagic disease. The viruses may cause disease of varying severity in cattle, but are not believed to be pathogenic to goats. Sheep are thought to be susceptible only to the bluetongue virus. (See Map 4.17.2)



Map 4.17.2: Hemorrhagic Disease Reports

Hemorrhagic disease outbreaks tend to occur from August to September and may go unnoticed because carcasses quickly decompose and are scavenged. Some infected deer may not show obvious symptoms, while others may die in one to three days. Typical symptoms include fever; excessive salivation; swollen neck, tongue or eyelids; sloughed or interrupted growth of hooves; reduced activity; and/or emaciation. Because sick deer are feverish, they are often found near water. Not all deer die from the disease, but losses of up to 50 percent have been documented. Researchers speculate that 40 percent of the deer herd was lost in some areas of Missouri during past outbreaks. This disease can have grave economic losses to private landowners who manage their land for deer and deer hunting, and who rely on deer and deer hunting to maintain property values.

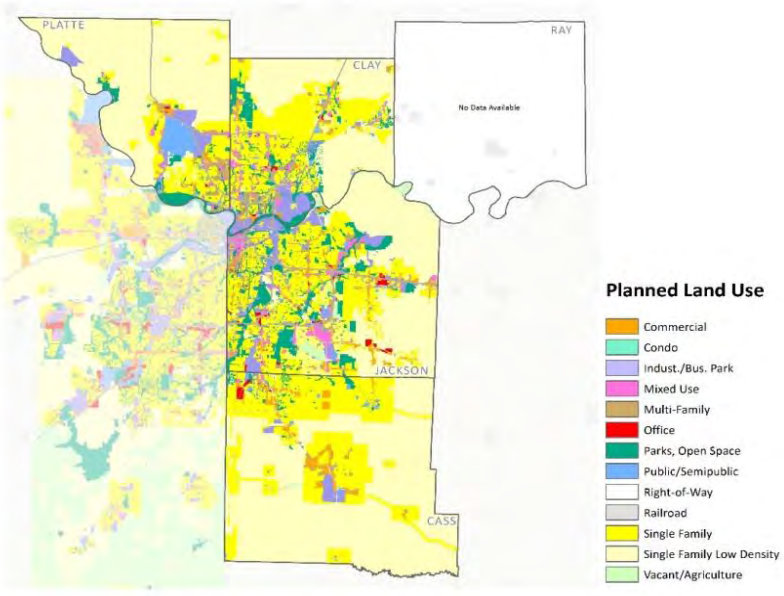
4.17.2 Probable Locations

The threat of TADs exists in both urban and rural parts of the regional planning area. The region provides a landscape that supports farming, tied closely together with urban centers that support the transportation and processing of farm animals. There are 99,171 farms in the state of Missouri[clxxxiv] encompassing a total of 28,266,137 acres. The counties of Cass, Clay, Jackson, Platte and Ray have large numbers of farms and commercial operators with animals. These facilities use services, supplies, transportation and deliveries, etc., across local, regional and state boundaries required for agricultural operations. (See Table 4.17.5)

Table 4.17.5: Number of Farms by County (2012 Census)[clxxxv]

County	Cass	Clay	Jackson	Platte	Ray
Number of Farms	1,495	578	701	599	1,162
Land in Farms (acres)	319,314	110,650	110,891	152,942	273,191
County Area (%)	71%	42%	29%	59%	74%
Value of Livestock, Poultry and their Products ($)	26,018,000	30,907,000	7,106,000	7,331,000	21,087,000

The agricultural areas located closer to densely populated regions in a county (see Map 4.17.3) pose a greater potential for the rapid spread of an Animal Diseases should a contagion enter the community. This is because of increased transmission vectors are available in more densely populated areas as opposed to the isolation of rural farm locations. There is a growing interest in keeping chickens and smaller livestock in urban areas along with exotic pets (urban, backyard and hobby farms).



Map 4.17.3: Kansas City Region Planned Land Use Map

Many urban residents trying to improve local food and economic resiliency have started keeping small animals and fowl such as chickens, turkeys, etc. Across the country, many communities are welcoming urban agriculture for its

small-business potential, especially in economically deprived areas riddled with underused vacant properties. This is because cities are looking at urban farming as an economic development issue along with hobby or recreation efforts. The problem is many of these backyard farms allow the animals to interact with wildlife species that may host TADs. Studies also indicate that when TAD outbreaks did occur they were more likely to be detected and reported in large-scale farm operations rather than backyard systems.[clxxxvi] Many urban or hobby farmers are not as knowledgeable regarding animal health and diseases as their larger farmer counterparts. These urban animals' pets could be another vector to spread a TAD should it enter the county.

A good example of this occurred in August 2013, when the Centers for Disease Control (CDC) reported 316 people from 37 states (18 in Missouri) were infected with Salmonella typhimurium, believed to be related to backyard poultry flocks.[clxxxvii] See Attachment 4.17.4 for regional county regulations for keeping livestock or poultry in urban areas. There are a lot of farm animals located throughout the counties reviewed in this plan (See Table 4.17.1). Some TADs can lead to death of the host and, if not controlled, are easily transmittable and contagious, leading to the death of large numbers of animals. Disposal of large numbers of carcasses can create a community health risks. Some animal diseases are transmissible to humans. In some cases, humans can contract animal disease through mere contact; in other cases through consumption of animal products can lead to infection. If allowed to spread to a sufficient scale, these diseases can cause local, regional and national health and economic disasters.

Table 4.17.6: Number of Animal Types per County[clxxxviii]

County	Cass	Clay	Jackson	Platte	Ray
Cattle and Calves	35,590	27,210	14,012	9,255	25,644
Chickens (Broilers & Layers)	4,382	1,145	2,228	755	2,290
Equine (Horses & Ponies)	1,939	1,512	1,545	733	1,311
Goats (All Types)	1,196	663	236	549	760
Hogs	32,496	677	N/A	N/A	2,393
Poultry (All)	820,000	N/A	N/A	N/A	N/A

Another vector of TADs can be the introduction of exotic animals or their products when they are imported both legally and illegally into the region. The U.S. Fish and Wildlife Service estimates that the global trade in endangered wildlife is $4.2 billion annually, second only to illegal drugs.[clxxxix] Many animals are now considered companions or pets and become part of the family, increasing the chances of cross-species contact and disease transmission. A good example of an exotic animal disease outbreak was the Monkeypox virus transmitted to 53 people in Illinois, Indiana and Wisconsin from prairie dogs that had been purchased as pets in 2003.

CDC *Traceback* investigations found a shipment of animals from Ghana imported to Texas as the probable source of introduction of Monkeypox virus into the United States. The shipment contained approximately 800 small mammals of nine different species, including six genera of African rodents. These rodents included rope squirrels (Funiscuirus sp.), tree squirrels (Heliosciurus sp.), Gambian giant rats (Cricetomys sp.), brush-tailed porcupines (Atherurus sp.), dormice (Graphiurus sp.), and striped mice (Hybomys sp.). Gambian rats from this shipment were kept in close proximity to prairie dogs at an Illinois animal vendor, causing the prairie dogs to be infected with Monkeypox.

On January 17, 2015, about 270 roosters were seized from a suspected cockfighting ring in Oklahoma City, Oklahoma. A majority of the birds had to be euthanized due to sickness and injuries or because they were a breed of rooster which cannot be legally owned under Oklahoma State law. In February

2015, nearly 3,000 fighting birds were confiscated from a cockfighting ring in New York; and, in July 2008, Kansas City, Missouri, animal officials broke-up a cockfighting ring, confiscating 170 fighting birds. Because cockfighting is illegal in every state, many cockfighting rings illegally import birds from foreign countries, making these rings a likely source for TADs to enter regional and local areas.

There are many disease agents that can infect multiple species of animals including humans. These diseases are called zoonosis. People who have close contact with large numbers of animals, such as farmers, pet groomers, and veterinarians, are at a higher risk of contracting a zoonotic disease. Members of the wider community can also be at risk from those zoonotic diseases from infections transmitted by family pets. It is estimated that 70-80 million dogs and 74-96 million cats are owned in the United States. Approximately 37 to 47 percent of all households in the United States have a dog and 30 to 37 percent have a cat.[cxc] Many households keep exotic animals such as snakes, turtles, rodents etc. Domestic animals can spread animal diseases if they come in contact with infected animals or when they interact or comingle with wild animals. Table 4.17.7 shows the number and type of household pets in the planning area.

Table 4.17.7: Number and Type of Household Pets by County

	Cass	Clay	Jackson	Platte	Ray
Human Population	99,478	221,939	674,158	89,322	23,494
Number of Households	37,150	87,217	274,804	36,103	8,957
Dogs	21,696	50,935	160,486	21,084	5,231
Cats	25,373	59,569	187,691	24,658	6,118
Birds	2,638	6,192	19,511	2,563	636
Horses	1,523	3,576	11,267	1,480	367
Fish	287,467	674,885	2,126,433	279,365	69,309
Ferrets	7,463	17,522	55,207	7,253	1,799
Rabbits	35,726	83,873	264,269	34,719	8,614
Hamsters	2,313	5,431	17,111	2,248	558
Guinea Pigs	1,290	3,029	9,543	1,254	311
Gerbils	67,267	157,923	497,585	65,371	16,218
Other Rodents	2,918	6,851	21,586	2,836	704
Turtles	47,158	110,713	348,835	45,829	11,370
Snakes	1,284	3,014	9,497	1,248	310
Lizards	937	2,199	6,928	910	226
Other Reptiles	24,553	57,642	181,619	23,861	5,920

Source 2012 U.S. Pet Ownership & Demographics Sourcebook and American Veterinary Medical Association (https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-pet-ownership.aspx)

Because counties and cities in the planning region have densely populated areas in proximity to agricultural farms, there is a greater chance that domesticated pets and exotic animals could spread animal disease or even introduce them into the area.

Animal disease outbreaks have a large number of secondary hazards. Based on the scope of the outbreak impacts, additional hazards may include:

- Human disease transmission.
- Wildlife disease transmission.
- Domesticated animal disease transmission.
- Contamination of land, crops and water.

The extent of the secondary hazards associated with any animal outbreak is based on numerous factors, including the scope of the outbreak, disease transmission method, morbidity and mortality of the disease, the ease of disease transmission to other populations, and the public perception/response to the outbreak.

4.17.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 4

TAD events could occur in any part of the planning region. In most instances, for a small event, these diseases would be confined mainly in the agricultural areas (see Table 4.17.8) and the magnitude would be low. A large disease event would impact most farms and people in both rural and urban areas of the county.

Table 4.17.8: Agricultural Land Areas

Area	Total Farm land (acres)	Total Land square miles in Jurisdiction	Total Land Acres in Jurisdiction	Percentage of Farmland
Missouri	29,026,573	69709	44,613,760	65.06%
Cass	326,609	699	447,360	73.01%
Clay	143,853	409	261,760	54.96%
Jackson	139,190	616	394,240	35.31%
Platte	178,656	427	273,280	65.37%
Ray	291,798	574	367,360	79.43%

Census of Agriculture, Volume 1, Geographic Area Series" (2007)

If a TAD occurs in the planning region, minimal physical or structural damage to infrastructure and critical facilities would occur, but the cascading effects would create many ripple effects including:

- Reduced food supply.
- Transportation system disruption around agricultural or quarantined areas.
- Economic impact at the local, state and federal levels for agricultural products and markets.
- Health care for possible zoonotic illness.
- Negative consequences on wages, farming supplies and associated industries.
- Destruction of hundreds to thousands of infected or potentially exposed animals.
- Negative impact on the stability of whole farming communities.
- Some properties that cannot be cleaned or disinfected may need to be destroyed or burned.

History indicates that the severity of small TADs is low and they do not cause major deaths or injuries to humans. In a large event, however, this rating would not be the case — especially if the disease crossed species and became zoonotic, causing thousands of people to become ill or die. (See *Section 4.16* – Emerging and Re-Emerging Infectious Diseases hazard profile)

The largest impact would be from millions of animals having to be eradicated due to the traditional policy of slaughtering all clinically affected and susceptible animals on infected or surrounding farms. This policy could result in the eradication of millions of animals. In April 2015, the confirmation of a

highly infectious and deadly H5N2 virus caused poultry producers in Midwestern states, including Missouri, to eradicate 7.8 million birds over a one-month period of time.[cxci]

During the 2001 Foot and Mouth Disease outbreak in the United Kingdom, the extended cull policy resulted in the slaughter of 592,000 cattle (5.5 percent of the national herd), 3,428,000 sheep and 2,500 goats (11.5 percent of the national herd), and 140,000 pigs (2.3 percent of the national herd). Disposals methods included burning, burial (in on-farm and commercial landfills) and rendering, all of which would impact the environment. At the peak of the epidemic, approximately 60,000 animals were culled on one day alone. [cxcii]

Other damages to the area would include farm properties that cannot be cleaned or disinfected and may need to be destroyed. Many of these properties will need to be burned or buried. Some products already in the supply chain might need to be pulled from market shelves and destroyed, resulting in millions of pounds of trash to be disposed of properly.

4.17.4 Probability of Future Occurrence/Events: Low

The likelihood of animal disease outbreaks is difficult to predict; however, based on the history of local disease outbreaks such as rabies, CWD and West Nile virus, the likelihood of a TAD outbreak affecting the planning region is very low. This does not mean outbreaks are not possible, because counties in the planning region have a high concentration of farms, making them susceptible to animal disease outbreaks. Additionally, the region has densely populated areas located near agricultural areas, increasing the potential spread of animal diseases. These populated areas are also have additional transport vectors such as large numbers of pets and urban/hobby-type farms, making the region susceptible to disease outbreaks in both farm and domesticated animal populations as well.

A formulated probability of a TD event occurring in any region in the United States was derived using data from local, regional, national and international historic occurrences and factoring in the strict measures now in place to safeguard the United States from such incursions. The probability of a Foot and Mouth Disease from live animal importation is only 0.415 percent per year, which is the equivalent to one introduction every 241 years[cxciii]. The probability of humans contracting Highly Pathogenic Avian Influenza (H5N1) is rare, with 650 humans infected with the viruses in 15 countries since 2003, as reported to the World Health Organization (WHO)[cxciv].

In many cases, future land development will not have any significant effects on strategies to reduce the chances of a TAD occurring in the planning area, but some risks of closely associating urban and agricultural areas should be considered. Other future initiatives that can have specific effects regarding the spread of TADs would include strengthening reporting and licensing rules and regulations regarding urban and hobby farms. Knowing where animals are located is vital to stopping the spread of animal diseases. Registering these types of farms and animals would help local health officials during disease surveillance operations and aid educational programs.

4.17.5 Vulnerability Analysis and Potential Losses: Low (People Affected)

If a TAD occurred within the planning area, severe economic loss would result in all aspects of the agricultural economy. Just the direct effects on the farming community would impact about 9,250 individual farmers along with their families. One of the biggest impacts would be the increased prices for milk, meat, cheese that would affect all residents throughout the region. Should the TAD become zoonotic and infect humans, the entire population of the county would be affected by higher food prices and the exposure to the disease. (See Table 4.17.9)

Table 4.17.9: Principal Operators by Primary Occupation

Number of principal operators by primary occupation:	Cass	Clay	Jackson	Platte	Ray
Farming*	692	246	271	266	591
Other*	803	332	430	333	571
Principal operator by days worked off farm:**	1,662	631	728	548	1148
Total	**3,157**	**1,209**	**1,429**	**1,147**	**2,310**

*2012 Census of Agriculture – County Data USDA, National Agricultural Statistics Service

**City-Data.com - http://www.city-data.com/county/Cass_County/Cass_County-MO.html

Vulnerable Populations – Because of the potential for higher food prices caused by a TAD, the higher prices would affect lower social economic demographics, particularly young children. A good example is the cost of milk. Should an animal health emergency be declared, livestock and allied industries will feel the immediate impacts of animal quarantines, increased testing, and product movement restrictions. The just-in-time supply practices of the milk industry in the U.S. could result in significant interruptions of delivery of milk and associated products to consumers, creating significant price increases and milk disposal and animal welfare issues in dairies.

Total Exposure: Low

Animal disease outbreaks can range in severity from a local single animal infected to a regional, statewide, national or international epidemic. A small TAD outbreak would cause isolated damages and loss of animals in the areas of outbreak. A large event would put the entire value of livestock, poultry and all other animals and their associated products at risk. Annually, diseases such as West Nile virus and rabies continue to affect both domesticated and livestock populations throughout the planning area and throughout the state of Missouri, supporting the assertion that some animal diseases eventually become pervasive throughout the state.

Unlike smaller annual outbreaks of endemic diseases, the introduction of a novel TAD within any population of animals at the local, regional, state or national levels could prove to be catastrophic to local economies and animal populations. In most instances, immunity to new TADs is not present in animals, leading to a high initial morbidity and mortality rate. This introduction can rapidly escalate the status of the disease, requiring large-scale euthanasia, quarantine and isolation, regulations on transportation and restrictions on exports of agricultural products. Additionally, based on the number of domesticated animals and human population densities within and around farming communities in the planning region, the spread of the disease from wildlife to livestock and household pets may pose additional threats to public health. According to the CDC, over 75 percent of recent emerging diseases impacting the human population originated within the animal population.[cxcv]

Table 4.17.10: Potential Loss Estimates, Trans-Boundary Animal Disease (Small Outbreak)						
County	**Total value of Crops including Nursery and Greenhouse***	**Total value of livestock, Poultry and their products***	**Total Market Value of all Farm Products Sold***	**Estimated cost TBD outbreak for all agricultural Products****	**Indirect Cost (wages, consumption goods/services etc.)*****	**Projected cost of TAD outbreak**
Cass	$58,280,000	$23,075,000	$81,355,000	$5,345,023	$1,870,758	$7,215,781
Clay	$14,232,000	$18,501,000	$32,733,000	$2,150,558	$795,706	$2,946,264
Jackson	$27,724,000	$4,344,000	$32,068,000	$2,106,868	$779,541	$2,886,409
Platte	$43,973,000	$9,076,000	$53,049,000	$3,485,319	$1,289,572	$4,774,901
Ray	$35,783,000	$28,730,000	$64,513,000	$4,238,504	$1,568,246	$5,806,750

*All value figures based on 2007 U.S. Census of Agriculture, Volume 1, Geographic Area Series.
**Figured at 6.57 percent, based on OiE Figures on Foot and Mouth Disease type outbreak Supporting document $N^{0}1$ from Royal Veterinary College.
***Indirect impacts based on 37 percent of estimated TAD cost from modeling economic impact of Feral Swine, transmitted FMD case study from Missouri.

The figures in Table 4.17.10 do not include the cost of any embargos on U.S. exports (estimated at 13 percent) and possible consumer fears that would lead to a decrease in applicable food expenditures (estimated at 7 percent). The figures also do not reflect the increase in government support payment directed to the agricultural sectors such as grains and feed (estimated at 13 percent).[cxcvi] The impact on the region from a TAD would not only be devastating to the local economy but also to consumer confidence about the agricultural products. Public reactions to the disease outbreak could change a consumer's long-term consumption of affected agricultural products (meat, milk, pork, etc.) resulting in sharp decreases in prices which will magnify producer losses and increase government support.

Natural environment – A TAD could cause serious environmental concerns. One of the major impacts that would need to be mitigated is assuring the proper disposal of dead and infected animals were done safely and properly.

Potential Loss Estimations

Table 4.17.11: Maximum Loss Estimation by County, Trans-Boundary Animal Disease					
County	**Overall Risk (Probability + Severity/2)**	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
Cass	(P=Low-1 S=High-3) = 2	Medium = 4	26,018,000=Low-1	100,889=Med - 2	2.25=Med.
Clay	(P=Low-1 S=High-3) = 2	Medium = 4	10,769,000=Low-1	233,682=Med - 2	2.25=Med.
Jackson	(P=Low-1 S=High-3) = 2	Medium = 4	10,229,000=Low-1	683,191=High - 3	2.50=High
Platte	(P=Low-1 S=High-3) = 2	Medium = 4	20,743,000=Low-1	94,788=Low - 1	2.0=Med.
Ray	(P=Low-1 S=High-3) = 2	Medium = 4	21,087,000=Low-1	22,949=Low - 1	2.0=Med.

Table 4.17.12: Minimum Loss Estimation by County, Trans-Boundary Animal Disease					
County	**Overall Risk (Probability + Severity/2)**	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
Cass	(P=Low-1 S=Low-1) = 1	Medium = 1	$7,215,781=Low-1	3,157=Low-1	1.00=Low
Clay	(P=Low-1 S=Low-1) = 1	Medium = 1	$2,946,264=Low-1	1,209=Low-1	1.00=Low
Jackson	(P=Low-1 S=Low-1) = 1	Medium = 1	$2,886,409=Low-1	1,429=Low-1	1.00=Low
Platte	(P=Low-1 S=Low-1) = 1	Medium = 1	$4,774,901=Low-1	1,147=Low-1	1.00=Low
Ray	(P=Low-1 S=Low-1) = 1	Medium = 1	$5,806,750=Low-1	2,310=Low-1	1.00=Low

Specific Jurisdictional Vulnerabilities

Table 4.17.13: Specific Jurisdictional Vulnerabilities, Trans-Boundary Animal Disease				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
Large number of Farms 1,495	High Urban to Rural area interface	High Urban to Rural area interface	High Urban to Rural area interface	Large number of farms 1,162
Livestock Auction House located in county				
Large number of major transportation routes used to transport livestock to markets, etc.	Large number of major transportation routes used to transport livestock to markets, etc.	Large number of major transportation routes used to transport livestock to markets, etc.	Large number of major transportation routes used to transport livestock to markets, etc.	Large number of major transportation routes used to transport livestock to markets, etc.
Large Economic Agricultural Base				Large Economic Agricultural Base

4.17.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for TADs:

- There can be delays in recognizing TADs.
- Basic education regarding animal diseases is needed for the general public.
- Animals that can be infected by TADS are located in both urban and rural areas due to urban and hobby farms.
- There are peak times when animals are transported to markets many of which travel on local interstates and highways throughout the region.

4.17.7 Attachments

Attachment 4.17.1: OiE Reportable Diseases, Infections and Infestations in Force 2015			
Multiple species diseases, infections and infestations	**Cattle diseases and infections**	**Sheep and goat diseases and infections**	**Equine diseases and infections**
Anthrax	Bovine anaplasmosis	Caprine arthritis/encephalitis	Contagious equine metritis
Bluetongue	Bovine babesiosis	Contagious agalactia	Dourine
Brucellosis (*Brucella abortus*)	Bovine genital campylobacteriosis	Contagious caprine pleuropneumonia	Equine encephalomyelitis (Western)
Brucellosis (*Brucella melitensis*)	Bovine spongiform encephalopathy	Infection with *Chlamydophila abortus* (Enzootic abortion of ewes, ovine chlamydiosis)	Equine infectious anaemia
Brucellosis (*Brucella suis*)	Bovine tuberculosis	Infection with peste des petits ruminants virus	Equine influenza
Crimean Congo haemorrhagic fever	Bovine viral diarrhoea	Maedi-visna	Equine piroplasmosis
Epizootic haemorrhagic disease	Enzootic bovine leukosis	Nairobi sheep disease	Glanders
Equine encephalomyelitis (Eastern)	Haemorrhagic septicaemia	Ovine epididymitis (*Brucella ovis*)	Infection with African horse sickness virus
Foot and mouth disease	Infectious bovine rhinotracheitis/infectious p ustular vulvovaginitis	Salmonellosis (*S. abortusovis*)	Infection with equid herpesvirus-1 (EHV-1)
Heartwater	Infection with *Mycoplasma mycoides* subsp. *mycoides* SC (Contagious bovine pleuropneumonia)	Scrapie	Infection with equine arteritis virus
Infection with Aujeszky's disease virus	Lumpy skin disease	Sheep pox and goat pox	Venezuelan equine encephalomyelitis
Infection with *Echinococcus granulosus*	Theileriosis		
Infection with rabies virus	Trichomonosis		
Infection with Rift Valley fever virus	Trypanosomosis (tsetse-transmitted)		
Infection with rinderpest virus			
Infection with *Trichinella* spp.			
Japanese encephalitis			
New world screwworm (*Cochliomyia hominivorax*)			
Old world screwworm (*Chrysomya bezziana*)			
Paratuberculosis			
Q fever			
Surra (*Trypanosoma evansi*)			
Tularemia			
West Nile fever			

Attachment 4.17.1: OiE Reportable Diseases, Infections and Infestations in Force 2015 (Continued)

Swine diseases and infections	Avian diseases and infections	Lagomorph diseases and infections	Bee diseases, infections and infestations
African swine fever	Avian chlamydiosis	Myxomatosis	Infection of honey bees with *Melissococcus plutonius* (European foulbrood)
Infection with classical swine fever virus	Avian infectious bronchitis	Rabbit haemorrhagic disease	Infection of honey bees with *Paenibacillus larvae* (American foulbrood)
Nipah virus encephalitis	Avian infectious laryngotracheitis		Infestation of honey bees with *Acarapis woodi*
Porcine cysticercosis	Avian mycoplasmosis (*Mycoplasma gallisepticum*)		Infestation of honey bees with *Tropilaelaps* spp.
Porcine reproductive and respiratory syndrome	Avian mycoplasmosis (*Mycoplasma synoviae*)		Infestation of honey bees with *Varroa* spp. (Varroosis)
Transmissible gastroenteritis	Duck virus hepatitis		Infestation with *Aethina tumida* (Small hive beetle).
	Fowl typhoid		
	Infection with avian influenza viruses		
	infection with influenza A viruses of high pathogenicity in birds other than poultry including wild birds		
	Infection with Newcastle disease virus		
	Infectious bursal disease (Gumboro disease)		
	Pullorum disease		
	Turkey rhinotracheitis		

Attachment 4.17.1: OiE Reportable Diseases, Infections and Infestations in Force 2015 (Continued)

Other diseases and infections	Fish diseases	Mollusc diseases	Crustacean diseases	Amphibians
Camelpox	Epizootic haematopoietic necrosis	Infection with abalone herpesvirus	Crayfish plague (*Aphanomyces astaci*)	Infection with *Batrachochytrium dendrobatidis*
Leishmaniosis	Infection with *Aphanomyces invadans* (epizootic ulcerative syndrome)	Infection with *Bonamia exitiosa*	Infection with Yellowhead virus	Infection with ranavirus
	Infection with *Gyrodactylus salaris*	Infection with *Bonamia ostreae*	Infectious hypodermal and haematopoietic necrosis	
	Infection with HPR-deleted or HPR0 infectious salmon anaemia virus	Infection with *Marteilia refringens*	Infectious myonecrosis	
	Infection with salmonid alphavirus	Infection with *Perkinsus marinus*	Necrotising hepatopancreatitis	
	Infectious haematopoietic necrosis	Infection with *Perkinsus olseni*	Taura syndrome	
	Koi herpesvirus disease	Infection with *Xenohaliotis californiensis*	White spot disease	
	Red sea bream iridoviral disease		White tail disease	
	Spring viraemia of carp			
	Viral haemorrhagic septicaemia			

Government and industry work together to provide surveillance for animal diseases in Missouri. Veterinarians, producers and regulatory officials watch livestock and poultry stocks carefully for any signs of disease and requires the following animal diseases to be reported to state or federal officials within 24 hours of suspicion or diagnosis:

Attachment 4.17.2: Missouri Department of Agriculture Reportable Agricultural Diseases		
Aquaculture (Fish)	**Avian (Poultry, Chickens, Turkeys & Birds)**	**Bovine (Cattle & Bison)**
Infectious Salmon Anemia	Avian infectious encephalomyelitis	Anthrax
Soring Viremia of Carp	Avian influenza (High pathogenic, H5, H7)	Bluetongue
	Infectious laryngotracheitis	Bovine babesiosis (Texas fever, piroplasmosis)
	Newcastle disease (VVND)	Bovine spongiform encephalopathy (BSE)
		Brucellosis
		Contagious bovine pleuropneumonia
		Foot-and-mouth disease
		Heartwater
		Pseudorabies
		Rift valley fever
		Rinderpest (cattle plague)
		Screwworm
		Tuberculosis
		Trichomoniasis
		Vesicular stomatitis
Caprine & Ovine (Goat & Sheep)	**Cervidae (Elk & Deer)**	**Canine & Feline (Dogs & Cats)**
Brucellosis caused by Brucella meletensis and B. ovis	Chronic Wasting Disease (CWD)	Rabies
Foot-and-mouth disease	Foot-and-mouth disease	
Goat and sheep pox	Tuberculosis	
Heartwater		
Peste des petits ruminants (kata)		
Rift Valley fever		
Scabies		
Scrapie		
Screwworm		
Tuberculosis		
Vesicular stomatitis		
Equine (Horses)	**Porcine (Swine, Pigs & Feral Swine)**	**All Species**
African Horse sickness	African swine fever	Anthrax
Babesiosis (piroplasmosis)	Brucellosis	Brucellosis
Contagious equine metritis	Classical swine fever (Hog cholera)	Pseudorabies
Dourine (equine trypanosomiasis)	Foot-and-mouth disease	Rabies
Eastern equine encephalomyelitis	Pseudorabies	Screwworm
Equine infectious anemia (EIA)	Swine vesicular disease	Tuberculosis
Equine piroplasmosis	Vesicular stomatitis	Vesicular stomatitis
Equine rhinopneumonitis		
Equine viral arteritis		

Attachment 4.17.2: Missouri Department of Agriculture Reportable Agricultural Diseases		
Glanders		
Venezuelan equine encephalomyelitis		
Vesicular Stomatitis		
Western equine encephalomyelitis		
Equine (Horses) (continued above)		

Attachment 4.17.3: Recent Kansas City Planning Region Trans-Boundary Animal Disease Incidents			
Date(s) of Event	**Disease Type**	**Counties Impacted**	**Description**
2002	West Nile Virus	Cass, Jackson, Platte	Cass had 2 cases, Jackson County had 7 cases and Platte had 1 case in humans with the virus found in multiple dead birds.
2003	West Nile Virus	Cass, Clay, Jackson	Cass had 1 case, Clay had 2 cases Jackson had 9 cases, and Ray has 1 case in humans.
2004	West Nile Virus	Cass, Clay, Jackson	Clay had 1 case and Jackson had 3 cases in humans. Clay and Cass had 2 cases each of the virus in horses
2005	West Nile Virus	Cass, Clay, Jackson	Clay County had 1 case and Jackson had 3 cases in humans. Jackson and Cass had one case each in horses
2006	West Nile Virus	Cass, Clay, Jackson	Clay had 1 case, Cass had 1 case, and Jackson had 8 cases in humans.
2007	West Nile Virus	Clay, Jackson, Platte	Clay had 2 cases, Jackson had 16 cases and Platte had 1 case in humans.
2008	West Nile Virus	Jackson	Jackson had 2 cases.
2009	West Nile Virus	Jackson	Jackson had one case in humans and One (1) case in a horse.
2010	West Nile Virus	Clay	1 equine case
	Chronic Wasting Disease	Within the State	Within private hunting preserves
2011	Chronic Wasting Disease	Within the State	Within private hunting preserves
2012	West Nile Virus	Jackson	3 cases of human infection
	Chronic Wasting Disease	Within the State	Free range deer in one county
	Epizootic Hemorrhagic Disease (EHD)	Cass, Clay, Jackson, Platte, Ray	Cass – 135, Clay – 191, Jackson – 65 Platte – 133, Ray - 50
2013	West Nile Virus	Clay, Jackson, Ray	Clay had 1 case, Jackson had 4 cases and Ray had 1 case of human infection.
	Porcine Epidemic Diarrhea Virus	Within the State	Several herds identified in the state
	Chronic Wasting Disease	Within the State	Free range deer in two counties
2014	West Nile Virus	Jackson, Clay	Jackson had 1 case of human infection. Clay had 1 case of equine infection.
	Chronic Wasting Disease	Within the State	Free range deer in two counties
	Dengue Fever	Clay	One disease case
	Pigeon Fever	Within the State	Number of horses in Missouri infected
	Porcine Epidemic Diarrhea Virus	Within the State	Several herds identified in the state
2015	Chronic Wasting Disease	Within the State	Confirmed in 24 Missouri free-ranging deer with 4 in Adair County, 19 in Macon County, and 1 in Cole County.

Attachment 4.17.3: Recent Kansas City Planning Region Trans-Boundary Animal Disease Incidents			
Date(s) of Event	**Disease Type**	**Counties Impacted**	**Description**
2015	High Pathogenic Avian Influenza	Within the KC Metro Area	Leavenworth County had a backyard poultry flock infected with H5N2
	High Pathogenic Avian Influenza	Within the State	Turkey houses infected with H5N2

Attachment 4.17.4: County Regulations, Keeping Livestock or Poultry Urban Areas				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
1200 pounds of livestock per 2 acres of grazing areas.	A prorated portion of allowed number of animal units will be applied to small domestic animals if a property is less than one (1) acre. For example, if a property is .50 acre, then the allowable animal units will be calculated at 50%; for a .35 acre property, it would be a 35% rate. (*Example: Animals/acre for Chickens = 16.67 x .35 acre = 5.83 or 6 chickens would be allowed*)	Specific districts do not allow for the keeping of livestock or poultry unless specific conditions are met, and after going through a conditional use hearing. Examples of livestock are: cattle, horses, pigs, sheep, goats, chickens, pheasants, geese, roosters, etc. see section 17.40 Jackson County Zoning Ordinance	Not allowed if not in a rural or agricultural area. Residents can apply for a special use permit but limited on acreage and type of animals etc.	Minimum of 3 acres required to keep any farm animals.

4.18 Mass Transportation Accidents

Mass transportation is defined as the means — or systems — used to transfer large groups of individuals from one place to another. This analysis focuses primarily on the potential hazard of transportation accidents to the public, not to material or cargo being transported. The plan examines the potential for loss of life or damages caused by mass transportation accidents involving public airlines, railroad passenger cars, metro rail travel, tour buses, city bus lines, school buses, riverboat casinos and other means of public transportation.

The state of Missouri serves as a transportation crossroad for the United States. Due to its central location, Missouri is a natural hub for many major transportation routes. The Kansas City region is home to two of the approximately 10 passenger airports in the state.[cxcvii] Airways, railways, and highways are used as nonstop thoroughfares, and many cross-country travelers use Missouri as a transfer point to connect from one mode of transportation to another. As a major entry point into the state, the Kansas City region is an important part of the state's transportation crossroads system, and one of only eight U.S. metropolitan areas with four intersecting interstate highways (I-29, I-35, I-49 and I-70) and four interstate linkages (I-435, I-635, I-470 and I-670). With numerous additional U.S. and state highways, the Kansas City region has the most freeway miles per capita of any urban area in the nation and the eighth highest daily vehicle miles traveled (DVMT) per person.[cxcviii] (See Figure 4.18.1)

The Kansas City region has two commercial airports. The Charles B. Wheeler Downtown Airport used by a large number of corporate, charter and recreational pilots and the Kansas City International Airport (KCI) which serves as a major hub for general aviation, passenger and air freight operations. KCI moves more air cargo each year than any air center in a six-state region.[cxcix] Kansas City ranks first in U.S. railway freight volume by tonnage and is generally regarded as the second largest rail center in the country. The region is also serviced by Amtrak passenger trains. The Kansas City region is home to several large commercial trucking companies and ranked third in the nation for commercial truck traffic. A major bus terminal with metro transit and numerous other passenger bus services are available.

Roadway Classification	Miles
Interstate	278
Freeway/Expressway	204
Other principal arterial	553
Minor arterial	1,096
Major collector	1,803
Minor collector	202
Local	11,507
TOTAL	15,644

Source: KDOT and MoDOT

Figure 4.18.1: Roadway Classification Miles

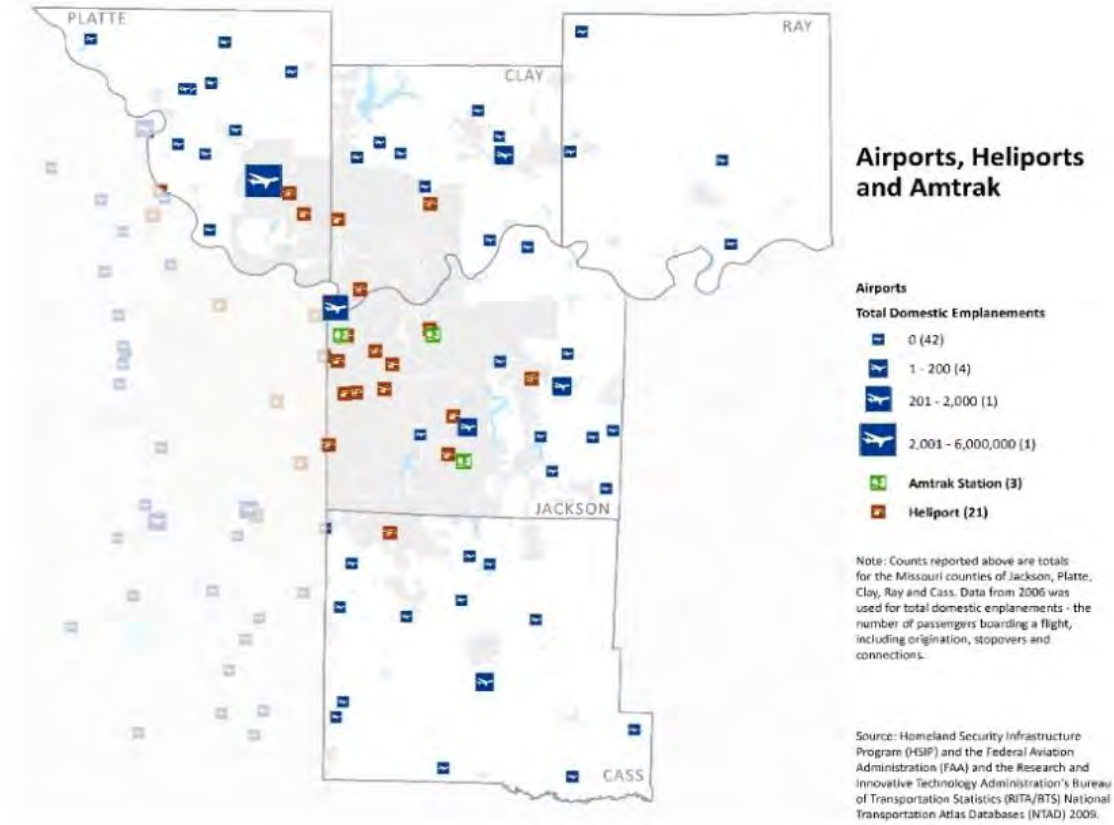
Regional Transportation Systems:

The region's transportation system is currently comprised of six primary subsystems:

1. Commercial and general aviation facilities
2. Freight and passenger rail facilities
3. Fixed-route public transportation operations (Metro bus systems/KC Streetcar operational in 2016)
4. An extensive interstate, highway and city street network
5. Public and private ports on the Missouri River (waterway transportation)
6. Privately-owned pipelines (not described in this plan)

Air Transportation – Area passenger and freight air service is primarily handled through the Kansas City International Airport (airport code MCI). The airport is located 15 miles northwest of downtown Kansas City, Missouri. The facility opened in 1972 and currently has 17 airlines offering non-stop service to 51

cities in the U.S., Canada and Mexico. Commonly referred to as KCI, the airport is one of the top 50 busiest U.S. airports with about 10 million passengers arriving and departing yearly. In 2014, KCI handled 10,166,897 passengers with 126,460 aircraft departures/landings and shipped 182,844,986 pounds of freight. The airport has three terminals (A, B and C) with one terminal not being used at this time. The airport features a three-runway airfield system that can handle up to 139 aircraft operations per hour.[cc]



Map 4.18.1: Airports, Heliports and Amtrak

General aviation and some air freight operations are handled by other area airports in the area, such as the Kansas City (Charles B. Wheeler) Downtown Airport, Lee's Summit Municipal Airport, Clay County Regional Airport in Mosby, Liberty-Roosterville Airport, Lawrence Smith Memorial Airport in Harrisonville, Excelsior Springs Memorial Airport, Grain Valley-East Kansas City Airport and Dearborn-Rainbow Air Village.

Map 4.18.1 displays all airports, heliports and Amtrak facilities in the five-county region.

Rail Transportation **–** Kansas City ranks first in U.S. freight volume by tonnage and is generally regarded as the second largest rail center in the Unites States (after Chicago). The region is serviced by five of the eight Class I railroads, three regional carriers and one local switching carrier (Kansas City Terminal). The Class I railroads are the Burlington Northern and Santa Fe, Kansas City Southern, Transcon, Norfolk Southern and Union Pacific railways, all of which have significant operations and facilities in the region. The Gateway Western (owned by KCS), DM&E Dakota, Minnesota & Eastern Railroad Corporation (formerly I&M Rail Link) and Missouri and Northern Arkansas (MNA) are Class 2 regional carriers. The BGKX Belton-Grandview Railway is a tourist line that offers short trips.

Amtrak serves the Kansas City area with four trains daily. The Missouri River Runner operates two round trips per day between St. Louis and Kansas City with stops adjacent to Union Station in Kansas City, in Independence and in Lee's Summit. In 2014, the service carried 189,000 passengers. Amtrak also provides the Southwest Chief service that operates between Los Angeles and Chicago with stops in Kansas City and an annual ridership of 352,000 passengers in 2014.[cci]

KC Streetcar – A two-mile, north-south KC Streetcar starter line is currently being developed in the downtown Kansas City area. The streetcars will travel along Main Street and connect the River Market area to Crown Center and Union Station and will serve the Central Business District, the Crossroads Art District, and the Power and Light District, as well as numerous businesses, restaurants, art galleries, educational facilities and residents. The streetcar route will include 18 stops spaced roughly two blocks apart. Service is expected to start sometime in mid-2015. The projected ridership forecast for the opening year is expected to be around 2,700.[ccii]

Fixed-Route Public Transportation – The region is served by four public transit bus operators. The Kansas City Area Transportation Authority (KCATA) is an interstate agency of Missouri and Kansas serving seven counties in the Kansas City region, including Cass, Clay, Jackson, and Platte counties in Missouri. The service operates more than 70 metro routes and averages over 50,000 daily boardings.[cciii] (See Figure 4.18.2) The Johnson County Transit (The JO) serves Johnson County and Kansas City, Kansas, with some routes traveling to downtown Kansas City, Missouri, the Country Club Plaza and Crown Center. In January 2015 Johnson County Transit joined into a management agreement with KCATA effective Feb. 1, 2015. Unified Government Transit serves its namesake (Unified Government of Wyandotte County and Kansas City, Kansas). IndeBus provides fixed route and paratransit services in Independence, Missouri.

Average Transit Trips, 2010

Day	Number of Trips
Weekdays	53,550
Saturdays	22,079
Sundays	11,499

*Includes KCATA, The Jo and Unified Government Transit

Figure 4.18.2: Average Transit Trips, 2010

Public bus transportation ridership continues to grow in the region. In 2014, KCATA customers made more than 15.9 million trips — the third highest annual ridership in nearly two decades. KCATA has expanded some public transit routes in recent years although it remains limited, primarily serving work trips within Kansas City, Missouri, and from the inner suburbs to downtown Kansas City.

Buses and Motor Coaches – Numerous commercial bus operations are throughout the region. These include Greyhound, Jefferson Lines and Trailways. The planning region is also served by numerous charter motor coach businesses. There are important distinctions between metro and school bus services and commercial, discounted, tour and charter bus and motor coach services:

Conventional Commercial Bus Lines – The commercial bus industry includes bus service organizations that provide public or private transportation between states. There are hundreds of commercial bus companies within the United States that, when combined, move 200 million more people per year — more than the airline industry.[cciv] These services operate out of traditional bus terminals and normally operate under enhanced federal safety regulations and inspections.

Discount City-to-City Express Carriers – This type of service is sometimes referred to as "Intercity Bus Service" or "Discount City-to-City Operator" and does not operate out of public terminals. Passengers

board the bus curbside at known locations such as a hotel or other public facilities. There are several services operating like this out of the Kansas City area, such as Wanderu, Megabus and Busbud. Once a transportation afterthought, intercity bus service has grown significantly in the last decade thanks to the proliferation of these curbside bus companies offering bus fares 50 to 55 percent lower than Amtrak fares and 55 to 73 percent lower than airline fares.[ccv] The intercity bus transportation sector remains America's fastest growing form of travel by a comfortable margin. The sector's 7.5 percent growth outpaces the 3.0 percent expansion of rail service (in seat-miles) and the less than one percent growth reported by both airlines and agencies tracking automobile travel.[ccvi]

Tour/Charter Bus Companies – Privately-operated buses and motor coaches provide charters for private parties, tours, business events, and sightseeing and associated/affiliation with tour/charter companies. These services mainly cater to special events, tourism sites and vacation destination points (casinos, etc.), including party buses. (See Figure 4.18.3[ccvii])

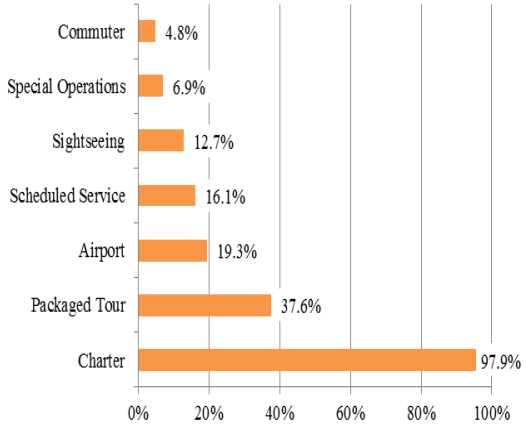


Figure 4.18.3: Charter Service Operations

School Bus –Thousands of students are carried to and from schools every working day. These buses operate in both urban and rural areas around the region and in all types of weather conditions. Although school bus accidents occur every year in the Kansas City region, the safety record for school bus transportation exceeds that of all other modes of travel. Today's school buses are tougher and more diligently maintained than ever. Students are about 50 times more likely to arrive at school alive if they take the bus rather than drive themselves or ride with friends. Students are about 20 times more likely to arrive to school alive riding the bus than if driven by a parent.[ccviii] In 2013, the Missouri Highway Patrol inspected 11,890 buses with 88.3 percent approval rating.[ccix]

Interstates, Highways and Local Streets – The Kansas City region has an expansive highway system that has the highest number of estimated highway lane miles per capita of all U.S. metros (1.262 miles /1000 people).[ccx] (See Map 4.18.2) The interstate and highway systems are generally in good condition although there is an increasing need for bridge and roadway repair/replacement.

Recently, much of U.S. 71, which runs along the western edge of Missouri south of Kansas City — a distance of 180 miles — was upgraded to interstate highway standards with new interchanges, overpasses and outer roads. Re-designated as I-49, the highway connects to I-29 via U.S. 71. The I-49/I-29 corridor links Gulf Coast ports at New Orleans with south-central Canada.

Regional interstates, federal highways and state highways include:

Cass County

- Interstate highways: Interstate I-49 (11 miles to I-35; 12 miles to I-70; 6 miles to I-435)
- Federal highways: U.S. 71
- State highways: M-2, M-7, M-58, M-291

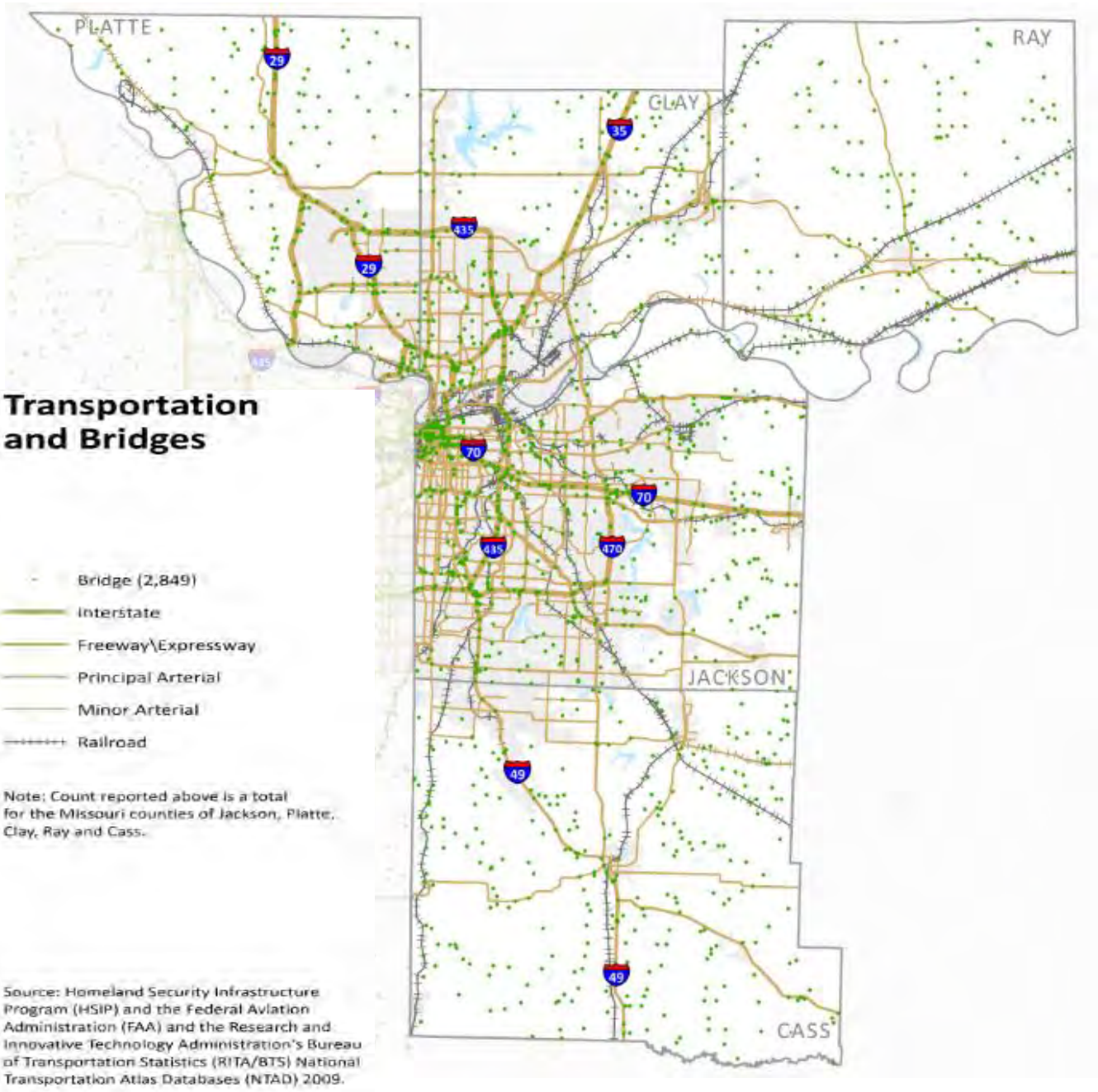
Clay County

- Interstate highways: I-29, I-35, I-435, 2 miles to I-70
- Federal highways: U.S. 69, U.S. 169

- State highways: M-152, M-210, M-291

Jackson County

- Interstate highways: I-29, I-35, I-49, I-70, I-435, I-635, I-470, I-670
- Federal highways: U.S. 24, U.S. 40, U.S. 50, U.S. 71
- State highways: M-7, M-78, M-150, M-210, M-291, M-350



Map 4.18.2: Regional Interstates and Highways

Platte County

- Interstate highways: I-29, I-435, I-635, 3 miles to I-35, 5 miles to I-70
- Federal highways: U.S. 69

- State highways: M-9, M-45, M-92, M-152

Ray County

- Interstate highways: None (30 miles to I-29, 13 miles to I-35, 14 miles to I-70, 19 miles to I-435)
- Federal highways: None
- State highways: M-10, M-12, M-210

Waterways – The port of Kansas City's barge-shipping terminal — closed since 2007 due to low water levels on the Missouri River — is reopening in the West Bottoms near the confluence of the Missouri and Kaw rivers. The port is an intermodal facility transferring freight between barge, truck and rail systems. The Kansas City region is also home to numerous private ports used by companies shipping commodities, including grains, sand and gravel, fertilizer, chemicals, coal and coke. In 2015, the U.S Army Corps of Engineers predicts a full navigation season on the Missouri River, forecasting an expected depth of 11 feet in Kansas City with water levels projected to remain constant and reliable. The PortKC terminal group expects about 5 million tons of cargo to move annually along the Missouri River.[ccxi] Although people do not travel by waterways in the region, the cascading effect of barge accidents could cause a mass transportation accident by impacting bridges, rail lines, pipelines, levees, utility water intakes, etc.

Commercial Truck Traffic – The Kansas City area has a large number of commercial trucking operations due to its centralized location at the crossroads of four major interstate highways. Truck volumes in the region are heavily concentrated on interstates and U.S. highways. I-70 is the most heavily traveled truck route in the region, with some segments exceeding 12,000 trucks per day. Most fatalities in accidents involving large trucks happen to passengers in the smaller vehicles also involved in the accidents. Trucks often weigh 20-30 times as much as passenger cars and are taller with greater ground clearance, which can result in the smaller vehicles under-riding trucks in crashes. Large tractor-trailer rigs have the capacity to cause mass transportation accidents due to their size, weight and materials hauled.

4.18.1 Historical Occurrences

Major incidents involving mass transportation accidents have unfortunately occurred in the region. The following tables (Table 4.18.1 – Table 4.18.4) and data summarize some of these local mass transportation accidents. This data reflects only a few of the transportation accidents that are reported to county and state officials; significantly more minor accidents occur that are not reported nor listed here.

Air Transportation Accidents – Despite several high profile accidents, 2014 turned out to be very safe for commercial aviation, as Aviation Safety Network data indicates.[ccxii] Worldwide, the Aviation Safety Network recorded a total of 21 fatal airliner accidents in 2014 resulting in 990 deaths. This makes 2014 the safest year ever by number of fatal accidents and the 24th safest year in terms of fatalities. Most accidents involved cargo flights (10) and passenger flights (8). Given the expected worldwide air traffic of 33,000,000 flights, the accident rate is 1 fatal passenger flight accident per 4,125,000 flights.[ccxiii] Statistically, United States passenger fatalities number 0.003 deaths per 100 million passenger miles.[ccxiv]

Table 4.18.1: Air Transportation Accidents in the Kansas City Region		
County	**Date**	**Description**
Jackson	April 1987	A Boeing 707 carrying freight crashed on approach to the Kansas City International (KCI) airport killing four crew members.
Jackson	Feb. 1995	A McDonnell Douglas DC-8 carrying freight crashed right after takeoff at KCI killing three crew members.
Jackson	Sept. 1989	A US Air 737 carrying 157 people struck and severed four electronic transmission cables, located about 75 feet above the ground, approximately 7,000 feet east of the runway 27 threshold. The flight crew executed a missed approach and landed uneventfully in Salina, Kansas. None of the passengers or crew was injured, but the airplane sustained minor damage in the incident.

Railroad Accidents – The Kansas City region is at a risk of mass transportation accidents involving a train simply because of the extensive rail network running throughout the area. Hundreds of trains run along its rail lines daily.

Many of these rail lines cross roads and highways where cars, trucks and buses can collide. In rural areas of the region, train crossings may not have safety signals, increasing the chances of traffic crossing in front of oncoming trains. The Federal Railroad Administration's Office of Safety Analysis "Summary of Accidents Reports," indicates a 7.15 percent increase in the total accidents/incidents nationwide of Class One rail carriers between 2011 and 2014.[ccxv]

Amtrak's number of highway-rail incidents reported by the Federal Railroad Administration increased in 2011 by 7 percent per million train miles. This number refers mostly to collisions — usually with vehicles or pedestrians — at railroad crossings, which is the most common type of accident.[ccxvi] The U.S. Bureau of Transportation Statistics reports railroad passenger injuries per 100 million passenger train-miles went from 656.9 in 1990 to 1,355.4 in 2012 and fatalities per 100 million passenger train-miles went from 4.2 in 1990 to 4.7 in 2012.[ccxvii]

Historical records show the Kansas City region has not had a train-related mass transit accident, but incidents have occurred in other areas of the country. On Feb. 16, 1996, 11 people were killed and 26 injured when an Amtrak passenger train smashed head-on into a commuter train in Silver Spring, Maryland. On Sept. 22, 1993 Amtrak's deadliest accident occurred when 47 people were killed near Mobile, Alabama, after a tugboat pushing barges hit a bridge, causing it to collapse just before an Amtrak train was passing over. Previous to this incident, the national railroad's worst crash killed 16 people in January 1987 when an Amtrak train collided with the rear of three Conrail locomotives in Essex, Maryland.

Table 4.18.2: Railroad Accidents in the Kansas City Region		
County	**Date**	**Description**
Jackson	Dec. 2014	During a switching operation at a crossing, the driver of a tractor trailer attempted to pull ahead of a set of rail cars being pushed by a Kansas City Southern Railway Company train and the trailer was struck. No injuries.[ccxviii]
Platte	Feb. 2013	A car was trying to go around the railroad track barricades when it slid on wet snow and became stuck. It was hit by a train, seriously injuring two people.
Platte	Nov. 2011	A four-engine train with 150 cars collided with a 2004 Nissan Quest, seriously injuring the motorist. The accident occurred along Hwy. 9 outside of Parkville, after the automobile had become high-centered on the railroad tracks. The vehicle was dragged 1,297 feet from the initial impact before coming to a halt. The accident seriously injured one person.[ccxix]
Jackson	July 2010	In this train derailment in Sugar Creek, Missouri, 17 cars derailed and six cars overturned. A chemical called Toluene was ignited, which caused one rail car to explode. There were no injuries, but numerous people were evacuated.[ccxx]

Fixed Route Public Transportation Accidents – The Kansas City region has not had any mass transportation accidents involving metro area buses. Numerous smaller accidents have occurred with no major loss of life or injuries.

Because of traffic densities and number of routes, statistics show intercity buses are 1.9 times more likely than any other type of bus transportation to become involved in an accident.[ccxxi] The National Safety Council publishes information on the chances of dying in a transportation-related crash by various modes of travel. The chances of dying on a public transit vehicle (including streetcar and bus) in one's lifetime is low (1 in 179,003) compared to travel by car (1 in 112).[ccxxii]

Table 4.18.3: Fixed Route Public Transportation Accidents in the Kansas City region		
County	**Date**	**Description**
Jackson	Dec. 2104	A Kansas City Area Transportation Authority (KCATA) bus was involved in an accident on a Monday morning near 40 Highway and Stadium Drive. Four people were injured.
Jackson	June 2014	An accident involving a KCATA bus at the I-670 bridge resulted in minor Injuries.
Jackson	Jan. 2014	A three-vehicle accident involved a KCATA bus. One non-life threatening injury was reported.
Jackson	Aug. 2012	A KCATA bus with 13 passengers on board rolled over in Kansas City, Missouri, while trying to avoid a car that pulled out in front of the bus. Three people were inside the car. Of the 16 people involved, 14 were taken to four different hospitals.

Bus and Motor Coach Accidents – The Kansas City region has not seen any mass transportation accidents involving commercial or discount bus service providers. According to the Missouri Department of Revenue, in the fiscal year 2012 there were 11,996 registered buses in Missouri which includes:[ccxxiii]

- Conventional Commercial Bus Lines
- Discount City-to-City Express Carriers
- Tour/Charter Bus Companies
- School Buses

Compared to automobiles, travel by bus is relatively safe. "During 2009, the bus occupant fatality rate was 45 deaths per 100,000 accidents compared with 251 deaths per 100,000 accidents for passenger car occupants."[ccxxiv]

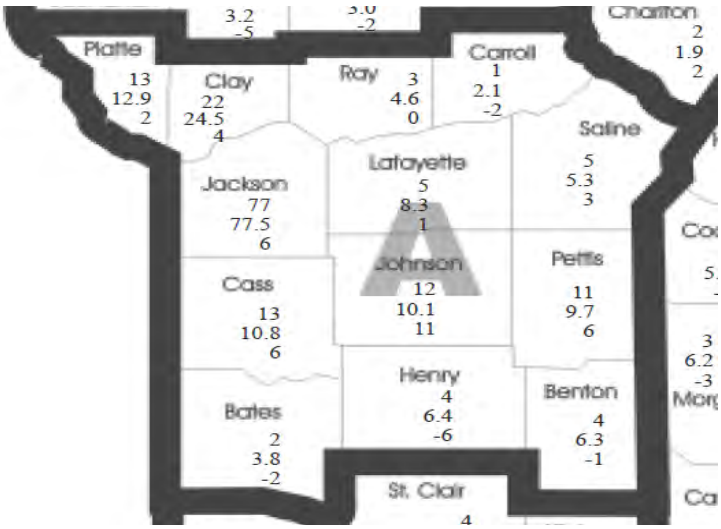
Two major tour bus accidents grabbed headlines in early 2013 — one in California and one in Massachusetts. These accidents injured many passengers, and in the case of the California incident, killed at least eight people.

Table 4.18.4: Bus and Motor Coach Accidents in the Kansas City region

County	Date	Description
Jackson	June 2014	A rollover crash involved a Raytown, Missouri, school bus that hit a power pole. Two people were injured.
Clay	May 2014	A school bus swerved to avoid hitting a truck which crossed into its lane. Seven students were injured.
Cass	March 2012	Two buses collided in the parking lot of the bus barn at 195th and Peculiar Drive in Belton. Two children were injured.
Clay	May 2005	A Liberty, Missouri, school bus driver accidently pressed the accelerator instead of the brake, causing the massive vehicle to slam into a busy intersection, killing two motorists and critically injuring two schoolchildren, with 21 other children injured.

On June 5, 1980, a tour bus carrying mostly senior citizens from Dallas to Branson, Missouri, plunged into a 40-foot ravine near Jasper, Arkansas, killing 20 people and injuring 13.[ccxxv] Unfortunately bus accidents are reported nearly every week in the United States.[ccxxvi]

A 2010 study, "Type of Motor Carrier and Driver History in Fatal Bus Crashes," from the University of Michigan's Transportation Research Institute, examined data from 1999 to 2005 to produce a statistical snapshot of an average year on American roads. Researchers noted that, on average, about 63,000 buses of all kinds are involved in an accident each year. About 14,000 result in an injured person and 325 results in a fatal injury. On average, about 50 people (including drivers and passengers) are killed in bus accidents in a given year.



- The first figure in each county represents the total deaths during 2012.
- The second figure (the figure with the decimal point) represents the average deaths per year for the last 10 years. By removing the decimal point, the number represents the total deaths for a 10-year period.
- The third figure indicates the increase or decrease of traffic fatalities in each county from the year 2011 to 2012. If there is no change it is indicated by a zero.

Example – In Cass County, 13 people were killed in 2012 and an average of 10.8 people were killed each year for the last 10 years (or a total of 108 over the last 10 years). There were six more facilities in 2012 than in 2011.

Map 4.18.3: Missouri Department of Public Safety Traffic Crashes Report, 2013

School Bus Accidents – In the Kansas City region, school bus accidents receive significant media attention. School bus crashes seldom result in fatal or disabling injuries due to the compartmentalization principle used for occupant protection on school buses. School bus accidents have occurred in the region, but fortunately no large loss of life has occurred. Of all reported 2011 Missouri traffic crashes, 0.7 percent involved a school bus. Of all fatal traffic crashes in 2011, 0.1 percent involved a school bus. The 2011 report indicated one person was killed and 320 were injured in school bus crashes.[ccxxvii]

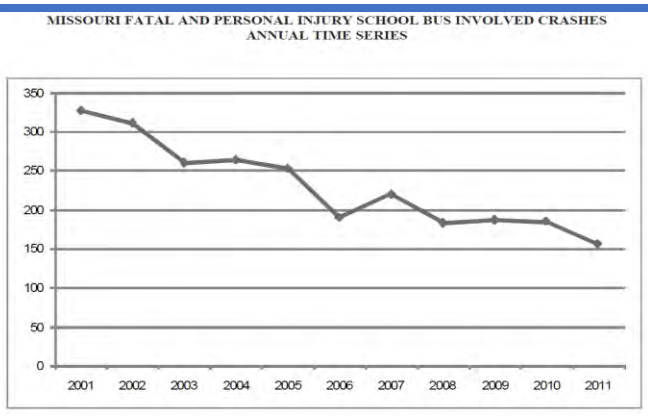


Figure 4.18.4: Annual School Bus Involved Crashes

The report also indicated that 70.6 percent of all 2011 school bus traffic crashes occurred in urban areas of the state and 29.4 percent occurred in rural areas, with 60.5 percent occurring on a city street, 12.5 percent on a county road, and 9 percent on a state-numbered road.[ccxxviii] Crashes involving school buses are declining in the state (Figure 4.18.4).[ccxxix] However, no apparent trends can be determined from this data regarding injuries and fatalities resulting from these crashes.

School bus accidents can result in deaths and injuries, as happened in 2010 when two people were killed and as many as 50 injured in a wreck involving two school buses, a semi and an SUV about 40 miles outside of St. Louis, Missouri. On May 21, 1976, 28 students and one teacher from Yuba City High School died after their bus crashed. On May 14, 1998, the worst bus accident in American history occurred on the way home from a church trip to an amusement park. Sixty-six passengers were on a school bus that was hit head-on by an intoxicated person in a Toyota pick-up truck driving on the wrong side of the road. Of the 66 passengers, 27 died on the bus, 34 were injured — most severely[ccxxx].

Interstate, Highway and Street Accidents – Many accidents occur on regional highways and roads. The interstate and highway system is generally in good condition, although there is increasing need for bridge and roadway repair and replacement. The Missouri Department of Public Safety's 2013 report on Missouri Traffic Crashes (See Map 4.18.3 above) indicates that in 2012, 826 persons were killed in traffic crashes in the state, about 40 (5.1 percent) more than 2011; however, a decrease occurred in the total number of crashes (3.9 percent) compared to 2011. (See Attachment 4.18.1)

Interestingly, only 13.56 percent of all known traffic crashes occurred during inclement weather (rain, snow, sleet/hail, freezing temperatures, fog or mist).[ccxxxi] Also, urban roads are far safer than those in rural areas: "Based on data from 2009, highways in rural areas have a fatality risk that is 2.7 times greater than that in urban areas. In general, the lower average speeds, greater provision of lighting, greater deployment of traffic control devices and fewer curves in urban areas more than compensate for factors such as the greater number of intersections and the presence of pedestrians.[ccxxxii] See Table 4.18.5 and Attachment 4.18.2 for individual county crash statistics.

Table 4.18.5: Missouri Traffic Crashes Ranked by County (2011–2013)[ccxxxiii]

County	Rank	Total Crashes	Percent Total Missouri Crashes
Jackson	2	60,297	14.4%
Clay	6	14,653	3.5%
Platte	13	6,443	1.5%
Cass	14	4,965	1.2%
Ray	57	960	0.2%

Water Route Accidents – The region has many rivers, lakes and streams. History indicates the area has not had any mass transportation accidents involving water craft or barges, although these incidents can occur. (See Table 4.18.6 below) Barge traffic is one of the safest and economical forms of cargo transportation; however, clear evidence exists that barge traffic has the potential to cause mass transportation accidents.

As barge traffic starts to resume on the Missouri River — after a six-year interruption due to low water levels — there will be an ever-increasing chance of barges hitting bridges and other structures along the river. The deadliest Amtrak in accident in U.S. history occurred in 1993 when 47 people were killed near Mobile, Alabama, after a tugboat crashed into a river bridge, causing it to collapse just before an Amtrak train passed over. When flooding occurs, river barges can break loose from their moorings and collide with highway and railroad bridges. Barges can also damage levees during times of high river currents, causing massive flooding that can result in large loss of life and massive damage.

Table 4.18.6: Water Accidents in the Kansas City Region		
County	**Date**	**Description**
Jackson County	July 2014	A worker drowned in the Kansas City area when he fell from a barge into the Missouri River.
Clay County	April 2012	A barge accident knocked seven workers into Smithville Lake located in Clay County, Missouri. Six workers were treated and released at area hospitals with a seventh hospitalized.

Commercial Truck Accidents – Commercial motor vehicles are defined as trucks having six or more tires on the power unit (tractor). Commercial trucks are involved in numerous accidents each year. In 2012, large trucks (gross vehicle weight rating greater than 10,000 pounds) were involved in 333,000 traffic crashes resulting in 3,921 people killed and 104,000 people injured in the United States.[ccxxxv] (See Figure 4.18.5)

Table 4.18.7: Number of Large Truck Accidents by County (2014)[ccxxxiv]				
County	**Fatalities**	**Injuries**	**Property Damage**	**Total Accidents**
Cass	2	25	114	141
Clay	2	62	345	409
Jackson	8	200	817	1,025
Platte	1	28	134	163
Ray	0	7	9	16
Total	**13**	**322**	**1,419**	**1,754**

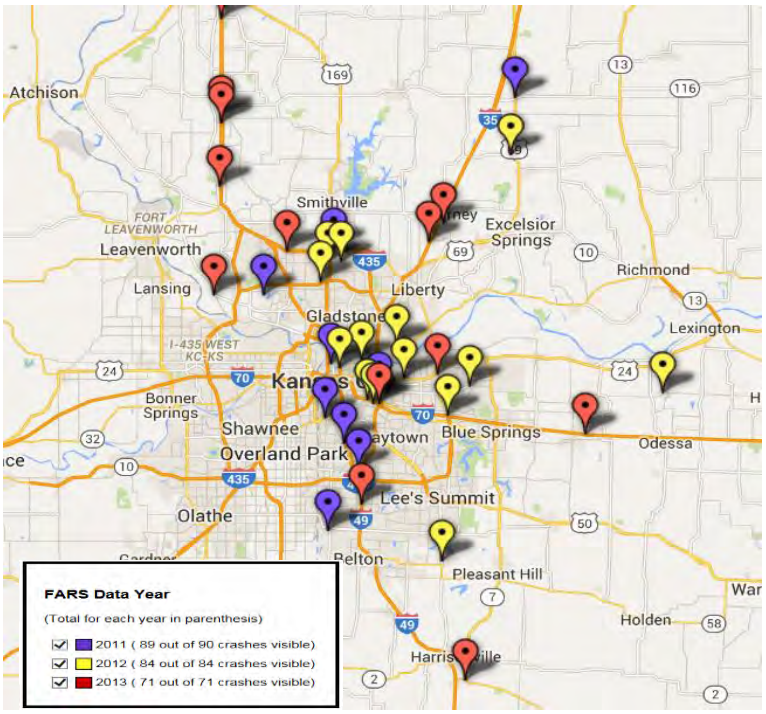


Figure 4.18.5: Deaths in Crashes Involving Large Trucks, 1975–2013

In 2013, about 1 in 10 highway deaths in the U.S. involved a large truck, with 60 percent of these deaths occurring on major roads other than interstates and freeways, 30 percent on interstates and freeways, and 10 percent on minor roads.[ccxxxvi] The Missouri State Highway Patrol in 2012 reported 3,957 injury accidents involving large truck tractor crashes with 67 fatalities and 855 injuries. Table 4.18.7 above

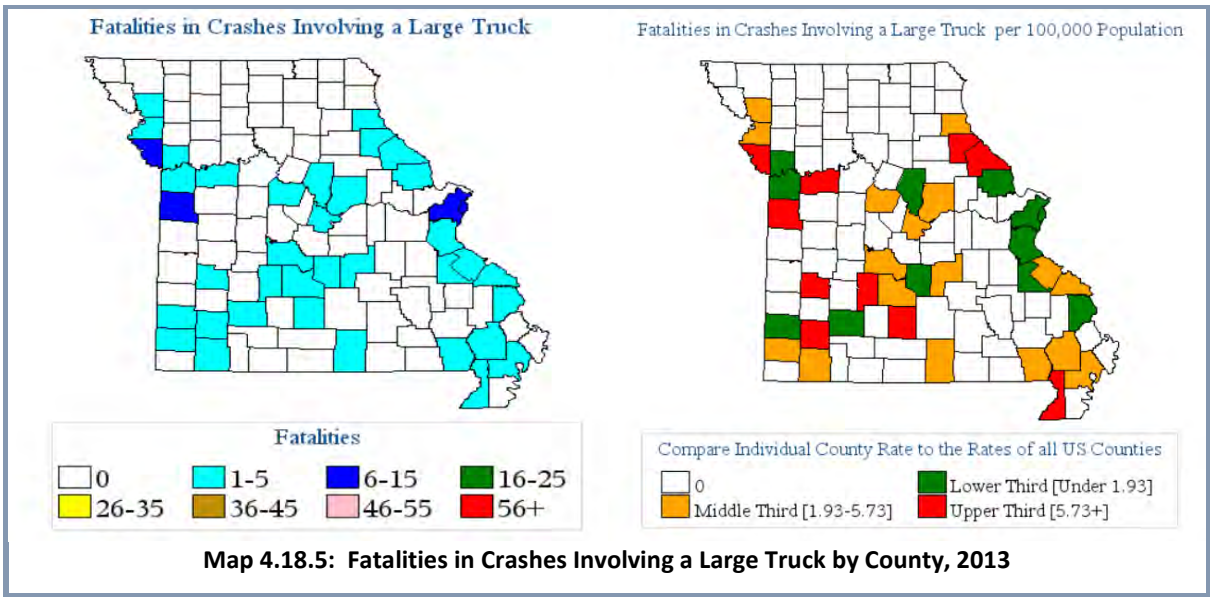
reports the region's 2014 data, and see Map 4.18.4 for the region's location of crashes from 2011-2013. See also a comparison of fatalities by county in 2013 in Map 4.18.5.

Several factors can cause large commercial truck wrecks. Loaded tractor-trailers take 20 to 40 percent more distance to stop than cars, and the discrepancy is greater on wet and slippery roads or with poorly maintained brakes. Truck driver fatigue also is a known crash risk. Drivers of large trucks are allowed by federal hours-of-service regulations to drive up to 11 hours at a stretch and up to 77 hours over a seven-day period. Surveys indicate that many drivers violate the regulations and work longer than permitted.[ccxxxvii]



Map 4.18.4: Location of Large Truck Fatal Crashes

Commercial trucks have the potential to cause a mass transportation incident if the crash impacts a bus or motor coach, involves numerous vehicles or creates a major hazardous materials incident that could impact thousands of people.



Map 4.18.5: Fatalities in Crashes Involving a Large Truck by County, 2013

4.18.2 Probable Locations

The Kansas City region has an expansive highway system that allows motorists, freight movement and emergency response vehicles to reach destinations throughout the area. It is along these routes that most mass transportation accidents such as a major bus incident or large multi-car accident with large numbers of fatalities are likely to occur. The maximum threat to the region would be an airplane crashing in a densely populated area or a rail accident resulting in a large chemical spill.

Mass transportation accidents can occur basically anywhere in the region on both a small or large scale, depending on the number people and types of transportation modes involved. Airplane accidents are most common during takeoffs and landings. This is why some of the most vulnerable areas are in and around airports, such as the Kansas City International Airport or Charles B. Wheeler Downtown Airport. Rail accidents are not very common and mostly occur in rail freight yards but they can also happen anywhere along rail lines.

4.18.3 Extent, Severity, Magnitude

Severity: Medium
Magnitude: 1

A mass transportation accident usually impacts localized facilities and infrastructure in the area of the incident although historical events occurring in other areas of the country have caused severe damage to public and private infrastructures. The areas affected for mass transportation accidents are different for each of the major modes of transportation in the region.

Air Transportation – Would mainly affect jurisdictions falling within five miles of both private and public airports and heliports and areas along the approach and departure flight paths of all runways.

Rail Traffic – Critical areas for rail incidents are based on the location and activity of various rail lines and yards. A small localized rail incident could affect areas within a quarter-mile of the rail lines servicing the freight traffic. A large train derailment could affect areas many miles from the accident site. Often one of the biggest impacts of a freight train accident is traffic disruption, particularly in urban areas. There is no legal limit on freight train lengths in the United States. The average freight train consists of about 70 freight cars and is around 6,000 feet in length. In California, monster trains consisting of 295 freight cars with a length of 18,000 feet have recently been tested.[ccxxxviii] When trains derail not all cars leave the track, but the entire train is disabled and stops moving. These accidents cause train cars to block numerous intersections and streets crossing over the tracks, creating large traffic jams, complicating potential evacuation routes and potentially delaying public safety response efforts.

Interstate, Highways and City Streets – The sheer amount of roadways coupled with the high volume of traffic creates the potential for serious accidents along the regions roads and bridges. In most cases accidents on roads are localized to the accident site but a mass transportation accident could impact areas falling within a quarter-mile of these roads.

Commercial Truck Traffic – Like highway accidents, many of these incidents are localized to the accident site but large areas could be affected because of potential hazardous materials being transported, depending on weather conditions. Most of these types of accidents would impact areas falling within a quarter-mile of these roads. Because of their size, these types of accidents can involve numerous cars, killing and injuring large numbers of people.

Public Transportation/Buses and Motor Coaches – Like highway accidents, many of these incidents are localized to the accident site, but because of the potential for large loss of life and injuries, local jurisdictions' Emergency Medical Service (EMS) organizations and hospitals can be overwhelmed.

Water Routes – These accidents would mainly affect jurisdictions along rivers, streams and lakes. One of the biggest concerns of a major waterway accident is the disruption of public utility services. Many

public drinking water systems and electrical plants rely on water from rivers. If a major accident occurs creating a chemical spill, many of these plans must stop using water from the river until the danger flows downstream past intakes or is cleaned up, which can take hours to weeks depending on the incident. These incidents can also cause damage to roadway and railway bridges.

Significant mass transportation accidents involving such modes as large trucks, buses, aircraft, waterways or railways can result in a wide range of outcomes. These accidents can range from non-injury accidents with minimal localized property damage to events with large numbers of injuries and fatalities and major damage to public and private properties.

For example, some aircraft incidents are nonfatal and only cause minor injuries or property damage, yet history shows some air crashes occurring in densely populated areas can involve multiple fatalities and the destruction of numerous structures. A mass transportation accident involving a bus could burden a local jurisdiction's emergency response, medical services and hospital capacity. This type of hazard could also create cascading factors such as hazardous material release or fire, which would compound the impacts of the incident.

Depending on severity of the event, a mass transportation accident could take days to weeks to remediate. Federal and state regulations require many of these types of accidents to have a comprehensive accident investigation. These studies are done to find out why an accident occurred and how to avoid similar incidents in the future. This investigation can take considerable time and in many cases can delay the return of normal daily activities to the area. Some investigations done at the accident site, especially those involving large commercial aircraft, can take weeks or months to complete.

4.18.4 Probability of Future Occurrences: Low

A mass transportation accident can occur at any time. Based on the available historical data, the probability and severity of a mass transportation accident in the planning area is low. (See Figure 4.18.6) Historically, mass transportation accidents have not occurred in the planning region.
This does not mean they cannot happen, however.

Fortunately, most of the transportation accidents that occur do not involve mass numbers of causalities or damages. In the region, there are no areas which are without risk regarding transportation incidents. Normal traffic events will continue to occur and impact various aspects of the transportation sector, and there is always the risk of a mass transportation accident occurring causing massive deaths and injuries. It is difficult to determine the actual risk to each county or city in the region. No specific mass transportation accident studies have been

Years	U.S. PASSENGER FATALITIES PER 100 MILLION PASSENGER MILES			
	Light Duty Vehicles[1]	Buses[2]	Railroad Psgr. Trains[3]	Airlines[4]
2008-2010	0.54	0.06	0.05	0.003

1. NSC Fatality Analysis Reporting System: cars, light trucks, vans and SUVs, plus taxi passengers and drivers of light duty vehicles
2. American Public Transit Association and National Safety Council estimates: does not include school buses
3. Federal Railroad Administration: Amtrak and commuter rail service
4. National Transportation Safety Board (NTSB) and Bureau of Transportation Statistics (BTS): large airlines and scheduled commuter airlines, excl. cargo/charter/on-demand

Figure 4.18.6: Passenger Fatalities per Passenger Mile by Transportation Mode

conducted to date.[ccxxxix] Certainly locations in and around the more densely populated parts of the region are at greater risk.

The areas surrounding Kansas City International Airport are also at greater risk, especially those areas in-line with the runway approach paths. The odds of an aviation accident increase as the amount of aviation traffic increases. The probability for a mass transportation rail or highway incident is directly related to the population and traffic density of that area. The more populated an area, the more variables can be affected by the accident.

As the Kansas City region continues to grow and commerce and population expand, the prospect of a mass transportation accident will also increase. The more traffic, the greater the chance of an accident occurring. Rules and regulation involving mass transit and commercial modes of transportation will change as investigation of accidents reveal causes and identify modifications that can be made to make systems safer. For example, Amtrak operates over two smaller freight railroads between Kansas City and St. Louis. After a deadly commuter rail accident in Southern California, Congress enacted a law preventing Amtrak from operating on tracks that do not have a system called Positive Train Control. Control technology systems are designed to avoid train collisions, derailments and other mishaps.

In the future, local and regional planners will need to incorporate safer designs into local roads and highways. This would include interactive signage, crossover barriers, utility pole density/setbacks, bridge widths and increased horizontal clearances. City planners also can work on converting stop sign and traffic signal intersections to roundabouts. A recent study showed a 40 percent reduction in all crashes, an 80 percent reduction in injury crashes and a 90 percent reduction in fatal and incapacitating injury crashes in intersections using roundabouts.[ccxl]

In the near term continued enforcement of safety laws such as reducing drunk driving, enforcement of speed limits, monitoring of commercial drivers' hours, bus inspections, etc., will help prevent mass transportation accidents.

4.18.5 Vulnerability Analysis and Potential Loss Estimates: Low (Fewer than 100,000 people would be affected)

In today's mobile society all people in the planning region are at risk of being involved in a mass transportation incident. Fortunately recent history indicates there has not been a loss of life from a mass transportation accident in the planning area. Where large mass transportation accidents have occurred in the United States, the incidents have involved hundreds of people being killed or injured. For example, American Airlines Flight 587 crashed on Nov. 12, 2001, into the Belle Harbor neighborhood of Queens — a densely populated borough of New York City — shortly after takeoff. All 260 people on board the flight were killed, along with five people on the ground.

Vulnerable Populations

All routes and forms of mass transportation are used by vulnerable populations. Often vulnerable populations such as the economically disadvantaged may be more likely to use specific types of mass transportation such as metro bus systems or train travel, exposing them to increased chances of being involved in a mass transportation accident.

Total Exposure – High
(This hazard could involve between $37,928,500 and $114,975,000 in damages)

In 2010, there were 32,999 people killed, 3.9 million injured, and 24 million vehicles damaged in motor vehicle crashes in the United States. The economic costs of these crashes totaled $277 billion. Included in these losses are lost productivity, medical costs, legal and court costs, emergency medical service costs (EMS), insurance administration costs, congestion costs, property damage, and workplace losses.[ccxli]

The $277 billion cost of motor vehicle crashes represents the equivalent of nearly $897 for each of the 308.7 million people living in the United States, and 1.9 percent of the $14.96 trillion real U.S. Gross Domestic Product for 2010. These figures include both police-reported and unreported crashes. The same report estimated the economic cost of motor vehicle crashes to Missouri at $6,381,000,000 or $1,065.00 per person (See Table 4.18.8 for the region's share of this cost).

Table 4.18.8: Total Economic Cost of Motor Vehicle Accidents in the Kansas City Region (2014 Figures)

County	Population (2010)	Cost of all MVA's (1,065.00/Per person)
Cass	82,123	$87,460,995
Clay	183,941	$195,897,165
Jackson	654,941	$697,512,165
Platte	73,826	$78,624,690
Ray	23,374	$24,893,310
Total	**1,018,205**	**$1,084,388,325**

The National Safety Council estimates the average costs of fatal and nonfatal unintentional injuries in its annual reference guide, Injury Facts®. (See Table 4.18.9 and Table 4.18.10) The costs are a measure of the dollars spent and income not received due to incidents, injuries, and fatalities. This cost serves as a way to measure the importance of prevention work — and to illustrate the impact of unintentional injuries and fatalities on the nation's economy. They estimate the cost as follows:[ccxlii]

- Death – $1,410,000
- Incapacitating Injury – $72,700
- Nonfatal Disabling Injury – $78,900
- Property Damage Crash (includes non-disabling injuries – $8,900

Table 4.18.9: Estimated Cost of a Small Mass Transportation Accident

Description of Cost	Cost	Number	Total Cost
Death*	$1,410,000	25	$35,250,000
Nonfatal Disabling Injury*	$78,900	30	$2,367,000
Property Damage Crash* (includes non-disabling injuries)	$8,900	65	$311,500
	Total Cost	**120**	**$37,928,500**
*Average Economic Cost per Death, Injury 2012 figures[ccxliii]			

Table 4.18.10: Estimated Cost of a Large Mass Transportation Accidents

Description of Cost	Cost	Number	Total Cost
Death*	$1,410,000	75	$105,750,000
Nonfatal Disabling Injury*	$78,900	100	$7,890,000
Property Damage Crash* (includes non-disabling injuries)	$8,900	150	$1,335,000
	Total Number & Cost	**350**	**$114,975,000**
*Average Economic Cost per Death, Injury 2012 figures[ccxliv]			

Note: The statistical risk assessment methodology could not be used to calculate loss estimation for mass transportation accidents. The vast majority of motor vehicle accidents involve personal vehicles, which makes estimating the costs associated with an accident difficult, as these property values aren't factored into the total valuation of a county. Instead, general information on vehicle accidents at the federal, state and regional levels is presented in the paragraphs below as a means of estimating loss potential. (See Table 4.18.11-Table 4.18.13)

Natural environment

Due to the range and magnitude of mass transportation accidents, environmental impacts can vary greatly. In the case of a simple motor vehicle crash, train derailment, or aviation accident, the environmental impact may be minimal. However, if the accident involves any type of vehicle moving chemicals or other hazardous materials, the impact will be considerably larger and may include an explosion, fire or the release of potentially hazardous material. See *Section 4.19 Hazardous Materials* of this plan for additional information.

Potential Loss Estimation Tables for the Kansas City Region

Table 4.18.11: Maximum Loss Estimation				
Overall Risk (Probability + Severity/2)	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
P=low-1 S=Med-2	Low	$114,975,000	350	Medium
1.5	1	1	2	1.75

Table 4.18.12: Minimum Loss Estimation				
Overall Risk (Probability + Severity/2)	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
P=low-1 S=Med-2	Low	$37,928,500	120	Medium
1.5	1	1	2	1.38

Specific Jurisdictional Vulnerabilities

Table 4.18.13: Specific Vulnerabilities by County				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
Railway operations throughout the area	Railway operations throughout the area	Railway operations throughout the area	Railway operations throughout the area	Railway operations throughout the area
Public Mass transit systems	Public Mass transit systems	Public Mass Transit systems	Public Mass transit systems	
		Two major regional airports		
		Barge traffic on Missouri River	Barge traffic on Missouri River	
Major interstates and state highways	Major interstates and state highways	Major interstates and state highways	Major interstates and state highways	Major interstates and state highways

4.18.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for mass transportation accidents:

- Mass casualty incidents have no warning time and can happen anywhere in the region.
- The large number of casualties and injuries can overwhelm emergency response agencies and hospitals.
- Most mass transit accidents are due to human errors, making it more difficult to determine what operational practices can be put into place to reduce these type of events.
- Mass transit agencies need to determine how to work together to identify, define, prioritize and mitigate the risks that threaten operational safety.
- New technologies are expensive and take time to implement; it will be necessary to determine how these technologies can be integrated into existing systems.
- Some systems that can reduce the chances of mass transportation accidents, such as red light traffic cameras or recorders that can monitor compliance with regulations and policies, are often not accepted by employees or politically acceptable.

4.18.7 Attachments

Attachment 4.18.1: Missouri Traffic Statistics 1988 through 2012

Traffic Safety Statistics
1988 - 2012

[1] Number of deaths per 100 million miles of vehicle travel.
[2] Number of deaths and injuries per 100 million miles of vehicle travel.
[3] The 1995 cost figures have been calculated using a different National Safety Council cost estimate formula. The 1993 and 1994 cost figures also have been recomputed using this formula. As a result, the 1993 and 1994 costs displayed in this publication are different than those previously published. 1993 - 1995 costs are not comparable to prior years since different cost formulas were utilized.

Year	Killed	Injured	Economic Loss	Licensed Drivers	Vehicles Registered	Miles Travelled	Death[1] Rate	Injury[2] Rate
1988	1,103	69,321	1,368,710,000	3,511,986	3,835,292	45,447,000,000	2.4	155.0
1989	1,052	68,588	1,352,250,000	3,537,276	3,881,896	48,087,000,000	2.2	144.8
1990	1,097	72,493	1,463,320,000	3,702,692	3,948,319	49,891,000,000	2.2	147.5
1991	1,011	67,707	1,616,100,000	3,445,079	3,987,545	50,676,000,000	2.0	135.6
1992	985	70,550	1,981,940,000	3,454,548	4,039,447	53,108,000,000	1.9	134.7
1993	949	77,521	2,561,332,000[3]	3,499,278	4,097,716	54,821,000,000	1.7	143.1
1994	1,089	81,046	3,068,532,000[3]	3,382,050	4,206,637	57,287,000,000	1.9	143.4
1995	1,109	81,114	3,169,354,000[3]	3,688,225	4,250,708	59,115,000,000	1.9	139.2
1996	1,148	82,695	3,065,763,000	3,797,574*	4,381,105	61,007,000,000	1.9	137.4
1997	1,192	81,515	2,949,793,200	3,832,875	4,339,101	62,979,000,000	1.9	131.3
1998	1,169	79,746	3,240,900,000	3,935,879	4,405,307	64,533,000,000	1.8	125.4
1999	1,094	78,317	3,167,302,800	3,983,650	4,429,689	66,856,000,000	1.6	118.8
2000	1,157	76,328	3,238,775,300	4,006,790	4,612,009	66,905,000,000	1.7	115.8
2001	1,098	73,618	3,205,958,600	4,019,869	4,244,980	67,635,000,000	1.6	110.5
2002	1,208	72,599	3,398,495,400	4,118,933	4,413,717	68,162,000,000	1.8	108.3
2003	1,232	69,121	3,431,654,000	4,186,002	4,416,352	67,929,000,000	1.8	103.6
2004	1,130	68,673	3,699,864,000	4,262,059	4,928,515	68,300,000,000	1.7	102.2
2005	1,257	66,413	3,713,459,000	4,284,187	4,722,723	68,754,000,000	1.8	98.4
2006	1,096	62,078	3,492,730,000	4,281,710	5,105,733	68,834,000,000	1.6	91.8
2007	992	60,000	3,508,413,000	4,446,471	5,069,869	69,150,000,000	1.4	88.2
2008	960	55,149	3,182,874,600	4,380,292	5,150,584	72,560,000,000	1.3	76.0
2009	878	53,829	3,318,707,000	4,414,942	5,157,017	69,096,000,000	1.3	79.2
2010	821	54,878	3,201,711,600	4,437,280	5,136,835	70,630,000,000	1.2	78.9
2011	786	51,061	3,213,233,000	4,489,653	5,318,607	68,787,970,653	1.1	74.3
2012	826	50,376	3,299,083,100	4,340,544	6,015,145	68,402,691,574	1.2	74.9

*Updated 1996 Licensed Drivers 3,797,574

Traffic Crashes/2012 statistics 3

Attachment 4.18.2: County Crash Statistics 2011 through 2013

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

County CASS

Total Fatalities and Serious Injuries by Target Area
2011 - 2013

CASS vs. STATE

Total Fatalities

Year	CASS	State	%
2011	7	786	0.89%
2012	13	826	1.57%
2013	15	757	1.98%
Total	35	2,369	1.48%

Total Serious Injuries

Year	CASS	State	%
2011	62	5,643	1.10%
2012	46	5,506	0.84%
2013	45	4,939	0.91%
Total	153	16,088	0.95%

County CLAY

Total Fatalities and Serious Injuries by Target Area
2011 - 2013

CLAY vs. STATE

Total Fatalities

Year	CLAY	State	%
2011	18	786	2.29%
2012	22	826	2.66%
2013	21	757	2.77%
Total	61	2,369	2.57%

Total Serious Injuries

Year	CLAY	State	%
2011	166	5,643	2.94%
2012	171	5,506	3.11%
2013	133	4,939	2.69%
Total	470	16,088	2.92%

County JACKSON

Total Fatalities and Serious Injuries by Target Area
2011 - 2013

JACKSON vs. STATE

Total Fatalities

Year	JACKSON	State	%
2011	71	786	9.03%
2012	77	826	9.32%
2013	70	757	9.25%
Total	218	2,369	9.20%

Total Serious Injuries

Year	JACKSON	State	%
2011	713	5,643	12.64%
2012	613	5,506	11.13%
2013	640	4,939	12.96%
Total	1,966	16,088	12.22%

County PLATTE

Total Fatalities and Serious Injuries by Target Area
2011 - 2013

PLATTE vs. STATE

Total Fatalities

Year	PLATTE	State	%
2011	11	786	1.40%
2012	13	826	1.57%
2013	12	757	1.59%
Total	**36**	**2,369**	**1.52%**

Total Serious Injuries

Year	PLATTE	State	%
2011	48	5,643	0.85%
2012	52	5,506	0.94%
2013	55	4,939	1.11%
Total	**155**	**16,088**	**0.96%**

County RAY

Total Fatalities and Serious Injuries by Target Area
2011 - 2013

RAY vs. STATE

Total Fatalities

Year	RAY	State	%
2011	3	786	0.38%
2012	3	826	0.36%
2013	1	757	0.13%
Total	**7**	**2,369**	**0.30%**

Total Serious Injuries

Year	RAY	State	%
2011	14	5,643	0.25%
2012	10	5,506	0.18%
2013	10	4,939	0.20%
Total	**34**	**16,088**	**0.21%**

4.19 Hazardous Materials

A hazardous material is any substance or material in a quantity or form that may pose a reasonable risk to health, the environment or property. Hazardous materials can be found in many forms and quantities and, depending on their toxicity to humans, can potentially cause death, serious injury or long-lasting health effects, as well as varying degrees of damage to buildings, homes and other property. Exposure to hazardous materials may have short-term and immediate negative health effects, defined as a few seconds, minutes or hours, or long-term negative health effects over days, weeks or even years after the exposure.

Hazardous materials are routinely used and stored in heavy industry, manufacturing, agriculture, mining, oil and gas industries, high tech companies, forestry operations, transportation, medical facilities and commercial, public and residential buildings. There are virtually hundreds of thousands of chemicals that are potentially hazardous to human health, at varying extent. Many of these materials are shipped daily on the region's highways, railroads, waterways and pipelines. A single-family home typically contains dozens of potentially hazardous materials including fuels, paints, solvents, cleaning chemicals, pesticides, herbicides, medicines and others.

Hazardous materials vary widely in their toxicity to humans. The U.S. Department of Transportation (HM-181 Regulations) divides hazardous materials into nine major hazard classes. A hazard class is a group of materials that share a common major hazardous property (e.g., radioactivity, flammability).

These hazard classes are:

Class 1 – Explosives
Class 2 – Gases
Class 3 – Flammable and Combustible Liquids
Class 4 – Flammable Solids; Spontaneously Combustible Materials; and Dangerous-When-Wet Materials/Water-Reactive Substances
Class 5 – Oxidizing Substances and Organic Peroxides
Class 6 – Toxic Substances and Infectious Substances
Class 7 – Radioactive Materials
Class 8 – Corrosives Substances
Class 9 – Miscellaneous Hazardous Materials/Products, Substances or Organisms

Chemical Sources and Exposures – The place where a chemical is released into the environment, such as a leak or spill, is called a source. People can come into contact with a chemical at its source, or chemicals may be carried from the source to people by air, water, soil, and food. The principal modes of human exposure to hazardous materials include:

- Inhalation of gaseous or particulate materials via the respiratory (breathing) process
- Ingestion of hazardous materials via contaminated food or water
- Skin absorption (direct contact with skin or eyes)
- Injection (skin punctures etc.)

Severity of a Hazardous Materials Release – An uncontrolled release of hazardous materials can have a devastating impact on the population, environment and property. The severity of a hazardous material spill or release on the affected community is dependent on multiple factors, including:

- Toxicity of the hazardous material
- Quantity of the hazardous material spilled or released
- Dispersal characteristics of the hazardous material
- Local conditions, including wind direction and topography
- Location of the spill or release relative to sensitive environmental areas, including watersheds that provide community potable water
- Effectiveness of response, cleanup and recovery actions
- Whether the release or spill contains bio-hazardous or radiological materials
- Number of injured of potential victims

Emergency Planning and Community Right-to-Know Act (EPCRA) – Hazardous material incidents are among the most common technological threats to public health and the environment. Most incidents of release result from transportation accidents or accidents in manufacturing facilities that use hazardous materials. In 1984, a deadly cloud of methyl isocyanate killed thousands of people in Bhopal, India. Shortly thereafter, a serious chemical release occurred at a sister plant in West Virginia. These incidents underscored demands by industrial workers and communities in several states for information on hazardous materials. Public interest and environmental organizations around the country accelerated demands for information on toxic chemicals being released "beyond the fence line"— or outside of the facility. Against this background, the Emergency Planning and Community Right-to-Know Act (EPCRA) were enacted in 1986.

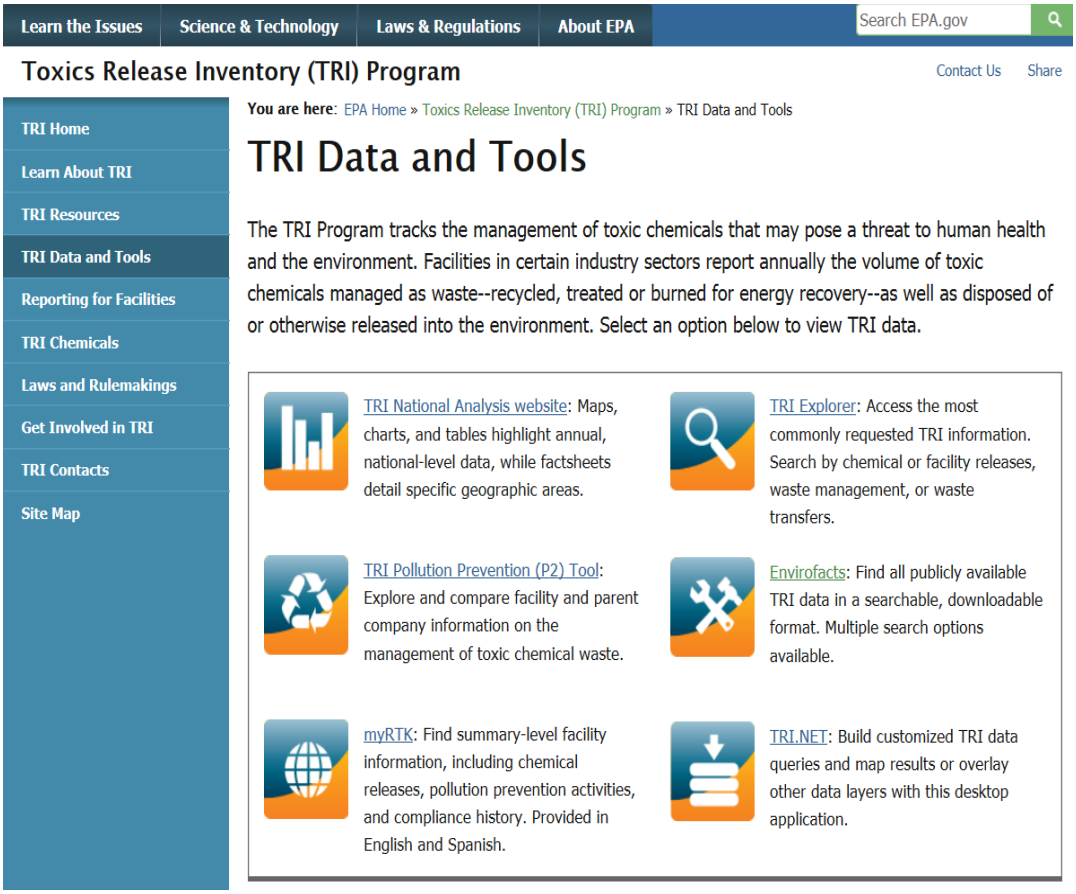
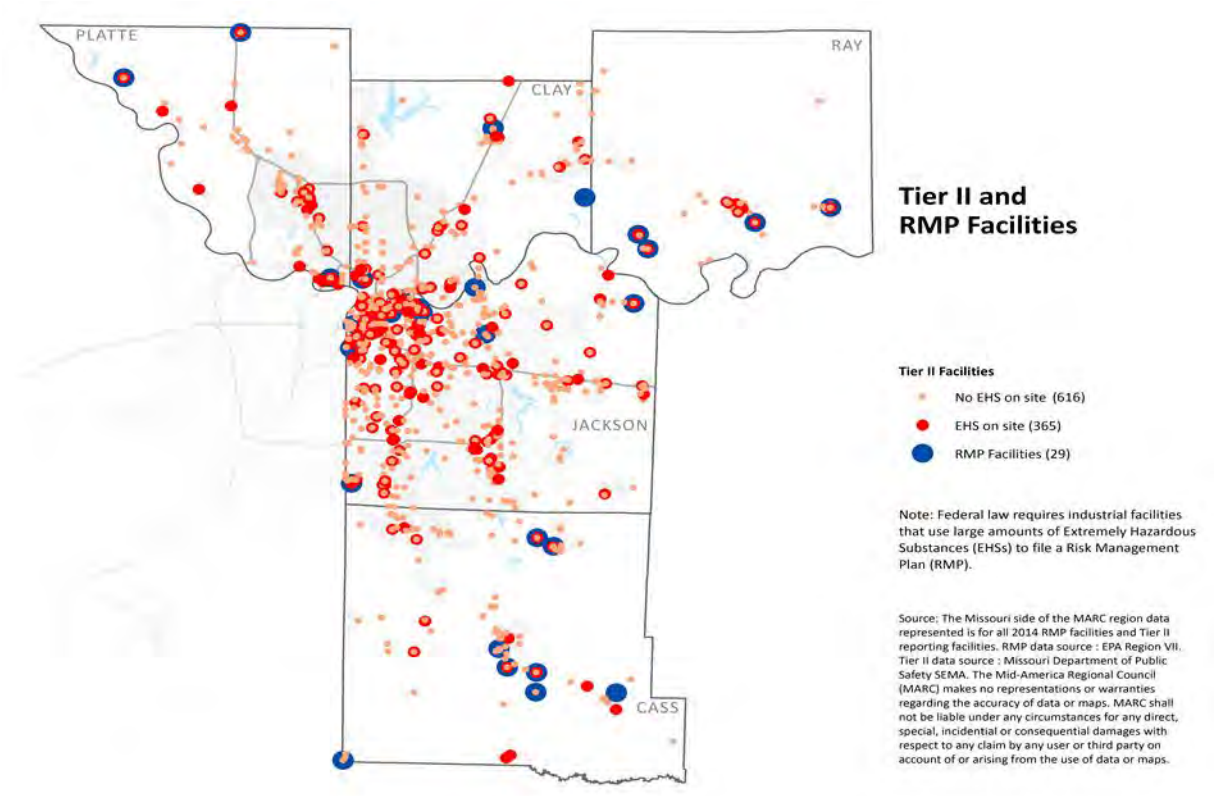


Figure 4.19.1: TRI Data and Tools Program

One of EPCRA's primary purposes is to inform citizens of toxic chemical releases in their areas. EPCRA Section 313 requires EPA and all state governments to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public through the Toxics Release Inventory (TRI). The TRI contains data on disposal or other releases of over 650 toxic

chemicals from thousands of U.S. facilities and provides the public with information about how facilities manage those chemicals through recycling, energy recovery, and mitigation treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

In 1990, Congress passed the Pollution Prevention Act, which requires facilities to report additional data on waste management and source reduction activities to EPA under TRI regulations. The goal of the TRI program is to provide communities with information about toxic chemical releases and waste management activities to support informed decision making at all levels by industry, government, non-governmental organizations and the public. (See Figure 4.19.1)The TRI program compiles release data submitted by regulated facilities each year and makes the data available to the public. See Attachment 4.19.1-Attachment 4.19.5 for TRI information regarding the five-county area covered by this mitigation plan.



Map 4.19.1: Tier II Facilities

"Tier II" Reporting – Tier II reporting is also known as SARA Title III (Section 312). EPCRA requires all organizations and businesses in the United States with hazardous chemicals above certain quantities to submit Emergency and Hazardous Chemical Inventory Forms. (See Map 4.19.1 for facilities in the planning area.) Reports are submitted annually to local fire departments, Local Emergency Planning Committees (LEPC) and State Emergency Response Commissions (SERCs). This information helps these agencies plan for and respond to chemical emergencies. In Missouri Tier II reports are due between January 1 and March 1 each year and provide chemical information/inventory for the previous year. See Attachment 4.19.6 and *Section 4.19.2 Probable Locations* in this hazard for additional information regarding TIER II locations.

EPA National Priorities List (NPL) – This is a list of hazardous waste sites in the United States eligible for long-term remedial action (cleanup) financed under the federal Superfund program. The NPL lists national priorities among known releases or threatened releases of hazardous substances, pollutants or contaminants throughout the United States and its territories. Environmental Protection Agency (EPA) regulations outline a formal process for assessing hazardous waste sites and placing them on the NPL.

The NPL serves primarily informational purposes, identifying for the states and the public those sites or other releases that appears to warrant remedial actions. The sites on the NPL are reviewed by the EPA through a Hazard Ranking System (HRS) which is a structured approach that assigns numerical values that correspond to risk factors based on hazardous materials conditions at the site.

The factors are grouped into three categories:

1. Likelihood that a site has released/has the potential to release hazardous substances into the environment.
2. Characteristics of the waste (e.g., toxicity and waste quantity).
3. People or sensitive environments (targets) affected by current and ongoing releases.

Table 4.19.1 below contains NPL sites for the five-county planning area. Site narrative analysis documents are contained in links in the far right column of the table. (See Attachment 4.19.7-Attachment 4.19.10 for more information on each site.)

Table 4.19.1: EPA NPL Sites for the Five-County Area

Site Name	County	City	Final Listing Date	Site Score	Federal Facility Indicator	Additional Information
Armour Road	Clay	North Kansas City	5/10/99	50.0	No	http://www.epa.gov/region7/cleanup/npl_files/mod046750253.pdf
Conservation Chemical Co.	Jackson	Kansas City	10/14/89	29.85	No	http://www.epa.gov/region7/cleanup/npl_files/mod000829705.pdf
Lake City Army Ammunition Plant (Lagoon)	Jackson	Independence	7/22/87	33.63	Yes	http://www.epa.gov/region7/cleanup/npl_files/mo3213890012.pdf
Lee Chemical	Clay	Liberty	6/10/86	46.81	No	http://www.epa.gov/region7/cleanup/npl_files/mod980853519.pdf

Risk Management Program (RMP) – Facilities that contain any of the extremely hazardous toxic and flammable substances listed at 40 CFR 68.130 in an amount above the "threshold quantity" specified for that substance are required to develop and implement a Risk Management Program (RMP). RMP refers

to all the requirements of Part 68, which must be implemented by the company on an ongoing basis, referring to a plan document that must be submitted to the EPA describing risk management programs and practices that protect the public from these potentially dangerous chemicals. The RMP requires facilities to maintain:

- An EPA-approved RMP plan that is reviewed every five years.
- An analysis of the potential off-site consequences of a worst-case accidental release.
- A five-year accident history review.
- A release prevention program that includes safety precautions and maintenance, monitoring and employee training measures.
- An emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies should an accident occur.

Table 4.19.2: RMP Information for the Five-County Area[ccxlv]

County	Number of RMP Sites	Quantity of Chemicals (lbs)	Types of Chemicals	Number of Accidents*	Number of processes that can reach offsite
Cass	8	2,052,983	Flammable Mixtures, Ammonia and Anhydrous Ammonia	0	11
Clay	4	1,138,100	Propane, Chlorine, Ammonia and Propylene Oxide	0	5
Jackson	10	6,935,719	Chlorine, Ammonia, Propane, Vinyl chloride [Ethene, chloro-], Ethyl mercaptan [Ethanethiol]	2	22
Platte	3	910,000	Ammonia, Toluene Diisocyanate	0	3
Ray	4	3,600,260	Epichlorohydrin, Chlorine, Ammonia and Anhydrous Ammonia	0	7

*accidents happening during the five-year planning cycle

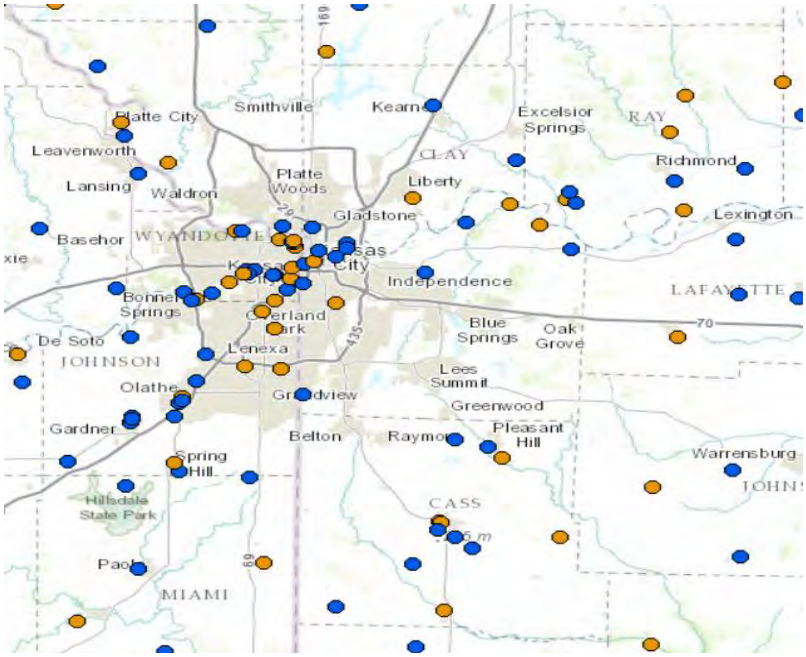
In this regional mitigation plan hazard review, the focus of interest is primarily on the larger inventories of hazardous materials used by industry and on transported hazardous materials. These are areas where the potential for accidents involving chemical spills or releases is the greatest. This plan's hazardous material risk and vulnerability assessment is intended to provide a general overview of the hazard, and the basis for identifying fixed and mobile sources of hazardous materials. It will be limited to general information on rail, highway, and FEMA-identified fixed HAZMAT sites determined to be of greatest significance pertaining to risk as appropriate for the purposes of this plan. (See Table 4.19.2 and Map 4.19.2)

4.19.1 Historical Occurrences

From 1990 through June 2009, there were 1,709 hazardous materials incidents in the region documented by the National Response Center (NRC).[ccxlvi]

Of these, 731 (42 percent) occurred at fixed-site facilities while 503 (29 percent) occurred as a result of mobile vehicle accidents. The remaining 29 percent of incidents were categorized as continuous, such as railroad non-releases, pipeline or unknown origins. Of the total 1,709 reported incidents, 936 (55 percent) occurred in Jackson County, 446 (26 percent) in Clay County, 150 (9 percent) in Cass County, 127 (7 percent) in Platte County, and 50 (3 percent) in Ray County.

From July 2009 through April 2015 there were 1,630 hazardous materials incidents in the five-county planning area reported to the NRC. Of these 672 (41 percent) occurred at fixed-site facilities while 231 (14 percent) occurred as a result of mobile vehicle accidents. The remaining 727 (45 percent) of the reported incidents were categorized as continuous (railroad non-releases, pipeline or unknown origins, etc.). These figures correspond as expected with historical spill data and the levels of industrial activity occurring in each county. Of the total 1,630 reported incidents, Jackson had 1,105 (68 percent), Clay 252 (15 percent), Platte 123 (8 percent), Cass 112 (7 percent) and Ray 38 (2 percent). See Attachment 4.19.11-Attachment 4.19.15 for the breakout of hazardous materials spills by county and city.[ccxlvii]



Map 4.19.2: RMP Facilities for the Kansas City Region (2015)

Data limitations: The total number of incidents is likely far greater than the 1,630 referenced in this report. This information was derived from the Missouri Environmental Emergency Response Tracking System (MEERTS) and the National Response Center (NRC) databases. These databases track only those incidents that are actually reported. The

information in the database is only as accurate as the documentation of the event at the time of the incident; therefore, some data fields may not have been reported and are missing or unknown. Additionally, the NRC database is not easily queried to obtain information such as quantity released, deaths and injuries, evacuations, etc. Each incident must be accessed individually and the report viewed in its entirety to obtain the above information. However, attempting this process for all 1,507 incidents was deemed unnecessarily cumbersome for the purposes of this document. To view the NRC database in its entirety consult www.nrc.uscg.mil/foia.html or the MEERTS "Environmental Incident Search" website at http://apps.dnr.mo.gov/asp/esp/meerts/select.asp.

4.19.2 Probable Locations

The likelihood of a hazardous materials incident is greatest in the following areas:

Transportation Routes – Highways, railways, waterways, pipelines and aviation routes are especially vulnerable because of the multitude of chemical, radioactive, nuclear, explosives and hazardous substances transported along them. In the Unites States approximately 6,774 hazardous materials events occur each year in the United States, 5,517 of which are highway incidents, 991 are railroad incidents, and 266 are due to other causes.[ccxlviii] In 2013, there were 289 chemical spills reported in the Emergency Response Notification System (ERNS) database for Missouri, with 41 occurring in the planning region.[ccxlix]

Highways – No other city in the United States has more freeway-lane miles per capita than Kansas City. It is one of eight cities in the United States in which four interstates intersect. Kansas City's highway infrastructure includes:[ccl]

- Four interstates (I-70, I-49, I-35 and I-29)
- Four interstate linkages (I-435, I-635, I-470 and I-670)
- Nine U.S. highways

As measured by the Bureau of Transportation Statistics (BTS), the Commodity Flow Survey indicates that trucks moved more than one-half of all hazardous materials shipped from within the United States.[ccli] Flammable liquids, especially gasoline, are the predominant hazardous materials transported in the United States. In terms of ton-miles, flammable liquids account for about 56 percent of hazardous materials shipments. The next largest class of hazardous materials, in terms of ton-miles, is gases at about 17 percent. (See Figure 4.19.2[cclii])

Because most hazardous materials are transported by truck, the majority of incidents related to the movement of hazardous materials occur on highways or in truck terminals. (Table 4.19.3 shows the region's highway spills between January, 2009 and April, 2015.) A very small share of hazardous materials transportation incidents are the result of a vehicular crash or derailment (referred to as *accident-related*). Approximately 2 percent of incidents were accident-related in 2012, but they

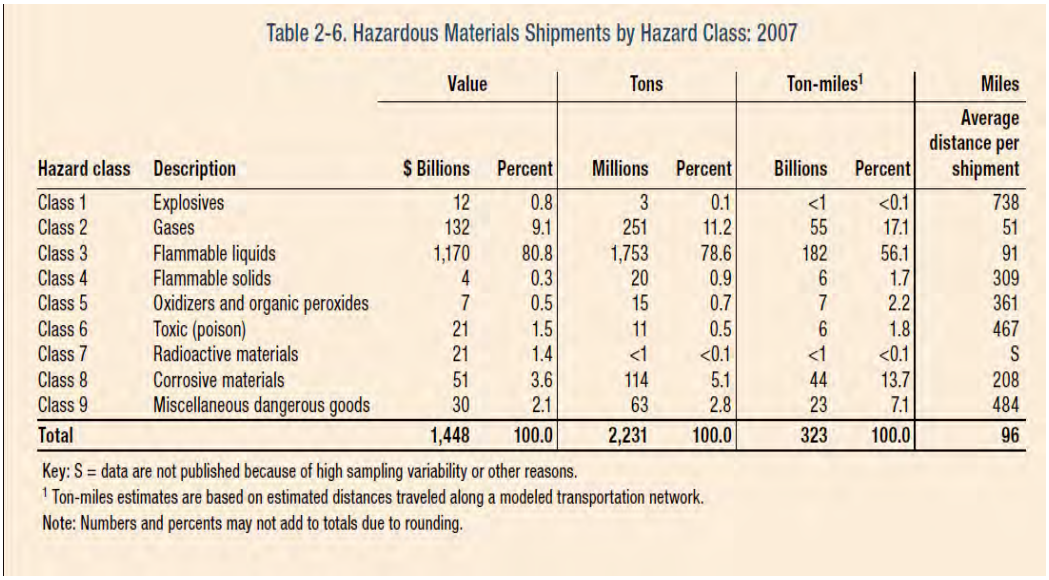


Table 2-6. Hazardous Materials Shipments by Hazard Class: 2007

		Value		Tons		Ton-miles[1]		Miles
Hazard class	Description	$ Billions	Percent	Millions	Percent	Billions	Percent	Average distance per shipment
Class 1	Explosives	12	0.8	3	0.1	<1	<0.1	738
Class 2	Gases	132	9.1	251	11.2	55	17.1	51
Class 3	Flammable liquids	1,170	80.8	1,753	78.6	182	56.1	91
Class 4	Flammable solids	4	0.3	20	0.9	6	1.7	309
Class 5	Oxidizers and organic peroxides	7	0.5	15	0.7	7	2.2	361
Class 6	Toxic (poison)	21	1.5	11	0.5	6	1.8	467
Class 7	Radioactive materials	21	1.4	<1	<0.1	<1	<0.1	S
Class 8	Corrosive materials	51	3.6	114	5.1	44	13.7	208
Class 9	Miscellaneous dangerous goods	30	2.1	63	2.8	23	7.1	484
Total		1,448	100.0	2,231	100.0	323	100.0	96

Key: S = data are not published because of high sampling variability or other reasons.
[1] Ton-miles estimates are based on estimated distances traveled along a modeled transportation network.
Note: Numbers and percents may not add to totals due to rounding.

Figure 4.19.2: Hazard Class Shipments

accounted for 79 percent of all property damage. Most hazardous materials incidents occur because of human error or package failure, particularly during loading and unloading.[ccliii]

Railway – Kansas City ranks first in U.S. freight volume by tonnage and is generally regarded as the second largest rail center in the Unites States. Four Class I rail carriers, three regional lines and one local switching carrier (Kansas City Terminal) serve the area. Missouri has approximately 4,400 miles of main track, 2,500 miles of yard track and about 7,000 public and private crossings. At the present time, 19 different railroads operate in the state of Missouri.[ccliv]

Table 4.19.3: Kansas City Region Hazardous Materials Spills on Highways (Jan. 2009–Apr. 2015)

County	Number of Spills
Cass	5
Clay	21
Jackson	62
Platte	34
Ray	18
Total	**140**

In the Kansas City region, these railroads are broken down in the following manner:

- 4 – Class 1 (large national railroads)
- 2 – Regionals (only operate in two or three states)
- 2 – Terminal Railroads (based in large metropolitan areas)

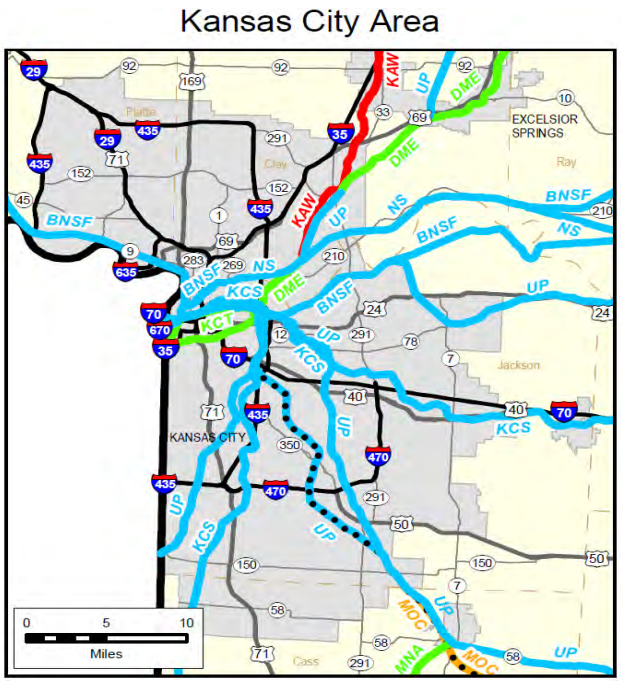
- 6 – Shortlines (regional railroads inside state lines)
- 3 – Tourist lines (short trip railroads hauling passengers for less than one-day excursions)
- 2 – Amtrak trains (national inter-city railroad passenger system)

Railroads operating in the Kansas City area include (See Map 4.19.3):

- BGKX – Belton-Grandview Railway
- BNSF – BNSF Railway Company
- DM&E – Dakota, Minnesota & Eastern Railroad Corporation
- KCS – Kansas City Southern Railway Company
- KCT – Kansas City Terminal Railway Company
- MNA – Missouri & Northern Arkansas Railroad Company
- NS – Norfolk Southern Railway Company
- UP – Union Pacific Railroad Company

Until recently railroads did not carry large shipments of crude oil; however, many trains now transport 80 to 100 cars per train. In eight of the years between 1975 and 2009, railroads reported virtually no spills of crude oil; and, in five of those years, they reported spills of one gallon or less. Comparably, in 2010, railroads reported spilling about 5,000 gallons of crude oil, according to federal data. Fewer than 4,000 gallons were spilled annually in 2011 and 2012. The oil spills in 2013 reached 1.15 million gallons. The Association of American Railroads industry group estimates that railroads shipped 400,000 carloads of crude oil in 2013 — more than 11.5 billion gallons. One tank car holds roughly 28,800 gallons.[cclv]

Between January 2009 and March 2015, there were 127 hazardous materials spills associated with railroads in the five-county planning area. Of these 84 (64 percent) occurred in the rail yards while 43 percent occurred at railroad crossings or at isolated track locations. Of the 127 railroad spills, four occurred in Cass County, five in Clay, 115 in Jackson, one in Platte and two in Ray.[cclvi]



Map 4.19.3: Kansas City Region Rail Lines

Waterways – The Missouri River originates in southwestern Montana and flows in a southeasterly direction about 2,315 miles before joining the Mississippi River, approximately 15 miles upstream of St. Louis, Missouri. Navigation on the Missouri River occurs from Sioux City to the Mississippi river, a distance of 734 miles. The commercial navigation season is normally from late March to early December.

The port of Kansas City's barge-shipping terminal, which has been closed since 2007 due to low water levels on the Missouri River, is reopening in the West Bottoms near the confluence of the Missouri and Kaw rivers. [cclvii] It is located on 6 acres and includes several storage buildings, a crane and other

equipment. It has storage capacity for about 750,000 tons of materials. See Table 4.19.4 for the region's waterway spills between 2009 and April, 2015.

In 2015, the U.S Army Corps of Engineers is predicting a full navigation season on the Missouri River, forecasting an expected depth of 11 feet in Kansas City with water levels projected to remain constant and reliable. The PortKC terminal group is expecting about 5 million tons of cargo to move annually along the Missouri River.[cclviii] The barge and towing industry has a reputation for strong environmental stewardship and safety, with water transport having the fewest number of accidents, fatalities and injuries compared to truck or rail.[cclix] Barge traffic can transport hazardous materials such as agricultural federalizers, petroleum products, chemicals, etc.

Pipeline – Energy pipelines are prevalent throughout all counties in the planning region. Energy pipeline crossings in the areas include large diameter pipes that carry energy products to population centers along with small diameter pipes that bring products such as natural gas to homes and businesses. Attachment Map 4.19.1 through Attachment Map 4.19.5 illustrate the energy pipeline network in each county region. There are two general types of energy pipelines — liquid petroleum pipelines and natural gas pipelines. Within the liquid petroleum pipeline network there are crude oil lines, refined product lines, highly volatile liquids (HVL) lines, and carbon dioxide lines (CO2).

Table 4.19.4: Kansas City Region Pipeline Spills on Waterways[cclx] Jan. 2009 – Apr. 2015

County	Number of Spills
Cass	5
Clay	0
Jackson	9
Platte	3
Ray	0
Total	**17**

Pipelines are an extremely safe way to transport energy across the country. Pipeline releases decreased more than 60 percent from 2001 to 2012. When pipelines fail, large quantities of hazardous materials can be released. While the likelihood of failure is low, if any of these energy pipelines were to be damaged or rupture, such an event could imminently endanger lives and cause damage to property in the immediate area (within less than a half-mile radius). Incidents involving pipeline failures are typically isolated, although the risk area may appear large. The most common manmade cause of pipeline breaks is pipeline rupture due to pipes breaking when heavy construction equipment is used to excavate for construction projects. Pipeline breaks can also be caused by deliberate actions of sabotage or terrorism. Although pipelines are not symbolic targets with political, historical, and cultural significance, they are potential targets for terrorist actions. Major pipeline breaks could disrupt gas service over wide areas with resulting significant economic impacts. All counties in the region are susceptible to this hazard.

Aviation – Hazardous materials (also known as dangerous goods) sent using commercial aviation transportation must comply with Hazardous Materials Regulations, 49 CFR Parts 171-179. These regulations apply to those who offer, accept, or carry hazardous materials to, from, within and across the United States. Kansas City International Airport (KCI) is a major hub for air cargo due to its location adjacent to numerous interstate highways. The airport consistently ranks as one of the best locations for air cargo and distribution facilities in the U.S. with international cargo carriers including DB Schenker, DHL, FedEx, and UPS. [cclxi]

Table 4.19.5: Kansas City Region Aviation Spills Jan. 2009 – Apr. 2015

County	Number of Spills
Cass	0
Clay	0
Jackson	1
Platte	5
Ray	0
Total	**6**

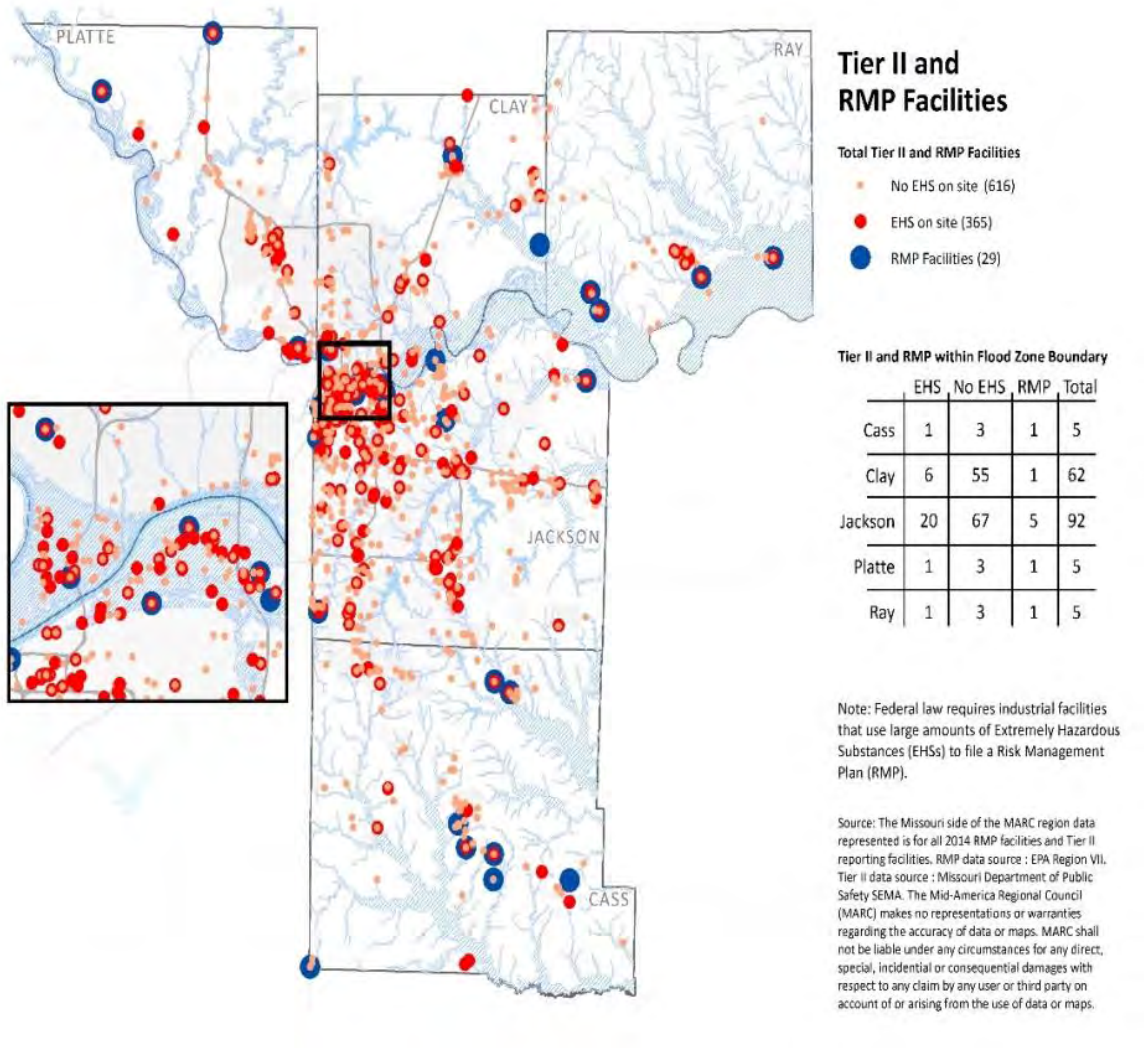
Table 4.19.6: Kansas City International Airport Flight Statistics			
Year	Passengers (Arriving/Departing)	Freight Handled (Pounds)	Flights (Takeoffs and landings)
2009	9,774,972	186,344,076	150,323
2010	9,912,203	185,408,067	145,752
2011	10,158,452	184,459,838	141,664
2012	9,749,507	189,872,059	133,196
2013	9,644,264	193,848,870	129,243
2014	10,166,879	187,804,858	126,460
Total	**59,406,277**	**1,127,737,768**	**826,638**

Between January 2009 and December 2014, KCI handled 59,406,277 passengers with 826,638 aircraft operations and shipped approximately 1.1 billion pounds of freight.[cclxii] (See Table 4.19.6) In the last five years, no major hazardous materials spills caused by the aviation sector have occurred in the planning region (See Table 4.19.5). Unfortunately, large hazardous material incidents resulting from aircraft accidents have occurred. In 1987, a Boeing 707 carrying freight crashed on approach to KCI, killing four crew members. In 1995, a McDonnell Douglas DC-8 carrying freight crashed right after takeoff at KCI, killing three crew members.

Fixed Sites – There are many other sources of hazardous materials besides transportation routes. These include:

Tier II Facilities – Federal and state emergency planning and community right-to-know regulations require facilities that have (1) more than 10,000 pounds of hazardous materials on-site for which a Material Safety Data Sheet (MSDS) is required, (2)more than 500 pounds or the threshold planning quantity (whichever is lower) of extremely hazardous substances (EHS) as defined by 40 CFR Parts 300 and 355, or (3)more than 100 pounds of explosives or blasting agents, to provide the Missouri Emergency Response Commission (MERC), Local Emergency Planning Committees (LEPCs) and local fire departments with annual reports (known as "Tier II" reports). This report identifies the types and quantities of these hazardous materials inventoried at local facilities.

There are 981 Tier II facilities in Cass, Clay, Jackson, Platte and Ray counties (including RMP Sites)(See Map 4.19.4). Given the vast amount of industry throughout the region using hazardous chemicals, a release or improper disposal/handling could imminently endanger lives and cause damage to property and to the environment. While the likelihood of an actual hazardous materials release may be statistically low, all counties in the planning region are susceptible to this hazard. What might be



	EHS	No EHS	RMP	Total
Cass	1	3	1	5
Clay	6	55	1	62
Jackson	20	67	5	92
Platte	1	3	1	5
Ray	1	3	1	5

Map 4.19.4: Tier II and RMP Facilities in Flood Prone Areas

considered a minor release in a sparsely populated area may have disastrous consequences in a densely populated region or locations where large numbers of people are grouped closely together, such as in schools and hospitals. Many “Tier II” sites are located near sensitive/critical facilities, dense populations and flood risk areas. Of the 981 locations, 169 fall within a flood hazard area, which includes nine RMP and 29 EHS facilities, although this classification does not imply that these facilities are subject to flooding or need to transport chemicals offsite during a flood event.

Additional information on Tier II sites can be found in Attachment Map 4.19.6-Attachment Map 4.19.10**,** which graphically present for each county the hazardous material facilities that intersect with population density, flood plains, critical facilities, etc. The 2014 Mid-America LEPC Regional Hazardous Materials Emergency Preparedness Plan has additional information regarding hazardous material sites in the planning region.

Hazardous Waste Sites – The Kansas City area is also home to a number of sites used for the disposal of industrial byproducts and hazardous wastes. These sites are listed as Class 1 through Class 5 in the Missouri Department of Natural Resources' Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri, referred to as the Registry (Table 4.19.7). See Attachment 4.19.10 for more detailed information regarding these sites. The classes are defined as follows:

- Class 1: Sites that are causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment—immediate action required.
- Class 2: Sites that are a significant threat to the environment —action required.
- Class 3: Sites that do not present a significant threat to the public health or the environment—action may be deferred.
- Class 4: Sites that have been properly closed—require continued management.
- Class 5: Sites that have been properly closed with no evidence of present or potential adverse impact—no further action required.

Table 4.19.7: Missouri Registry of Conformed or Uncontrolled Hazardous Waste Disposal Sites

County	Class One	Class Two	Class Three	Class Four	Class Five
Cass	N/A	N/A	N/A	N/A	N/A
Clay	N/A	Armor Road Site BFI- Missouri Landfill HCI Chemtech – Birmingham Rd.	N/A	1) Excelsior Springs FMGP 2) Lee Chemical	N/A
Jackson	Lake City Army Ammunition Plant	Conservation Chemical HCI Chemtech – Stillwell St.	Armco Oil – Sugar Creek Independence FMGP One Lake Lotawana Sportsmen's Club Prier Brass Mfg. Co. 5Riverfront Landfill	1) Armco	N/A
Platte	N/A	N/A	Plattco Landfill-Riverview Property	N/A	N/A
Ray	N/A	N/A	N/A	N/A	N/A
See Fiscal Year 2014 Missouri Registry Annual Report for Individual Site Information					

4.19.3 Extent, Severity, Magnitude

Severity: Medium (Injuries to people, property and the environment is expected)
Magnitude: Medium (10 to 25 percent of the area could be affected by this hazard)

With about 8,900 sites identified by the EPA's EnviroMapper Online Database throughout the planning region,[cclxiii] it is reasonably safe to consider all areas and residents throughout the region are exposed to a risk from a hazardous materials accident.

The severity of the impact of a hazardous materials event on citizens, the environment, wildlife and property will depend on the type, characteristics, location, concentration and quantity of the hazardous material released. What might be considered a minor release in a sparsely populated area may have disastrous consequences in a densely populated region or locations where large numbers of people are grouped closely together, such as in schools, apartments, downtown areas and hospitals.

If a Tier II or RMP site should have a hazardous materials accident, people at the spill location and in close proximity to the site could be exposed to the negative effects of the chemicals. Public safety response agencies use Protective Action Distances (PADs) to protect people during the initial phase of a Dangerous Goods/Hazardous Materials incident. PADs are the recommended safety distances people should keep to avoid exposure from dangerous levels of a released chemical. These PADs can sometimes encompass large areas. For example, the most prevalent hazardous materials inventoried by RMP sites were chlorine and ammonia (See Map 4.19.4). The PAD for a small spill of chlorine gas is about 1 mile downwind, while the PAD for a large release of chlorine gas is about 5 miles down wind.[cclxiv] An airborne release of a chemical at one RMP site could force the evacuation of thousands of residents and sicken hundreds of people.

Many sites using hazardous materials have overlapping PAD/hazard zones, indicating the possible risk to people, businesses, critical facilities, etc. The worst-case scenario would be the rapid release of a large amount of ammonia or chlorine from a storage tank rupture at a RMP facility. The likelihood of such an incident occurring is miniscule; these types of storage tanks are installed with multiple safety systems to prevent the release of an entire tank inventory in a single event. It is important to note that worst-case scenario modeling assumes a uniformly circular dispersal pattern of chemicals. It is highly unlikely that any chemical would disperse in a circular pattern, given weather conditions (wind, humidity, temperature, etc.) and localized terrain, therefore, the potentially vulnerable zone is likely significantly less than worst-case scenario predictions.

The impact of this type of disaster will likely be localized to the immediate area surrounding the incident, but large releases of some hazardous materials can have devastating consequences over a long distance, sometimes miles from the incident site. A hazardous materials incident can last from hours to days and, depending on the chemical, can be damaging to people or the environment over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial incident site by persons, vehicles, water, wind and possibly wildlife. When a release occurs, the initial concern is safety for people, then the environment. If contamination occurs, the spiller is responsible for the cleanup actions and will work closely with the Missouri Department of Natural Resources, EPA, and the local jurisdiction to ensure that cleanup is done safely and in accordance with federal and state regulations. Other impacts of a hazardous materials incident include:

- Human deaths, injuries and permanent disabilities
- Livestock/animal deaths
- Destruction of vegetation and crops
- Property damage and destruction
- Pollution of groundwater, drinking water supplies and the environment
- Contamination of foodstuffs, property, land and structures

- Temporary or long-term closure of transportation routes and/or facilities
- Loss of business and industrial productivity
- Utility outages
- Clean-up and restoration costs
- Losses and inconvenience due to evacuation
- Loss of valuable chemical product

4.19.4 Probability of Future Occurrences: High
(*Between 10-100 percent chance of occurrence per year*)

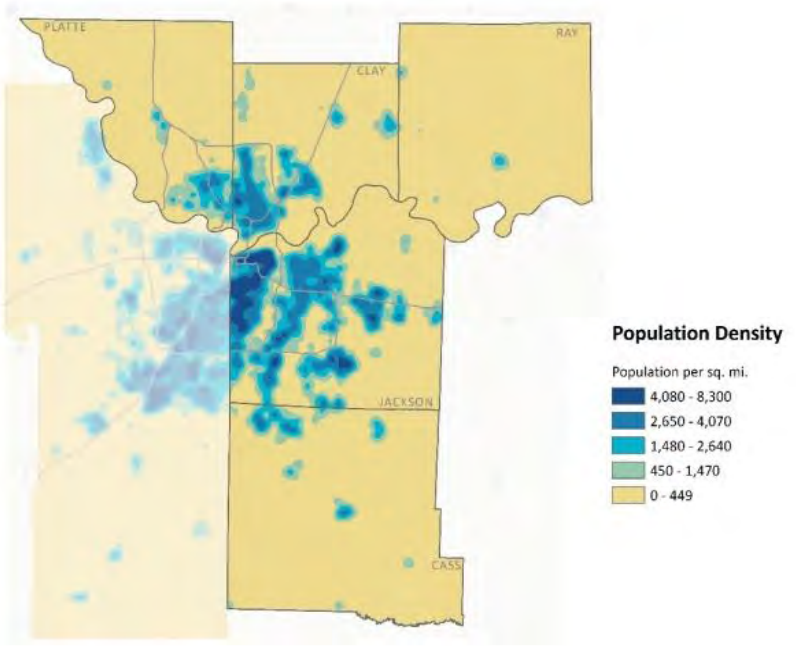
Over the last 25 years the planning region has had about 3,339 hazardous Materials incidents which average about 134 per year. Because of the historical number of toxic release incidents along with the thousands of locations utilizing and transporting chemical is nearly a certainty that hazardous material incidents will continue to occur in the planning area at the same historical rates or higher. Hazardous materials of all kinds are routinely transported on all roads and highways throughout the region. Hazardous materials are also very commonly stocked and used by businesses in smaller quantities than those required to submit Tier II reports. These chemicals are also used by private individuals and are located in many homes. Thus, it is reasonably safe to consider all county and cities along with its citizens are exposed to a risk from spills of hazardous materials.

Hazardous materials incidents can also occur as a result of or in tandem with natural hazard events, such as floods, hurricanes, tornadoes, and earthquakes. These cascading events can not only cause a serious chemical release, but hinder response and recovery efforts of the initial disaster. Although a serious hazardous materials release incident is less likely to occur, county and municipal officials are mindful of this possibility and take precautions to prevent such an event from occurring. Furthermore, there are detailed plans and public safety resources in place (Hazardous Materials Teams/plans) to contain a chemical release and reduce it hazards to the public should it occur.

4.19.5 Vulnerability Analysis and Potential Loss Estimates
Literally thousands of facilities throughout the planning area utilize, transport, manufacture and store significant inventories of hazardous materials. Many of these facilities are located within or adjacent to densely populated areas involving numerous critical public and private facilities. These populations and facilities would be directly affected either by actual exposure to the hazardous materials being release or by being preemptively evacuated or forced to Shelter-in-Place due to recommended Protective Action Distances (PADs).

Most small hazardous materials incidents that happen are contained and suppressed before damaging property or threatening lives. However, large releases can have significant negative impacts such as cause multiple deaths/injuries, shut down facilities, contaminate large areas and in some cases require affected properties to be destroyed or permanently abandoned. Certain chemicals may travel through the air or water, affecting a much larger area than just the point of the original release itself. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features, can substantially increase the damage from a hazardous materials release. In a hazardous

materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard is dispersed.



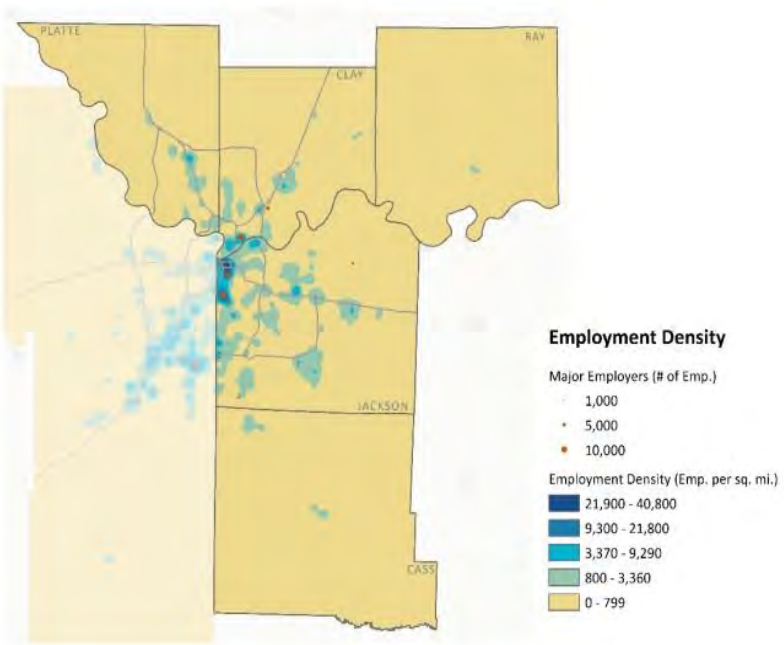
Map 4.19.5: Population Density

As the infrastructure and population of the planning region increase along with the number and type of hazardous chemicals stored and transported through the area, the risk of potential hazardous materials spills and their losses will increase. (See Map 4.19.5) Because of the nature of the hazard, it is not possible to determine a geographic variability in future potential loss. Historical evidence and existing Toxic Release Inventory and RMP sites indicate that the planning area has seen numerous hazardous materials events, the releases have not been in the severe range causing large deaths/injuries and damages. This does not mean large hazardous materials incidents cannot happen because the potential risk is always present. Those areas closest to facilities storing large quantities of hazardous materials are at the highest risk, though all areas in the planning region have vulnerability due to variations in conditions that could alter the spread of a chemical release such as direction and speed of wind, volume of release, time of day, temperature etc.

In the future community planning will become more important to help distance new development, critical facilities and densely populated areas from sites with large inventories of hazardous materials (ex. RMP facilities). Every year about 1,500 new chemicals are developed, but a great majority of these new chemicals are not be reviewed by the EPA for toxicity, ecotoxicity or its environmental effects before being manufactured[cclxv]. In the future a hazardous material release could happen and responding public safety agencies could be dealing with a chemical they are not prepared to handle or know anything about.

Perhaps in the future the single most critical factor to mitigate vulnerabilities to hazardous materials incidents will be specific inventory awareness that can be accomplished through the SARA, Tier II reporting, RMP programs and TRI reporting sites within each jurisdiction. Specific inventory awareness means detailed knowledge regarding the types of hazardous materials, quantities of chemical materials and locations of every facility in a jurisdiction with significant quantities of hazardous materials. Effective mitigation and emergency response planning can help reduce the number and severity of hazardous materials incidents reducing the negative impacts of hazardous materials incidents on affected communities.

People affected – Low (*Less than 150,000 people affected*)



Map 4.19.6: Employment Density

It is reasonably safe to consider the entire planning area and its inhabitants are at risk from a hazardous materials incident. Areas of high population densities may be at an elevated risk due to an increased difficulty to evacuate. Statistically large hazardous materials events are relatively uncommon and rarely cause death, injury, or large-scale property damage. The reality is a small hazardous materials spill could involve one person whereas a large release could impact thousands. Should a serious hazardous materials spill occur involving a five (5) square mile area in the most densely populated part of the planning region, it could affect 41,000 people. This number would not include transient workers, commuter or business customers, etc. which could easily involve another 100,000 people. (See Map 4.19.6)

A persons vulnerability to a hazardous materials incident is largely determined by his or hers proximity to where these chemicals are being stored or used. Hazardous materials incidents often have a strong impact on public confidence as the impacts of this type of event can cause serious and sometimes gruesome effects on people. Since hazardous materials are man-made, there is also often some understanding on the part of the public that they should be more easily prevented than natural disasters.

Vulnerable Populations – Due to physical, mental, health, economic or emotional problems often associated with vulnerable populations, they experience disproportionate effects when hazardous materials incidents occur. These negative factors include locations where they live, age of homes, increased reliance on support systems, reduced preparedness capabilities, health challenges, language barriers difficulties in communicating risk, increased dependence on public transportation, and lack of funds to evacuate or leave impacted areas. Many facilities utilizing hazardous materials are located in industrial areas which are often adjacent to low income housing consisting of older housing stock.

During a hazardous materials incident the people living in these areas are often first to be impacted due to their close proximity to the spill site. Should an evacuation be ordered, they may have challenges leaving the area due to their reliance on public transportation. Often people with health issues are impacted the most from exposures to hazardous substances. If a Shelter-in-Place order is issued, older homes are not as air tight and energy efficient as newer homes. Older homes allow airborne chemical vapors to infiltrate into the living spaces much quicker, causing residents to have more exposures to dangerous chemicals.

Total Exposure – Low (*This hazard could involve between $14 Million and $54 Million in damages*)

The State of Missouri Hazard Mitigation Plan has outlined the response cost of a very small spill of a less hazardous chemical in an easily remediated area at $9,862.00 per incident.[cclxvi] The average amount of fuel released in a truck incident is just over 100 gallons. The average cost per incident is nearly $17,000 to clean-up the spill and tucking companies can expect about 1 percent of their trucks to have a spill per year.[cclxvii] To estimate the potential cost to the five counties in the planning area, the estimated small spill cost was applied to the average annual reported incidents as outlined in Table 4.19.8 (See Attachment 4.19.6 for all spill incidents)

Table 4.19.8: Cost of Hazardous Materials Response by County

County	2009	2010	2011	2012	2013	2014	total	Average	Cost
Cass	28	16	16	23	12	14	109	18	$177,516
Clay	32	64	51	41	32	29	249	42	$414,204
Jackson	174	216	207	180	155	146	1,078	180	$1,775,160
Platte	21	34	25	20	11	9	120	20	$197,240
Ray	8	5	6	4	2	7	32	5	$49,310
							Total Cost to Region		**$2,613,430**

The Pipeline and Hazardous Materials Safety Administration (PHMSA) in 2002 defined a serious hazardous materials incident having at least one of the following conditions:

- A fatality or major injury caused by the release of a hazardous material;
- Evacuation of 25 or more persons from the release of a hazardous material or exposure to fire;
- A release or exposure to fire which results in the closure of a major transportation artery;
- The alteration of an aircraft flight plan or operation;
- The release of radioactive materials from Type B packaging;
- The release of over 11.9 gallons or 88.2 pounds of a severe marine pollutant; or
- The release of a bulk quantity (over 119 gallons or 882 pounds) of a hazardous material.

They studied the resulting economic cost (property damage, response cost, clean-up cost etc.) for 539 serious incidents which resulted in an average total economic incident cost between $43,994,920* and $163,593,709* or $81,623 and 303,513 per incident.[cclxviii]

Table 4.19.9: Cost Range of Hazardous Materials Spills by County

County	Average Number Hazardous Materials Spills	Total Incident Low Cost ($81,632)	Total Incident Cost High ($303,513)
Cass	18	$1,469,376	$5,463,234
Clay	42	$3,428,544	$12,747,546
Jackson	180	$14,693,760	$54,632,340
Platte	20	$1,632,640	$6,070,260
Ray	5	$408,160	$1,517,565
	256	$21,632,480	$80,430,945

*****Amounts adjusted for 2014 inflation figures

Table 4.19.10: Critical Facilities at Risk from Hazardous Materials Consequences												
County	Population	Day Care	Shopping Centers	Police Stations	Fire Stations	Trailer Parks	Schools	Hotels	Hospitals	Other Healthcare Facilities	Nursing Homes	Colleges
Cass	6,000	2	3	3	1	7	1	9	0	0	0	0
Clay	880,000	2	425	47	88	45	401	157	0	0	168	0
Jackson	880,000	926	456	45	89	44	420	144	33	42	179	65
Platte	6,000	2	3	3	1	7	1	9	0	0	0	0
Ray	1,400	1	0	1	1	0	0	0	0	0	0	0

Natural environment – The environmental consequences of a hazardous materials release vary considerably by substance and the amount of chemical released along with the incident location. If the release occurs in an environmentally sensitive area the damaging long term effects may take decades for the ecosystem to recover. If the spill occurs in an agricultural area, the loss in crop and farm animal productivity could permanently affect the county and local jurisdictional economies. The release of some hazardous materials can contaminate drinking water sources creating a public health hazard. Depending on the circumstances, oil spills can be very harmful to marine birds and mammals, and also can harm fish and other marine animals. Many birds and wild animals also ingest (swallow) oil and chemicals released into the water when they try to clean themselves, which can poison them. Depending on just where and when a spill happens, from just a few up to hundreds or thousands of birds and mammals can be killed or injured. Hazardous chemical manufactures provide ecological toxicology that can be used to indicate risk and harm to the environment when certain concentrations are encountered. Unfortunately most of this data is obtained only from laboratory settings which may not be representative of the actual effects on the environment, increasing the uncertainty of hazardous materials releases on the environment and associated wildlife.[cclxix]

Potential Loss Estimation for Region (See Table 4.19.11 – Table 4.19.12)

Table 4.19.11: Maximum Loss Estimation By County					
County	Overall Risk (Probability + Severity/2)	Magnitude (Percent of County Affected)	Total Exposure (Dollar Amount)	Total Population	Maximum Loss Estimation
Cass	(P=High-3 S=Med-3) = 2.5	Medium = 2	$5,463,234 = 1	150,000 = 1	1.625
Clay	(P=High-3 S=Med-3) = 2.5	Medium = 2	$12,747,546 = 1	150,000 = 1	1.625
Jackson	(P=High-3 S=Med-3) = 2.5	Medium = 2	$54,632,340 = 1	150,000 = 1	1.625
Platte	(P=High-3 S=Med-3) = 2.5	Medium = 2	$6,070,260 = 1	150,000 = 1	1.625
Ray	(P=High-3 S=Med-3) = 2.5	Medium = 2	$1,517,565 = 1	150,000 = 1	1.625

Table 4.19.12: Minimum Loss Estimation By County					
County	Overall Risk (Probability + Severity/2)	Magnitude (Percent of County Affected)	Total Exposure (Dollar Amount)	Total Population	Minimum Loss Estimation
Cass	(P=High-3 S=Med-3) = 2.5	Medium = 2	$1,469,376 = 1	150,000 = 1	1.625
Clay	(P=High-3 S=Med-3) = 2.5	Medium = 2	$3,428,544 = 1	150,000 = 1	1.625
Jackson	(P=High-3 S=Med-3) = 2.5	Medium = 2	$14,693,760 = 1	150,000 = 1	1.625
Platte	(P=High-3 S=Med-3) = 2.5	Medium = 2	$1,632,640 = 1	150,000 = 1	1.625
Ray	(P=High-3 S=Med-3) = 2.5	Medium = 2	$408,160 = 1	150,000 = 1	1.625

Specific Jurisdictional Vulnerabilities:

Table 4.19.13: Specific Vulnerabilities by County				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
RMP Sites	RMP Sites	RMP Sites	RMP Sites	RMP Sites
Three TRI sites	Large Number TRI Sites	Large Number TRI Sites	Large Number TRI Sites	A TRI Site
Liquid Petroleum Pipelines	Liquid Petroleum Pipelines	Liquid Petroleum Pipelines	Liquid Petroleum Pipelines	Liquid Petroleum Pipelines
Major Hazardous Materials Transportation Routes	Major Hazardous Materials Transportation Routes	Major Hazardous Materials Transportation Routes	Major Hazardous Materials Transportation Routes	Major Hazardous Materials Transportation Routes
		KCI Airport		
	Densely populated areas close to Hazardous Materials Sites	Densely populated areas close to Hazardous Materials Sites		
Major Rail Lines Throughout the County	Major Rail Lines Throughout the County	Major Rail Lines Throughout the County	Major Rail Lines Throughout the County	Major Rail Lines Throughout the County
Numerous industrial and manufacturing businesses utilizing Hazardous Materials	Numerous industrial and manufacturing businesses utilizing Hazardous Materials	Numerous industrial and manufacturing businesses utilizing Hazardous Materials	Numerous industrial and manufacturing businesses utilizing Hazardous Materials	Numerous industrial and manufacturing businesses utilizing Hazardous Materials
Tier II and RMP facilities are located within a flood zone	Tier II and RMP facilities are located within a flood zone	Tier II and RMP facilities are located within a flood zone	Tier II and RMP facilities are located within a flood zone	Tier II and RMP facilities are located within a flood zone

4.19.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for Hazardous Materials Incidents:

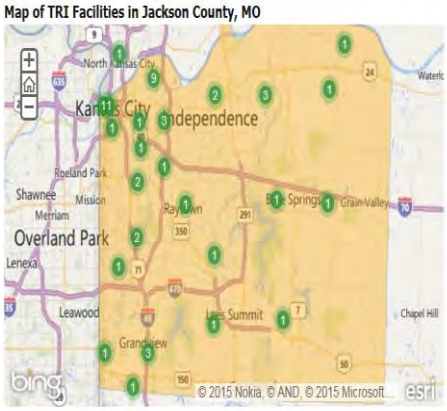
- A hazardous materials release can occur anytime without warning.
- Education is vital to improve the preparedness capabilities of citizens living close to hazardous materials facilities.
- Shelter-In-Place protective actions are a hard concept for citizens to prepare for and initiate.
- Some hazardous materials spills can involve large protective action areas and result in large numbers of people to be evacuated.
- A number of Tier II and RMP sites are located within a flood zone boundary

4.19.7 Attachments

Attachment 4.19.1: Jackson County, MO Toxic Release Inventory (Updated 11/24/2014)

Jackson County, MO accounts for 2.42% of total TRI releases in Missouri

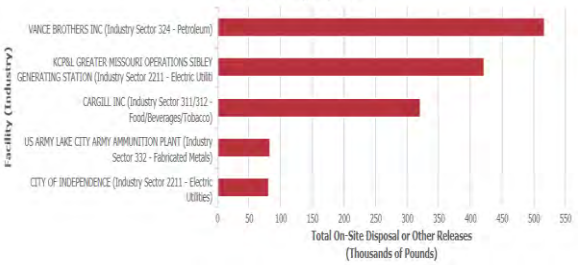
Map of TRI Facilities in Jackson County, MO



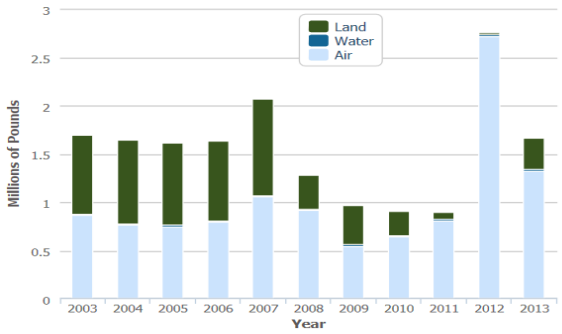
Quick Facts for 2013

Number of TRI Facilities:	43
Facilities Reporting Newly Implemented Source Reduction:	3
Total On-site and Off-site Disposal or Other Releases:	1,741,7
Total On-site:	1,660,7
• Air:	1,321,9
• Water:	14,000
• Land:	324,73
Total Off-Site:	81,050 lbs

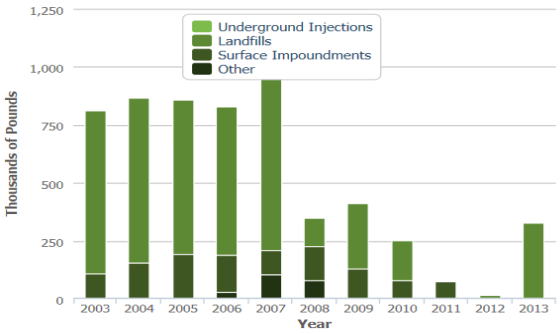
Top Five Facilities
Jackson County, MO, 2013



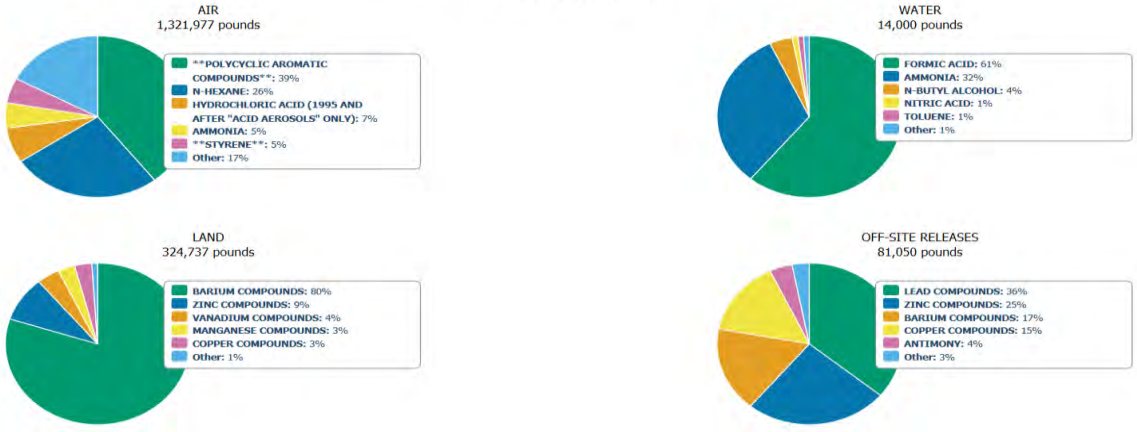
Total On-site Releases by Environmental Medium
Jackson County, MO, 2003 - 2012



Total On-site Releases to Land (Details)
Jackson County, MO, 2003 - 2012



Top Five Chemicals by Environmental Medium
Jackson County, MO, 2013



Note: **=Carcinogenic Chemical

These charts represent releases of TRI chemicals to the environment in Jackson County. A *release* of a chemical means that it is emitted into the air or water, placed in some type of land disposal, or transferred off-site for disposal or release. This page shows the industries with the biggest releases of TRI chemicals in the area, the quantities of TRI chemical released over time, and which chemicals are being released in the highest quantities to air, water, land and off-site transfers for disposal or release.

Attachment 4.19.2: Clay County, MO Toxic Release Inventory (Updated 11/24/2014)

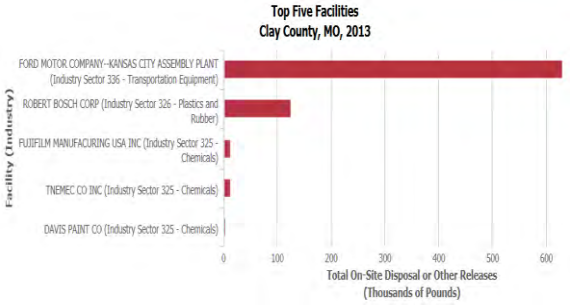
Clay County, MO accounts for 1.10% of total TRI releases in Missouri

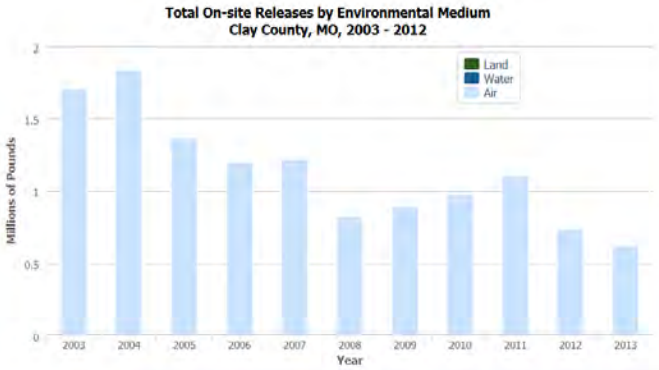
Map of TRI Facilities in Clay County, MO

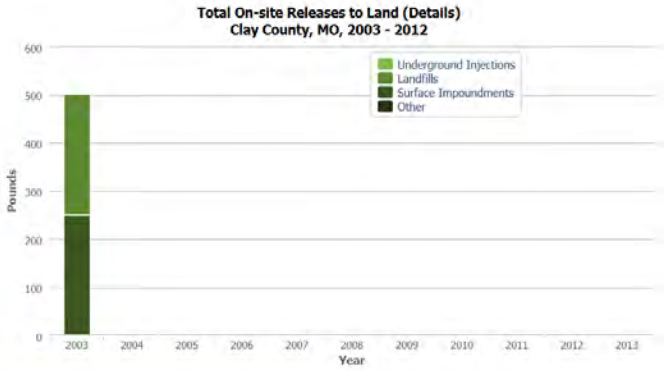


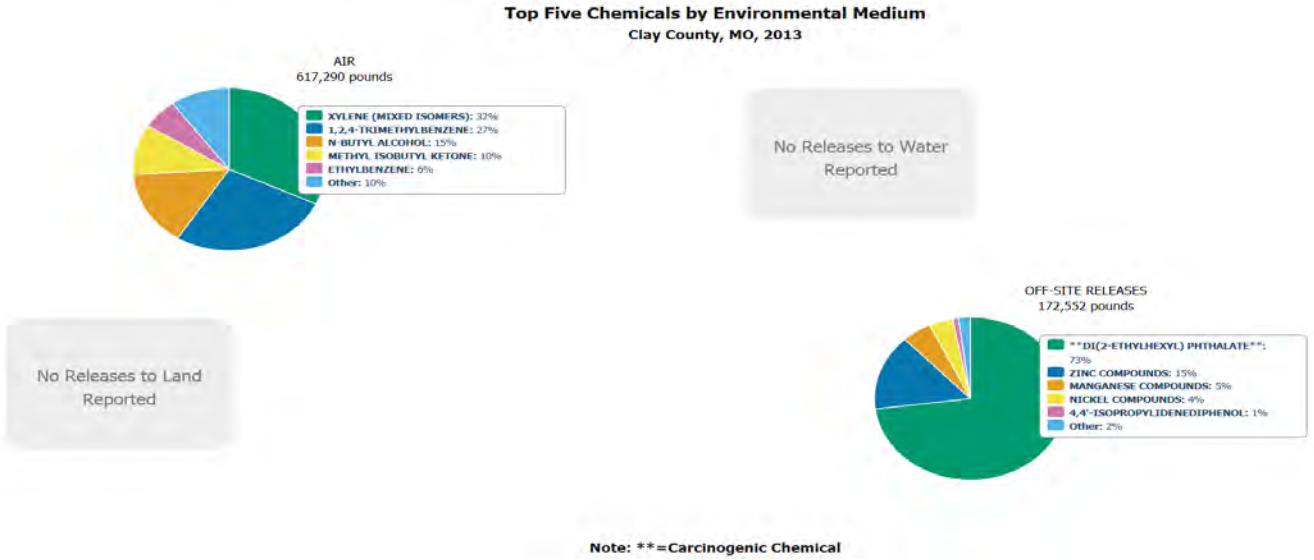
Quick Facts for 2013

Number of TRI Facilities:	19
Facilities Reporting Newly Implemented Source Reduction:	1
Total On-site and Off-site Disposal or Other Releases:	789,841 lbs
Total On-site:	617,290 lbs
• Air:	617,290 lbs
• Water:	0 lbs
• Land:	0 lbs
Total Off-Site:	172,552 lbs







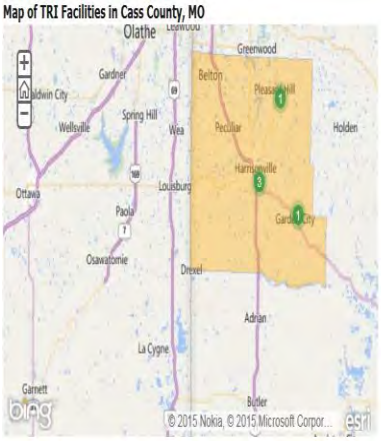


These charts represent releases of TRI chemicals to the environment in Clay County. A *release* of a chemical means that it is emitted into the air or water, placed in some type of land disposal, or transferred off-site for disposal or release. This page shows the industries with the biggest releases of TRI chemicals in the area, the quantities of TRI chemical released over time, and which chemicals are being released in the highest quantities to air, water, land and off-site transfers for disposal or release.

Attachment 4.19.3: Cass County, MO Toxic Release Inventory (Updated 11/24/2014)

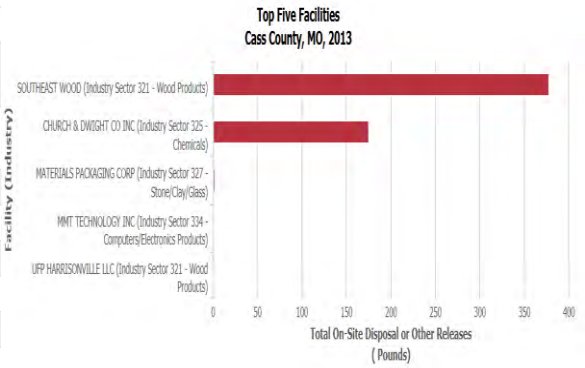
Cass County, MO accounts for 0.00% of total TRI releases in Missouri

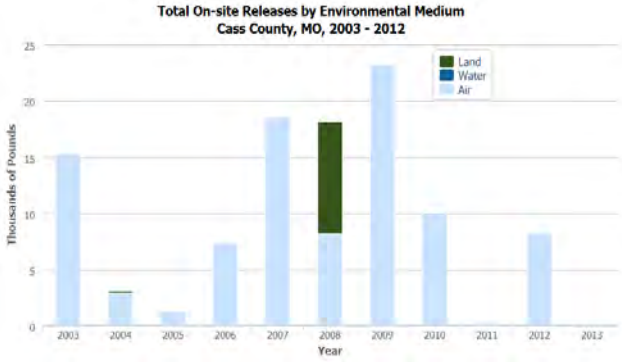
Map of TRI Facilities in Cass County, MO

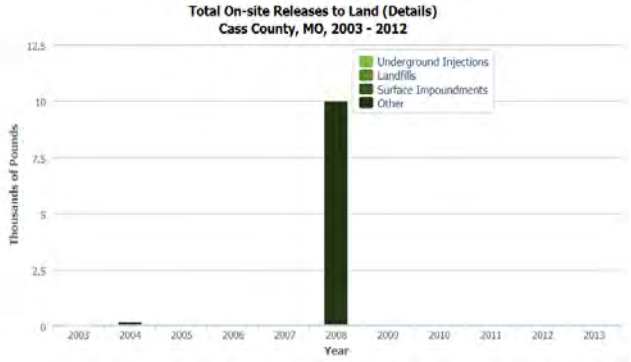


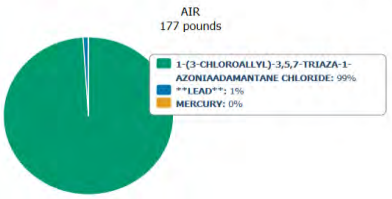
Quick Facts for 2013

Number of TRI Facilities:	5
Facilities Reporting Newly Implemented Source Reduction:	2
Total On-site and Off-site Disposal or Other Releases:	554 lbs
Total On-site:	177 lbs
• Air:	177 lbs
• Water:	0 lbs
• Land:	0 lbs
Total Off-Site:	377 lbs



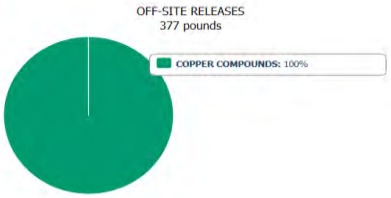






No Releases to Water Reported

No Releases to Land Reported



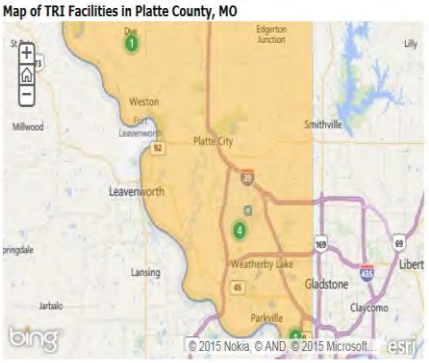
Note: **=Carcinogenic Chemical

These charts represent releases of TRI chemicals to the environment in Cass County. A *release* of a chemical means that it is emitted into the air or water, placed in some type of land disposal, or transferred off-site for disposal or release. This page shows the industries with the biggest releases of TRI chemicals in the area, the quantities of TRI chemical released over time, and which chemicals are being released in the highest quantities to air, water, land and off-site transfers for disposal or release.

Attachment 4.19.4: Platte County, MO Toxic Release Inventory (Updated 11/24/2014)

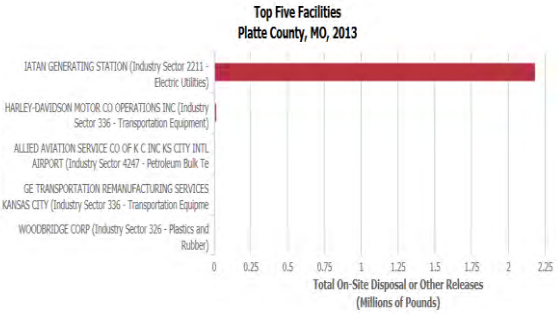
Platte County, MO accounts for 3.05% of total TRI releases in Missouri

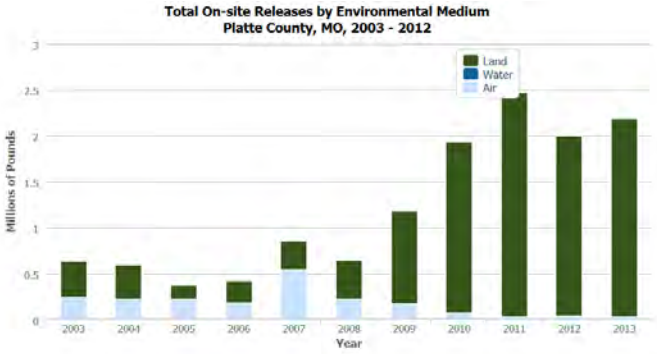
Map of TRI Facilities in Platte County, MO

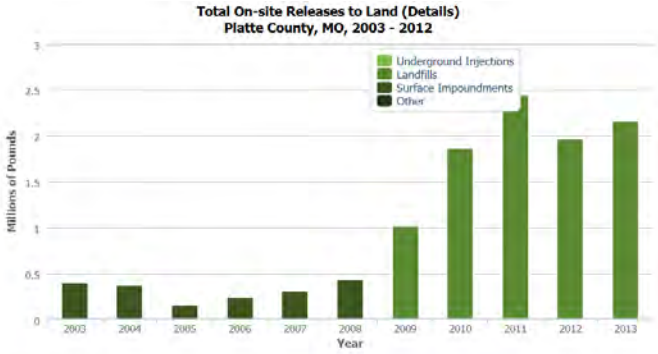


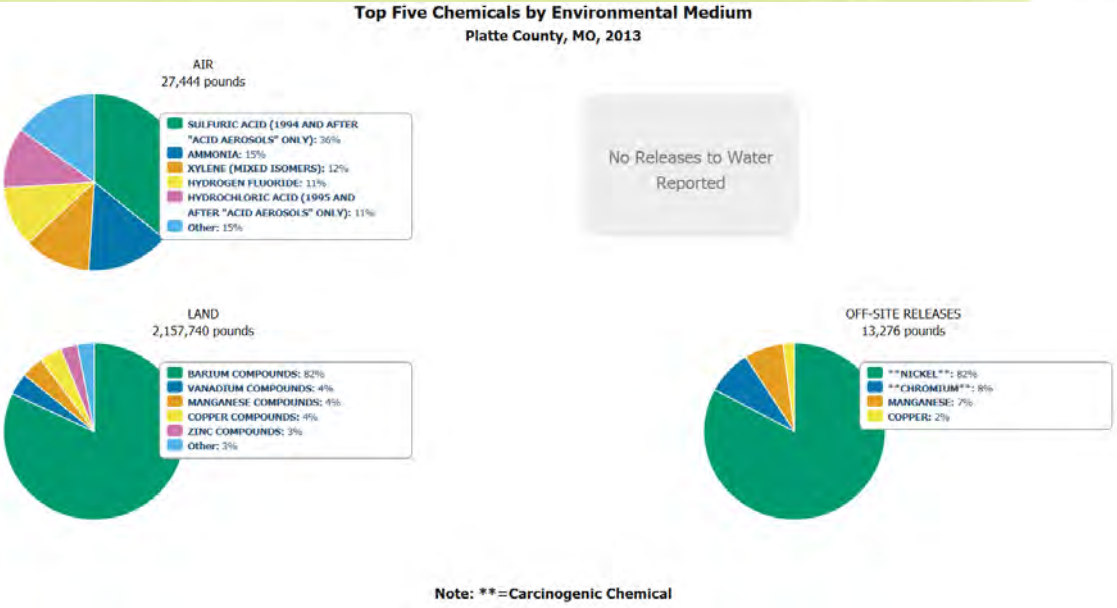
Quick Facts for 2013

Number of TRI Facilities:	6
Facilities Reporting Newly Implemented Source Reduction:	0
Total On-site and Off-site Disposal or Other Releases:	2,198,460 lbs
Total On-site:	2,185,184 lbs
• Air:	27,444 lbs
• Water:	0 lbs
• Land:	2,157,740 lbs
Total Off-Site:	13,276 lbs









Note: **=Carcinogenic Chemical

The following charts represent releases of TRI chemicals to the environment in Platte County. A *release* of a chemical means that it is emitted into the air or water, placed in some type of land disposal, or transferred off-site for disposal or release. This page shows the industries with the biggest releases of TRI chemicals in the area, the quantities of TRI chemical released over time, and which chemicals are being released in the highest quantities to air, water, land and off-site transfers for disposal or release.

Attachment 4.19.5: Ray County, MO Toxic Release Inventory (Updated 11/24/2014)

Ray County, MO accounts for 0.01% of total TRI releases in Missouri

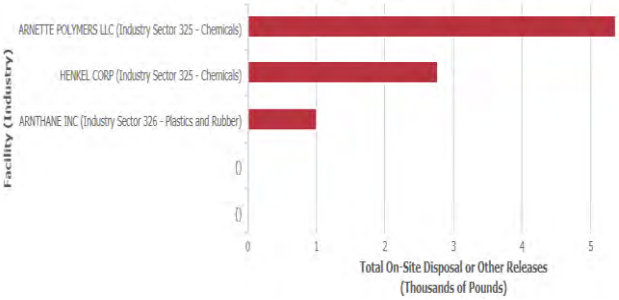
Map of TRI Facilities in Ray County, MO



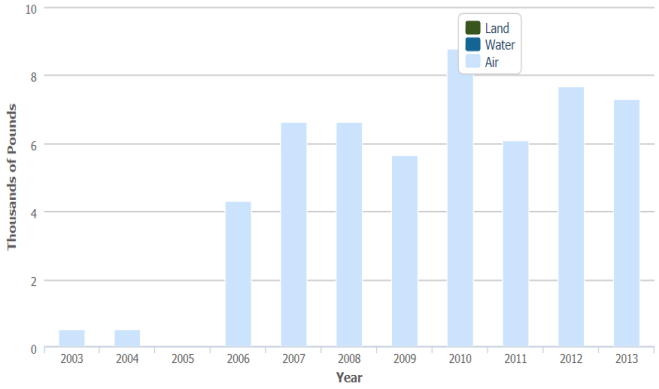
Quick Facts for 2013

Number of TRI Facilities:	3
Facilities Reporting Newly Implemented Source Reduction:	0
Total On-site and Off-site Disposal or Other Releases:	9,131 lbs
Total On-site:	7,303 lbs
• Air:	7,303 lbs
• Water:	0 lbs
• Land:	0 lbs
Total Off-Site:	1,828 lbs

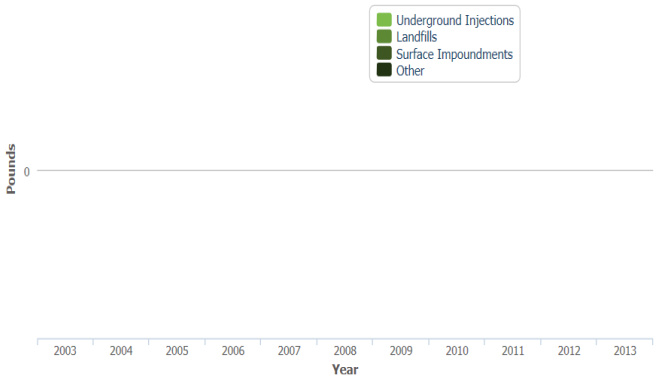
Top Five Facilities
Ray County, MO, 2013



Total On-site Releases by Environmental Medium
Ray County, MO, 2003 - 2012

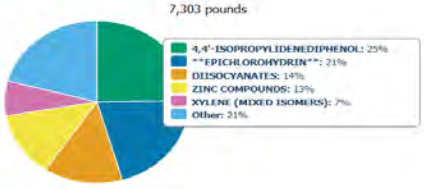


Total On-site Releases to Land (Details)
Ray County, MO, 2003 - 2012



Top Five Chemicals by Environmental Medium
Ray County, MO, 2013

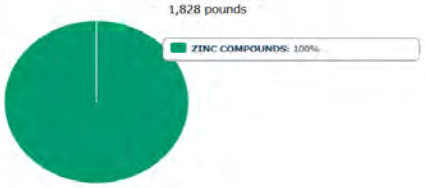
AIR
7,303 pounds



No Releases to Water Reported

No Releases to Land Reported

OFF-SITE RELEASES
1,828 pounds



Note: **=Carcinogenic Chemical

The following charts represent releases of TRI chemicals to the environment in Ray County. A *release* of a chemical means that it is emitted into the air or water, placed in some type of land disposal, or transferred off-site for disposal or release. This page shows the industries with the biggest releases of TRI chemicals in the area, the quantities of TRI chemical released over time, and which chemicals are being released in the highest quantities to air, water, land and off-site transfers for disposal or release.

Attachment 4.19.6: TIER II Information by County and City (Data from Kansas City Area LEPC 2014)

Cass County	City	Number of Reporting Sites	Number of Chemicals
	Archie	2	2
	Belton	18	32
	Cleveland	2	9
	Creighton	2	3
	Drexel	3	14
	Freeman	3	2
	Garden City	7	19
	Greenwood	2	3
	Harrisonville	28	185
	Lee's Summit	3	4
	Peculiar	6	13
	Pleasant Hill	15	40
	Raymore	7	13
	Pipelines	8	8
	Total Number	**106**	**347**

Clay County	City	Number of Reporting Sites	Number of Chemicals
	Claycomo	3	31
	Excelsior Springs	14	31
	Gladstone	10	15
	Holt	2	4
	Kansas City	63	288
	Kearney	19	40
	Lawson	3	7
	Liberty	16	37
	Mosby	1	3
	North Kansas City	41	371
	Pleasant Valley	4	8
	Randolph	1	1
	Smithville	6	15
	Pipelines	5	5
	Total Number	**188**	**856**

Jackson County	City	Number of Reporting Sites	Number of Chemicals
	Atherton	1	3
	Blue Springs	24	43
	Buckner	6	8
	Grain Valley	9	19
	Grandview	15	31
	Greenwood	4	20
	Independence	76	362
	Kansas City	322	1,609
	Lee's Summit	59	148

Jackson County	City	Number of Reporting Sites	Number of Chemicals
	Levasy	2	11
	Lone Jack	3	5
	Martin City	1	4
	North Kansas City	3	60
	Oak Grove	10	22
	Raytown	9	12
	Sibley	2	9
	Sugar Creek	14	68
	Pipelines	6	6
	Total Number	566	2,240

Platte County	City	Number of Reporting Sites	Number of Chemicals
	Camden Point	1	3
	Dearborn	2	5
	Edgerton	1	1
	Farley	1	1
	Ferrelview	1	2
	Kansas City	43	95
	Northmoore	1	1
	Parkville	8	10
	Platte City	10	23
	Riverside	14	45
	Tracy	1	2
	Weston	4	16
	Pipelines	2	2
	Total Number	**89**	**206**

Ray County	City	Number of Reporting Sites	Number of Chemicals
	Camden	2	2
	Excelsior Springs	1	1
	Hardin	8	15
	Henrietta	1	8
	Lawson	3	11
	Orrick	6	27
	Richmond	19	248
	Stet	1	1
	Woods Height	1	1
	Pipelines	5	5
	Total Number	**47**	**318**

Attachment 4.19.7: National Priority Site Information, Armour Road

ARMOUR ROAD
MISSOURI
EPA ID# MOD046750253

EPA Region 7
City: North Kansas City
County: Clay County
Other Names:

10/13/2011



The Armour Road Site (Site) is located at 2251 Armour Road, North Kansas City, Clay County, Missouri. The nearest major highway is Interstate 29/35, which is 1/4 mile to the west. The Site is located south of Armour Road (also known as Highway 210) and is found in Township 50 North, Range 33 West, Section 13 on the 7.5-Minute Series United States Geological Survey (USGS) Quadrangle topographical map. Specifically, the Site is located in the southeast quarter of the southwest quarter of the northeast quarter of Section 13. The geographic coordinates of the main building on the Site are 39^0 8' 42" North latitude and 94^0 33' 21" West longitude.

The Site is in a developed area with operating businesses directly adjacent to the Site as well as across the street. A residential area is located approximately 1000 feet north of the Site. The Site covers approximately 1.8 acres and includes property owned or controlled by various entities, including K.C. 1986 Limited Partnership (K.C. 1986), the City of North Kansas City, and The Burlington Northern and Santa Fe Railway Company (BNSF).

A herbicide blending facility was operated on the largest portion of the Site and historical records indicate that the facility was operated from at least 1929 until 1986. The facility has had three owners and three operators. Reade Manufacturing Company (Reade) owned the facility from at least 1929 until 1968, Habco (formerly known as Horne-Boatright Chemical Company) owned the facility from 1968 until 1986, and K.C. 1986 purchased the facility in 1986 and still owns it. K.C. 1986 was created by the shareholders of Habco for the sole purpose of disposing of the facility. The Site has not been sold due to the contamination found on the Site. Reade also operated the facility from at least 1929 until 1963. Reade leased the facility to U.S Borax, the predecessor to the Responding Party, which operated it from November 1963 until November 1968. Habco operated the Site from 1968 until 1986. In addition, a portion of the Site located to the west of the K.C. 1986 property and controlled by BNSF contained a railroad siding that was used during operations for loading, unloading, and storage of herbicide products. Herbicide blending operations at the facility ceased in 1986.

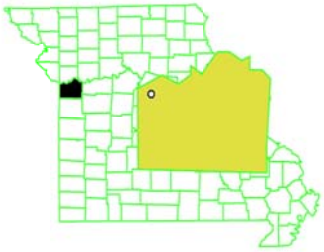
On April 9, 2010, EPA and the Responding Party entered into a consent decree to perform the Remedial Investigation/Feasibility Study (RI/FS) at the site. The RI/FS will assess the contaminated groundwater plume beneath the site and the residual soil contamination around the site perimeter. RI/FS activities are ongoing.

Attachment 4.19.8: National Priority Site Information, Conservation Chemical Co.

CONSERVATION CHEMICAL CO.
MISSOURI
EPA ID# MOD000829705

EPA Region 7
City: 3900 Front Street
Kansas City, Missouri
County: Jackson County
Other Names: CCC

10/11/2011



The Conservation Chemical Company site is a 6 acre site located in eastern Kansas City, operated as a chemical storage and disposal facility from 1960 until 1980. The owners began waste disposal operations almost immediately after building chemical treatment basins, a process area, and a roadway ramp. Waste disposal basins, which were unlined or poorly lined, were used to store and receive wastes, and also served as drying beds for by-product sledges. Many operating records were destroyed in a 1970 fire; those records that survived listed organic chemicals, solvents, acids, caustics, metal hydroxides, and cyanide compounds as some of the materials accepted for disposal at the site. Reports also indicate that pesticides, herbicides, waste oils, organic solvents, halogenated compounds, arsenic, and elemental phosphorus were handled by the facility, as well as pressurized cylinders and other metal containers placed in the lagoons. Information is incomplete, but it is estimated that the facility handled at least 48,000,000 gallons of liquids and sludge's and 1,144 tons of solids. About 93,000 cubic yards of materials including drums, bulk liquids, sludge's, and solids were buried at the site. By-products from any treatment processes used on the waste materials also were dumped on site.

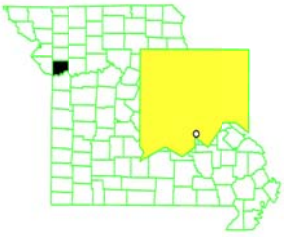
In 1975, the Missouri Department of Natural Resources (MDNR) investigated the site and found it to be operating as a solid waste disposal area. On December 15, 1975, MDNR requested that CCC cease the disposal of solid wastes at the site and that remedial actions be taken to clean up the site. In 1977, the Missouri Clean Water Commission ordered the site closed and covered. An attempt was made by the owner to neutralize hazardous chemicals by blending some wastes. To stabilize the upper waste layers on the site, acidic metal finishing wastes were mixed with fly ash and certain sludges, which produced a mixture consisting largely of gypsum. In September 1979, the United States initiated the first of two legal actions seeking investigation and clean-up of the CCC site. The second such action in 1982 was initiated after CERCLA was enacted in 1980.

Construction of the remedies selected by the EPA to clean up the Conservation Chemical site has been completed. These actions have eliminated surface contamination and may have halted further pollution of surface and ground water resources. The EPA and the potentially responsible parties are actively monitoring the effectiveness of the continuing ground water cleanup. Two Five Year Reviews have been completed, in February 2000 and September 2007. The most recent Five Year Review determined that the remedy is protective of human health and the environment based upon available information, but that additional sampling was required in the Missouri River to determine if ground water contamination migrating into the river poses an unacceptable risk to the river's ecosystem. This investigation will be completed before the next Five Year Review in 2012.

Attachment 4.19.9: National Priority Site Information, Lee Chemical

LEE CHEMICAL
MISSOURI
EPA ID# MOD980853519

EPA Region 7 10/11/2011
City: 3 miles southeast of Liberty
County: Clay County
Other Names: Liberty Public Water Supply



The 1-acre Lee Chemical site was used for packaging a variety of chemicals from 1966 until 1974, when Lee Chemical abandoned the facility. City of Liberty officials found several hundred drums of chemicals on site in 1976, most of which were removed by the city in 1977. The city of Liberty, which owns the property, has removed the building and visible contamination from the site. Soil sample analyses from the site indicate that trichloroethylene (TCE) is still present. During a drinking water study in 1980, the EPA sampled the city's water wells and found TCE. Since then, the most contaminated wells have not been used for drinking water. The water from the remaining wells no longer contains significant levels of TCE. There are approximately 24,000 people living within a 3-mile radius of the site. The nearest residence is located approximately 1/4 mile from the site. The city's drinking water supply wells are located 1/4 mile away from the site. There are several irrigation wells situated near the site. Industrial and commercial facilities near the site use ground water for cooling or process water.

The ground water, surface water, and soil are contaminated with TCE. Contaminated ground water, surface water, and soil could adversely affect the health of individuals through direct contact or ingestion. In addition, bioaccumulation of contaminants in fish, water fowl, livestock, and commercial agricultural products may be another exposure pathway. The Town Branch of the Shoal Creek is located approximately 2,000 feet downslope from the site and receives contaminated water discharged from one city well and an on-site extraction well. The creek empties into the Missouri River about 1 mile downstream. The city removed several hundred barrels of chemicals and has cleared the land surrounding the old treatment plant left by Lee Chemical. In 1983, a contractor working for the city demolished the plant, cleared the site, and disposed of the waste material. The city has monitored the drinking water and has managed the use of supply wells to eliminate TCE in the drinking water. The city installed two new supply wells in 1982.

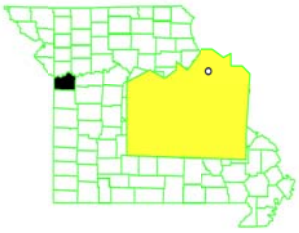
The city completed a study of the extent and nature of the contamination in 1990. Following a public comment period, the EPA selected a remedy, which included installation of a more efficient purge well onsite and continuation of the interim action requiring discharge of extracted ground water to a nearby creek. In-place aqueous soil flushing, as selected in the Record of Decision dated March 21, 1991, is being used through three infiltration field's onsite. Construction was completed in early 1994 and the system is in full operation. Construction was completed at the site in early 1994. Removing contaminated barrels from the site and monitoring well water have reduced the potential for exposure to hazardous substances at the Lee Chemical site while soil flushing activities are being completed. The first five-year review was completed in the summer of 1999 and a second in 2004. The reviews both show that, although cleanup goals have not been met and no specific date can be projected, significant progress is being made to reach these goals. The third five-year review was completed in 2009. The third five-year review concluded that the remedy remains protective of human health and the environment. However, in order to achieve cleanup goals in a more efficient manner, it was recommended that the city of Liberty conduct an optimization study.

Attachment 4.19.10: National Priority Site Information, Lake City Army Ammunition Plant

LAKE CITY ARMY AMMUNITION PLANT LAGOON)
MISSOURI
EPA ID# MO3213890012

EPA Region 7
City: Independence
County: Jackson County
Other Names:

03/15/2010



The Lake City Army Ammunition Plant (LCAAP) is a 3,935-acre government owned-contractor operated (GOCO) facility that was established in 1941 to manufacture and test small caliber ammunition for the U.S. Army. The facility has remained in continuous operation except for one 5-year period following World War II. Historically, waste treatment and disposal at LCAAP occurred on-site and relied on lagoons, landfills, and burn pits for waste disposal. Industrial operations have generated large quantities of potentially hazardous wastes and hazardous substances, including solvents, oils, greases, explosives, radionuclides, perchlorates, and metals. LCAAP uses treated groundwater from 13 on-site production wells to provide drinking and process water for plant operations. The small community of Lake City, population approximately 25, is located adjacent to the northern boundary of the Installation, and relies on groundwater obtained from private wells. The Missouri River and Little Blue River, located near the site, are used for recreational activities.

Groundwater beneath the site, soil, and surface water are contaminated with volatile organic compounds (VOCs), various explosives, perchlorates, and heavy metals including lead, arsenic, and chromium from former waste disposal practices. Potential threats exist for those who have direct contact with or ingest untreated groundwater, surface water, or soil. The LCAAP uses treated groundwater from the site to provide drinking and process water for plant operations. VOC-contaminated groundwater has migrated off-plant in the Northeast Corner area of the LCAAP, but does not appear to have migrated far beyond the LCAAP boundary. The migration of contaminated groundwater beyond the LCAAP boundary is controlled by a groundwater extraction well. The LCAAP was included on the National Priorities List (NPL) in 1987. A Federal Facility Agreement (FFA) between EPA, the Army, and the State of Missouri was signed in 1989, to address investigative, design, and cleanup activities throughout the Installation. Funding to address environmental investigations and cleanups at the LCAAP is provided through the Defense Environmental Restoration Program, a program established to identify, investigate, and control hazardous contaminants at DoD facilities.

Early response actions have reduced the potential for exposure to hazardous substances at the Lake City Army Ammunition Plant site while further investigations leading to final cleanup activities are taking place. A pump and treat system to contain contaminated groundwater on-site at Area 18 began operations in the spring of 1997. An additional pump and treat system became operational in the Northeast Corner in early 1998, to prevent further migration of contaminated groundwater off-site. A permeable reactive wall was constructed in the Northeast Corner in the summer of 2000, to further reduce migration of contaminated groundwater from the source areas to drinking water locations.

Attachment 4.19.11: Cass County Hazardous Materials Spill Incidents (January 2009-March 2015)

Cass County								
City	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Totals**
Archie	2	1	0	0	0	0	0	3
Belton	7	2	4	5	3	3	1	25
Cleveland	0	0	1	2	0	0	0	3
Creighton	0	2	0	0	0	0	0	2
Drexel	2	0	0	0	0	0	0	2
East Lynne	0	1	0	0	0	0	0	1
Freeman	0	2	0	0	0	2	0	4
Garden City	0	0	1	0	1	0	0	2
Harrisonville	8	2	4	5	2	1	1	23
Kansas City	0	0	1	0	0	0	0	1
Lake Annette	0	0	1	1	0	0	0	2
Lake Winnebago	0	0	0	0	1	0	0	1
Lee's Summit	0	0	0	1	0	1	0	2
Peculiar	3	2	0	3	2	3	0	13
Pleasant Hill	3	4	1	3	3	3	1	18
Raymore	1	0	3	3	0	0	0	7
Strasburg	1	0	0	0	0	1	0	2
Rural Area	1	0	0	0	0	0	0	1
Totals	28	16	16	23	12	14	3	112

Attachment 4.19.12: Clay County Hazardous Materials Spill Incidents (January 2009-March 2015)

Clay County								
City	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Totals**
Avondale	0	0	1	0	0	0	0	1
Birmingham	0	1	1	0	0	0	0	2
Claycomo	0	0	4	6	1	1	0	12
Excelsior Springs	2	10	4	3	2	1	0	22
Gladstone	2	4	2	1	2	1	0	12
Jefferson City	0	0	1	0	0	0	0	1
Kansas City	15	28	26	14	14	13	1	111
Kearney	2	3	1	2	2	1	1	12
Liberty	4	3	3	4	1	1	0	16
Missouri City	1	1	1	0	0	0	0	3
Mosby	0	0	1	4	0	0	0	5
North Kansas City	4	10	2	2	0	2	0	20
Orrick	0	0	0	0	0	1	0	1
Paradise	0	0	0	0	1	0	0	1
Pleasant Valley	2	0	2	1	4	6	1	16
Randolph	0	1	0	1	4	2	0	8
Rural Clay County	0	1	0	1	0	0	0	2
Savannah	0	0	0	0	1	0	0	1
Smithville	0	1	2	2	0	0	0	5
Trimble	0	1	0	0	0	0	0	1
Totals	32	64	51	41	32	29	3	252

Attachment 4.19.13: Jackson County Hazardous Materials Spill Incidents (January 2009-March 2015)

Jackson County								
City	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Totals**
Atherton	1	0	0	0	1	0	0	2
Blue Springs	5	9	8	6	5	5	0	38
Blue Summit	0	0	0	4	0	0	0	4
Buckner	2	0	0	0	0	3	0	5
Desoto	0	1	0	0	0	0	0	1
Fenton	0	0	1	0	0	0	0	1
Grain Valley	2	4	2	0	3	1	0	12
Grandview	8	3	0	3	2	7	1	24
Independence	31	28	35	17	16	9	5	141
Kansas City	105	141	143	124	122	99	17	751
Lake Lotawana	2	0	0	0	0	0	0	2
Lee's Summit	10	8	7	12	2	10	1	50
Levasy	0	0	0	1	0	0	0	1
Lone Jack	0	2	1	0	0	1	0	4
Malden	0	0	0	0	1	0	0	1
Marble Hill	0	1	0	0	0	0	0	1
Martin City	0	0	0	0	0	0	1	1
Oak Grove	2	6	3	4	0	2	1	18
Odessa	0	0	0	0	0	1	0	1
Pleasant Valley	0	0	0	0	0	3	0	3
Raytown	3	5	3	2	2	1	1	17
Sibley	0	0	1	1	0	0	0	2
Slater	0	0	0	1	0	0	0	1
Sugar Creek	3	7	3	5	1	3	0	22
Rural Jackson County	0	0	0	0	0	1	0	1
Unity Village	0	1	0	0	0	0	0	1
Totals	174	216	207	180	155	146	27	1,105

Attachment 4.19.14: Platte County Hazardous Materials Spill Incidents (January 2009-March 2015)

Platte County								
City	2009	2010	2011	2012	2013	2014	2015	Totals
Beverly	1	0	0	0	0	0	0	1
Camden Point	1	0	1	2	0	1	0	5
Dearborn	0	0	0	0	2	0	0	2
Edgerton	1	1	0	0	0	0	0	2
Farley	0	0	0	1	0	1	0	2
Latan	1	0	0	0	0	0	0	1
Kansas City	4	19	11	6	2	1	1	44
Lewis & Clark Trail	0	1	0	0	0	0	0	1
North Kansas City	0	0	0	0	0	1	0	1
Parkville	6	2	2	1	2	1	0	14
Platte City	3	4	3	6	1	1	0	18
Riverside	0	1	4	3	0	0	0	8
Rural Platte County	0	3	1	0		1	0	5
Rushville	0	0	0	0	1	0	0	1
Smithville	1	0	0	0	0	2	0	3
Tracy	0	2	0	0	2	0	0	4
Weatherby Lake	2	0	3	0	0	0	0	5
Weston	1	1	0	1	1	0	2	6
Totals	21	34	25	20	11	9	3	123

Attachment 4.19.15: Ray County Hazardous Materials Spill Incidents (January 2009-March 2015)

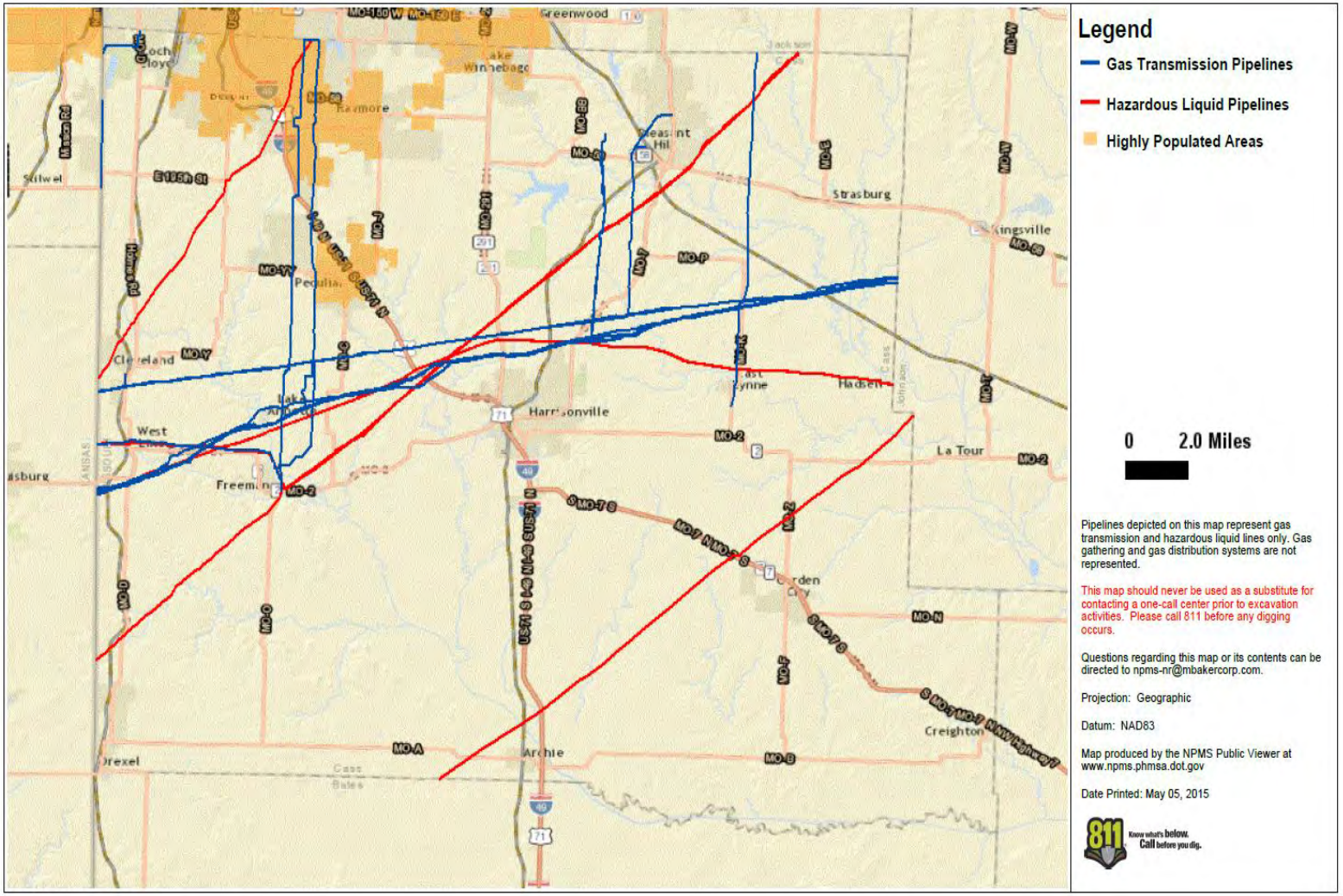
Ray County								
City	2009	2010	2011	2012	2013	2014	2015	Totals
Excelsior Springs		1		1		3		5
Harden	2	1						3
Henrietta	1				1			2
Lawson		1		1			2	4
Orrick	2			1		1	2	6
Richmond	2	2	5		1	2	2	14
Rural Ray County			1			1		2
Stet	1							1
Woods Heights				1				1
Totals	8	5	6	4	2	7	6	38

All county/city data from Kansas City Region LEPC

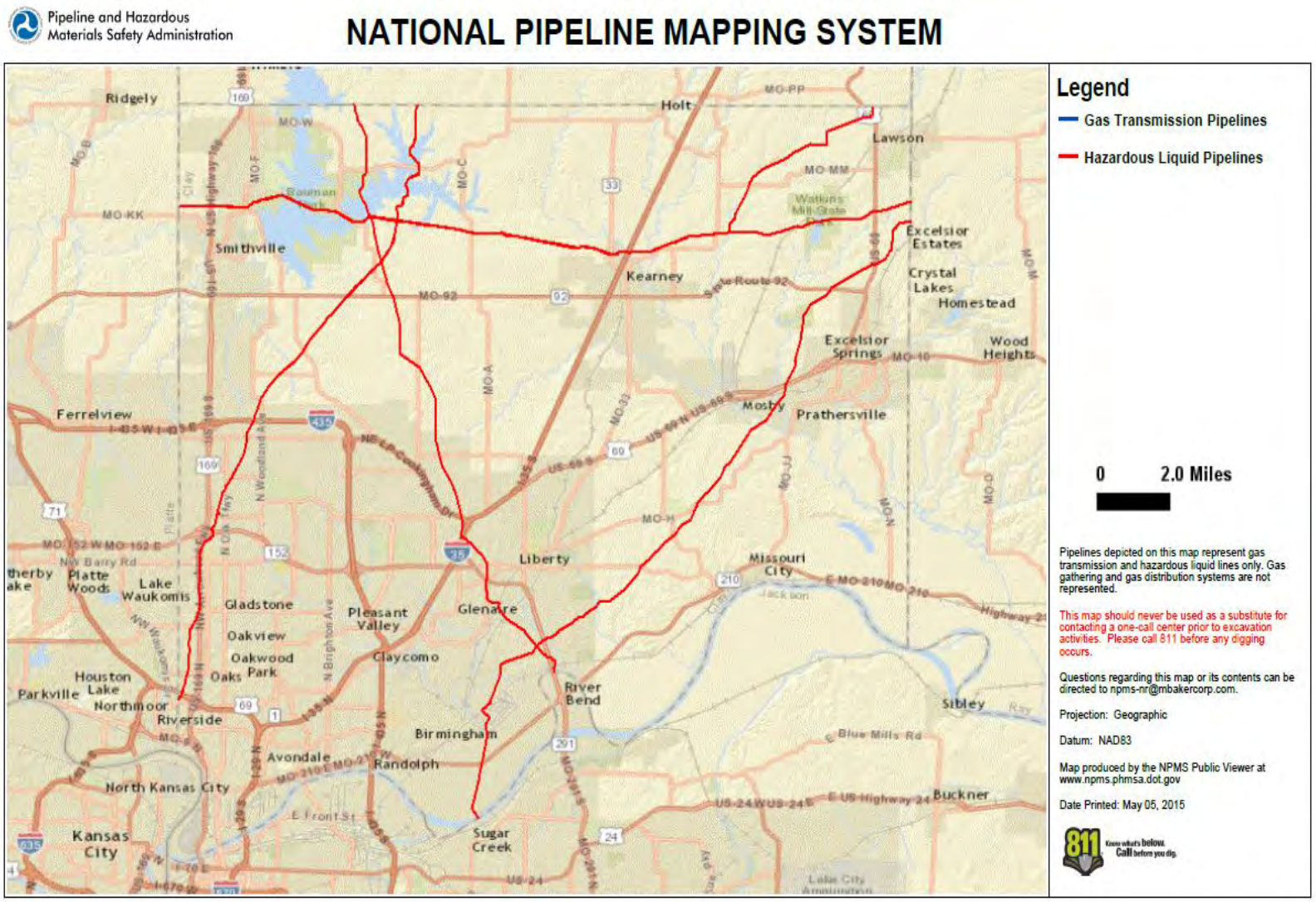
Attachment Map 4.19.1: Cass County Pipeline System

Pipeline and Hazardous Materials Safety Administration

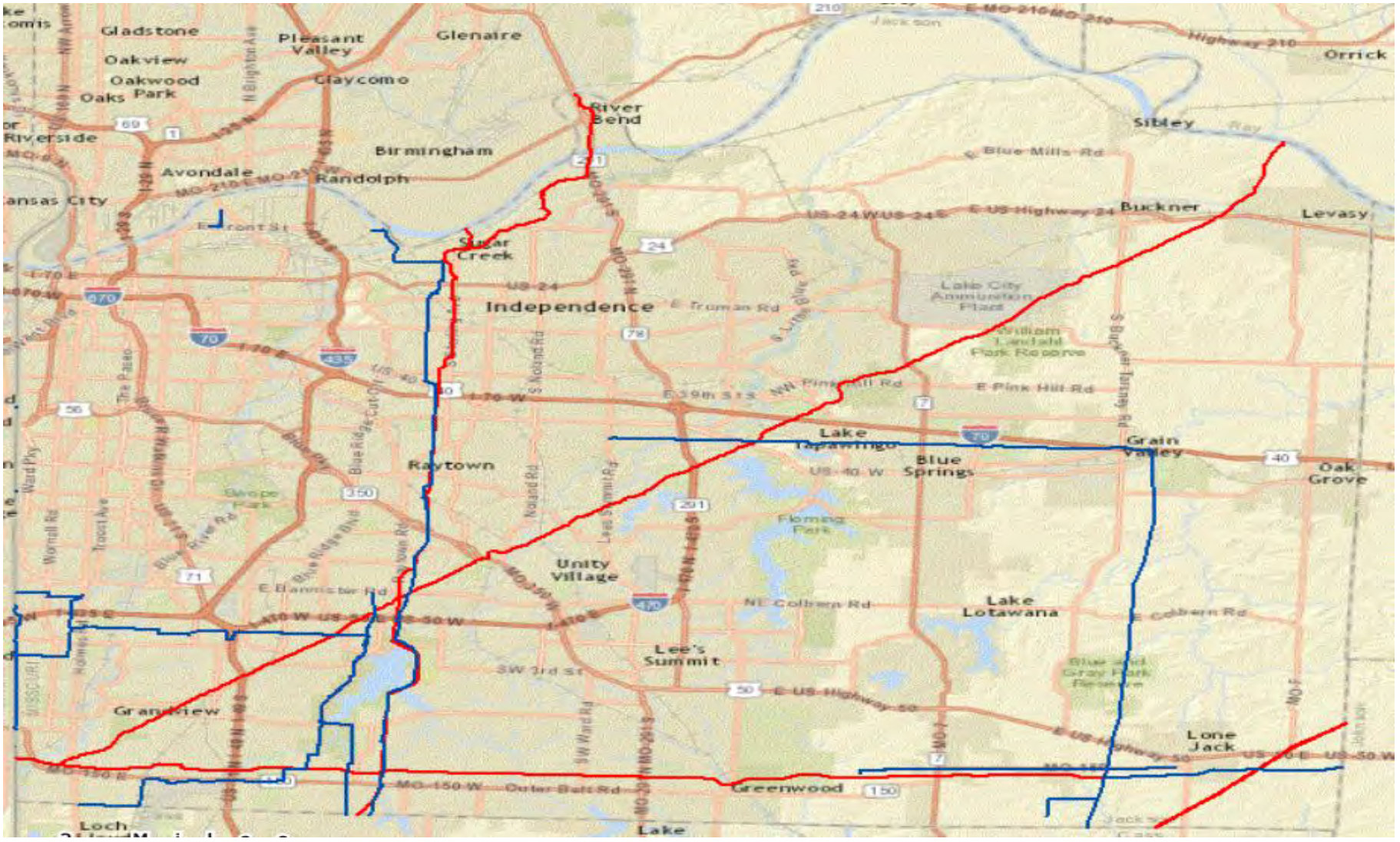
NATIONAL PIPELINE MAPPING SYSTEM



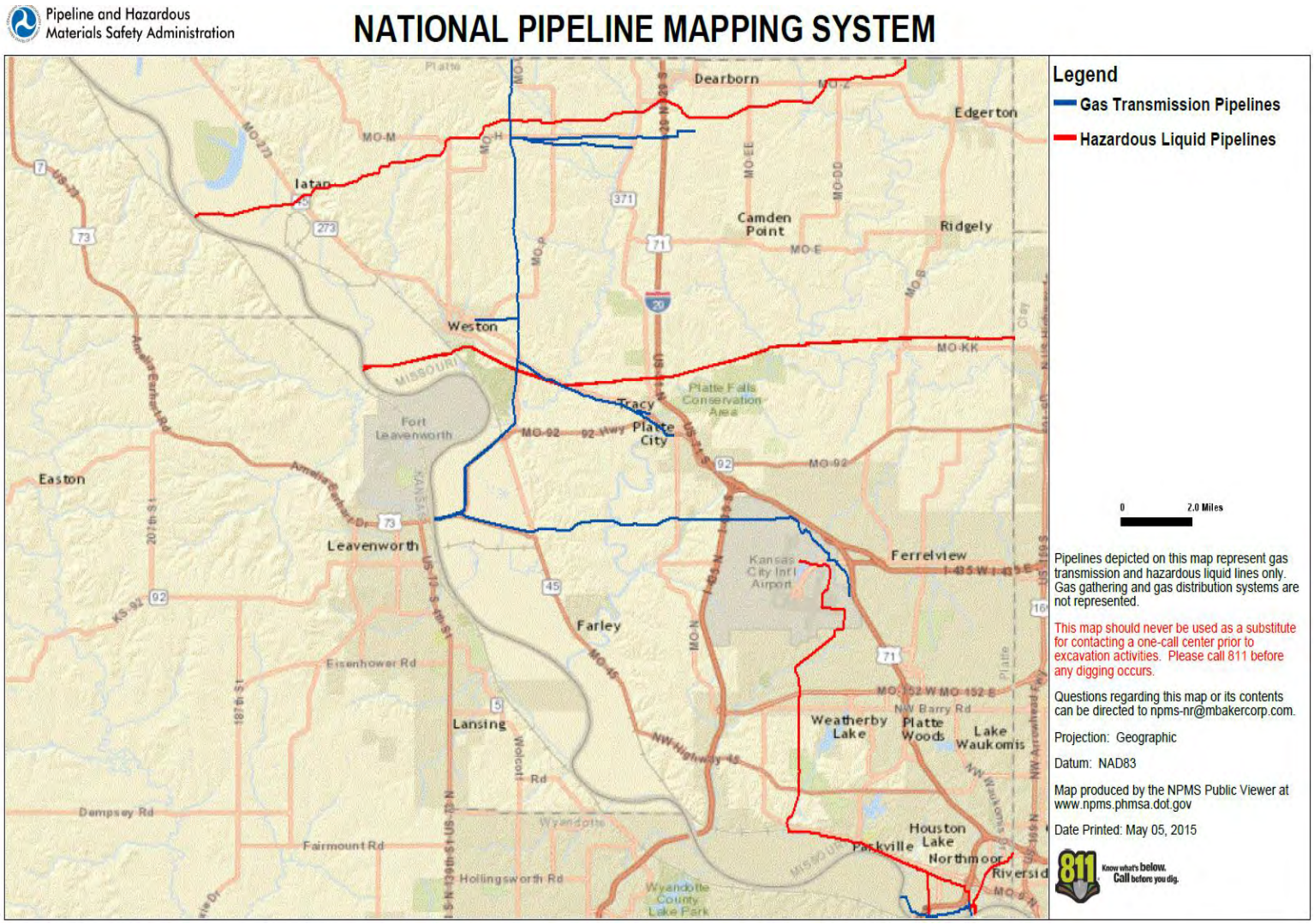
Attachment Map 4.19.2: Clay County Pipeline System



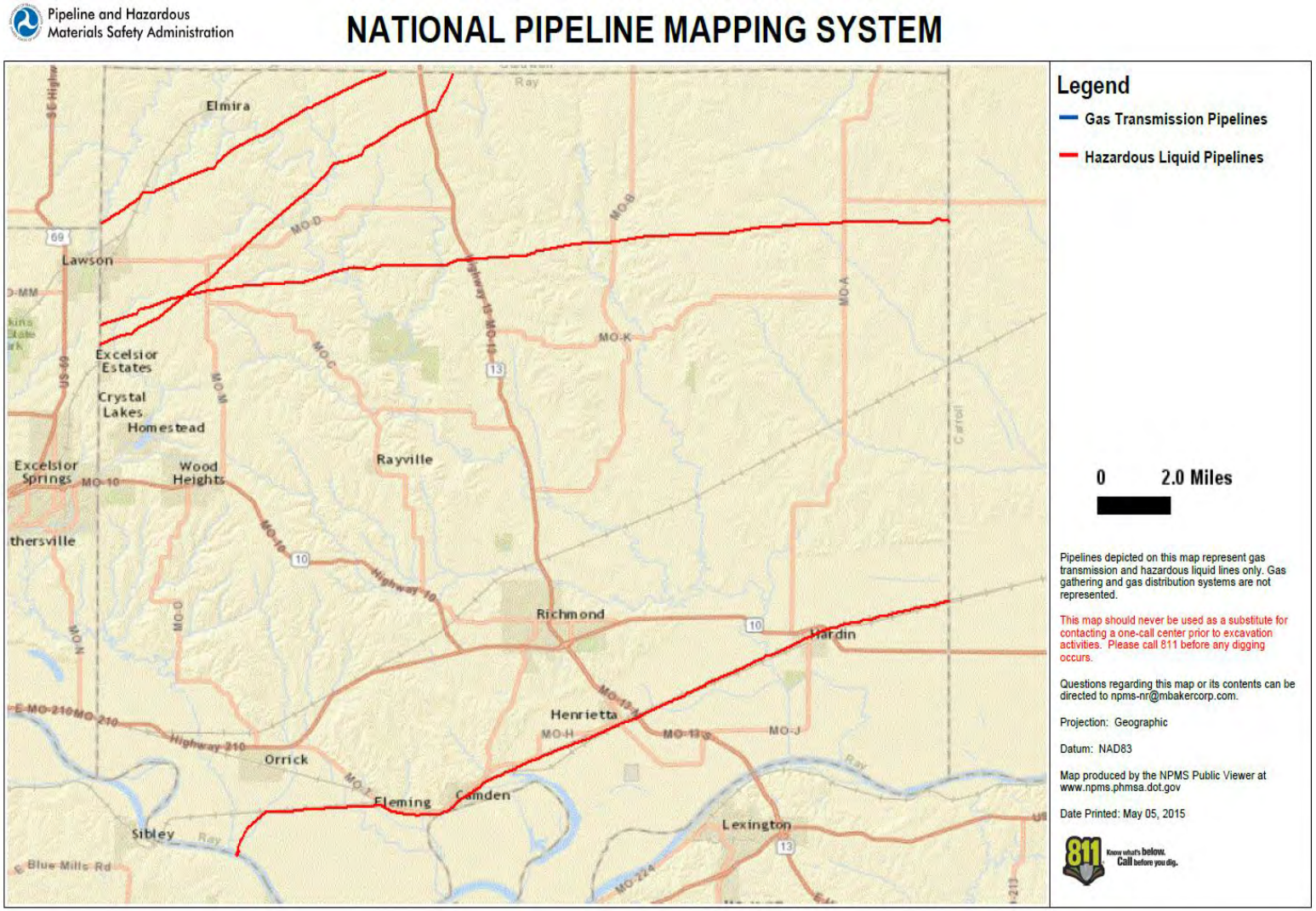
Attachment Map 4.19.3: Jackson County Pipeline System



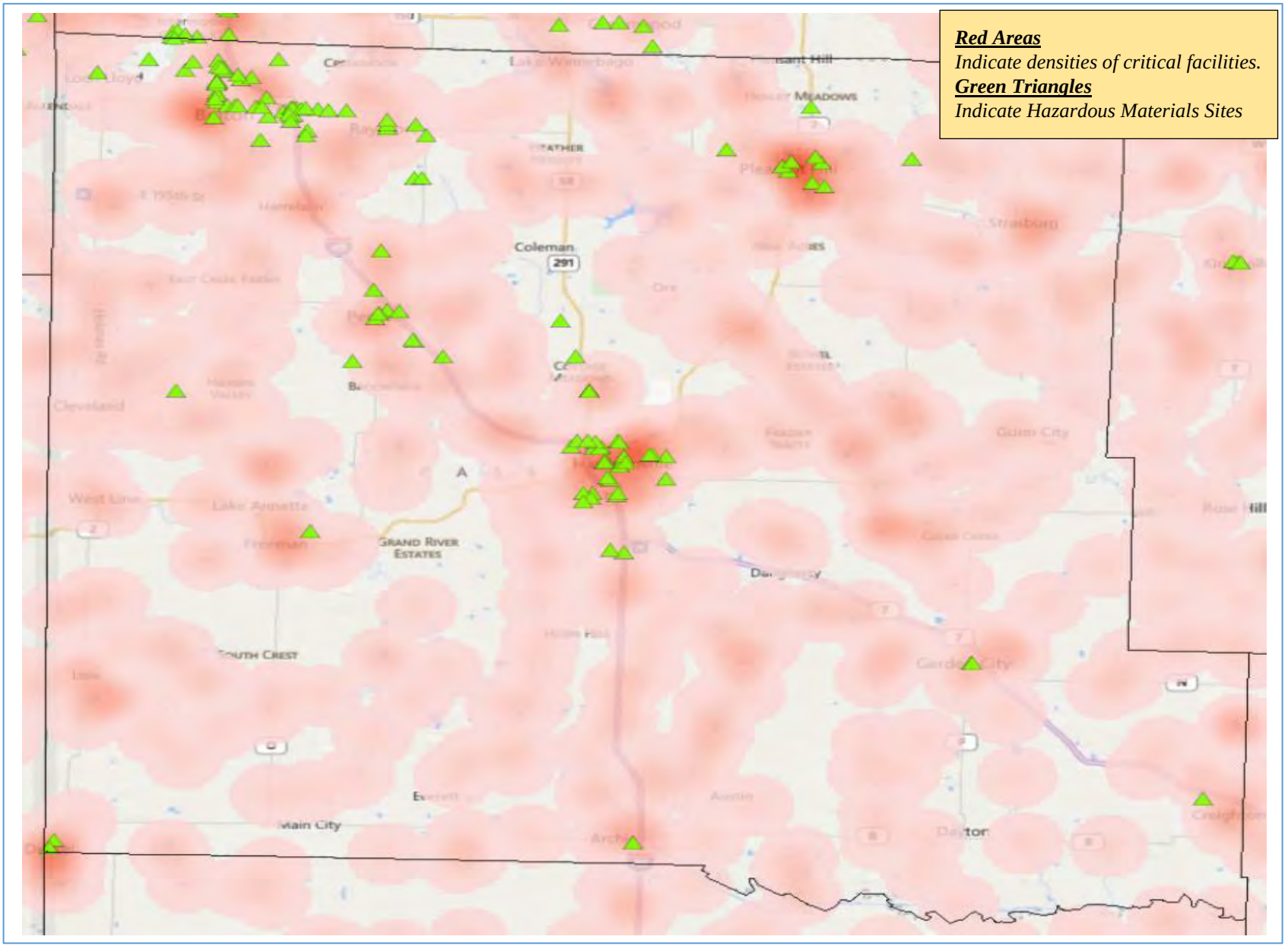
Attachment Map 4.19.4: Platte County Pipeline System



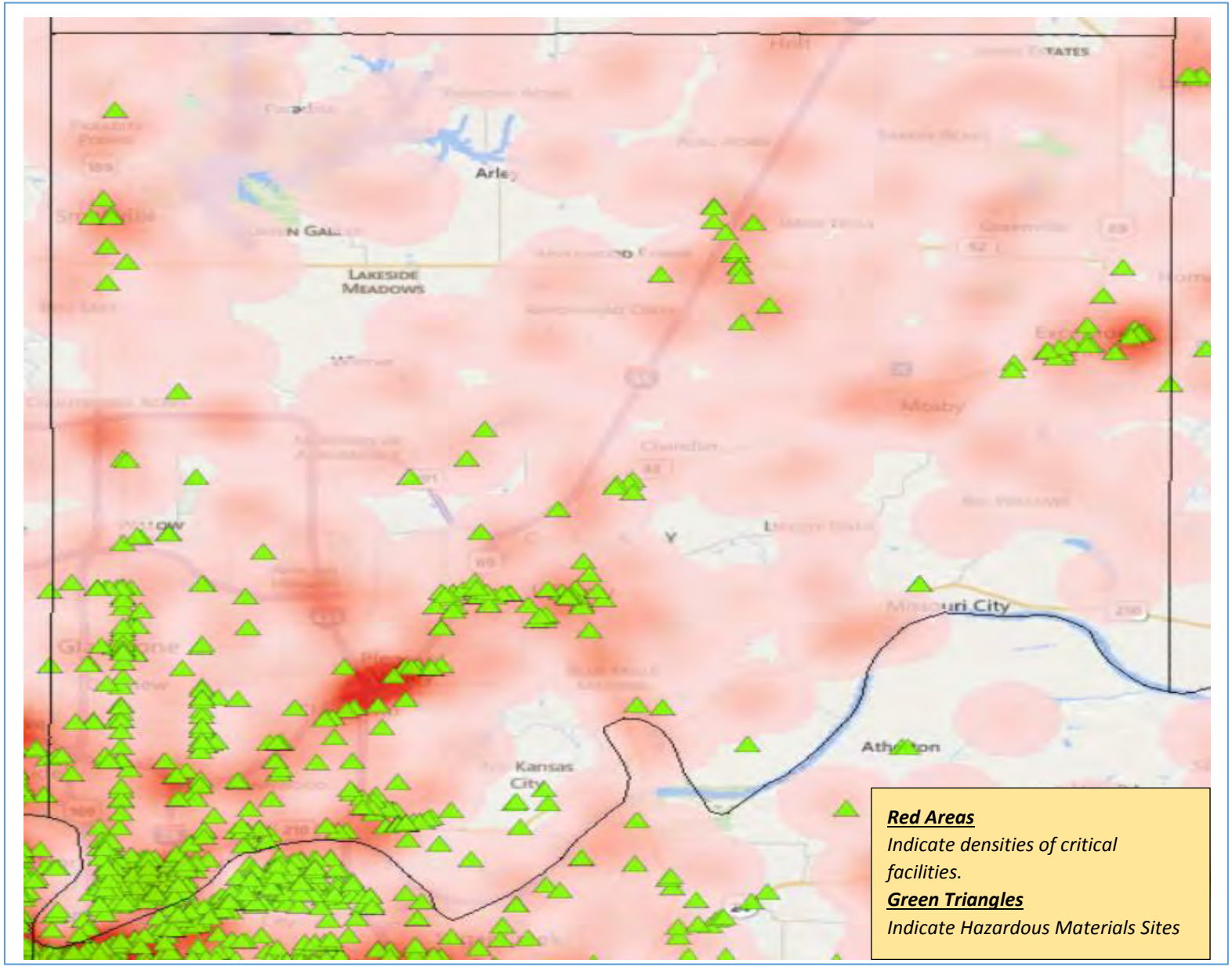
Attachment Map 4.19.5: Ray County Pipeline System



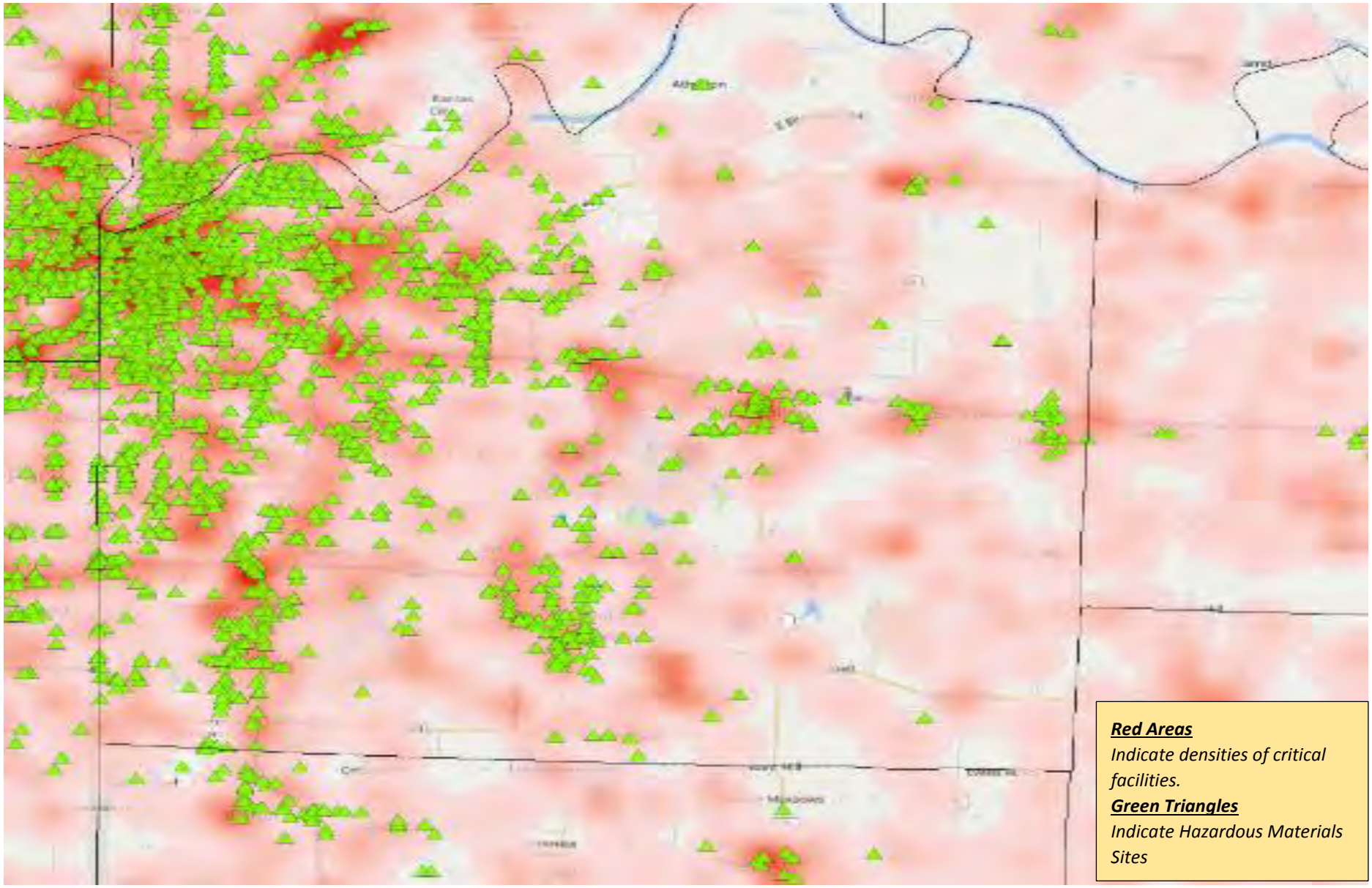
Attachment Map 4.19.6: Cass County Hazardous Materials Sites and Areas of Critical Facilities



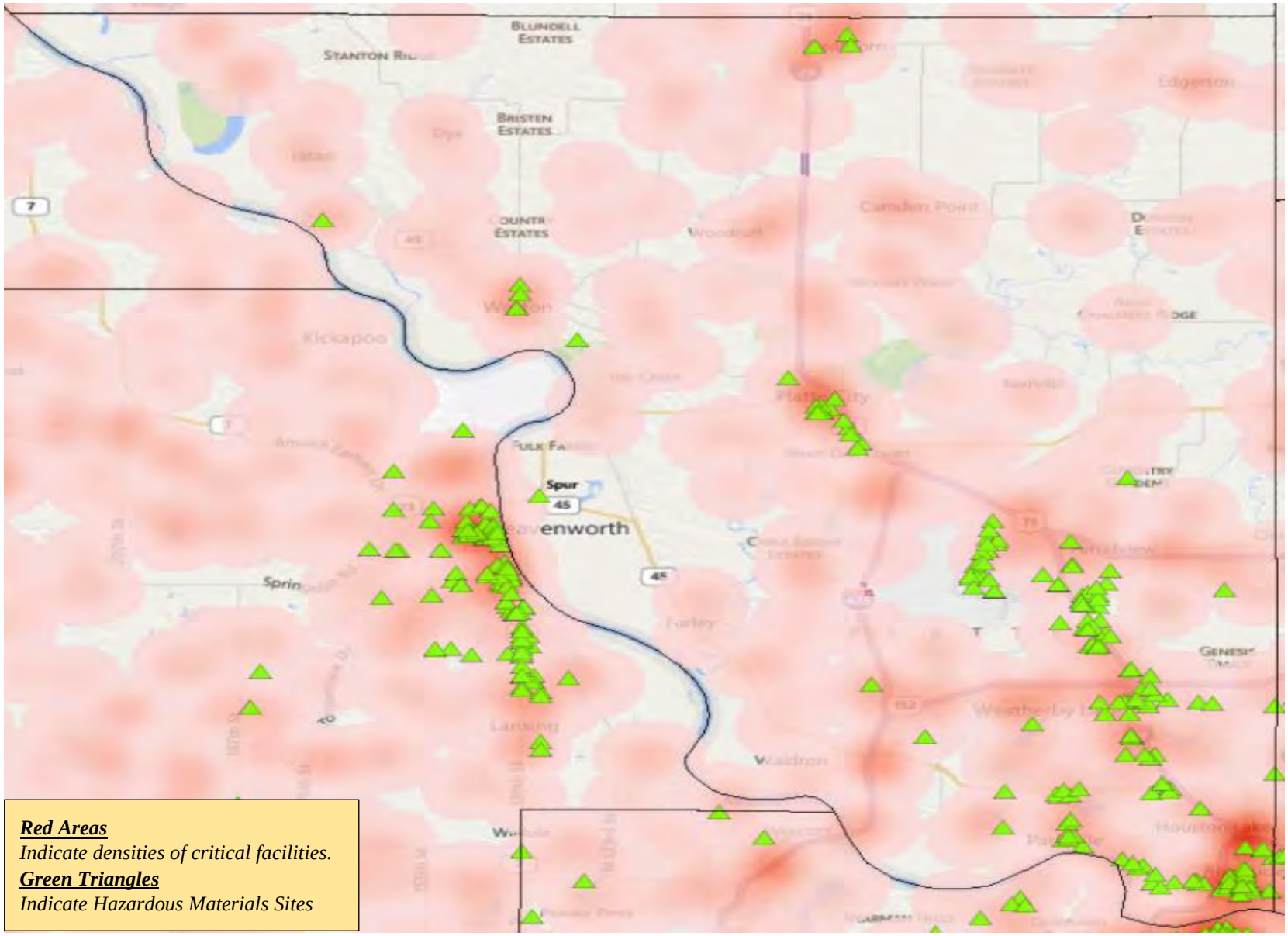
Attachment Map 4.19.7: Clay County Hazardous Materials Sites and Areas of Critical Facilities



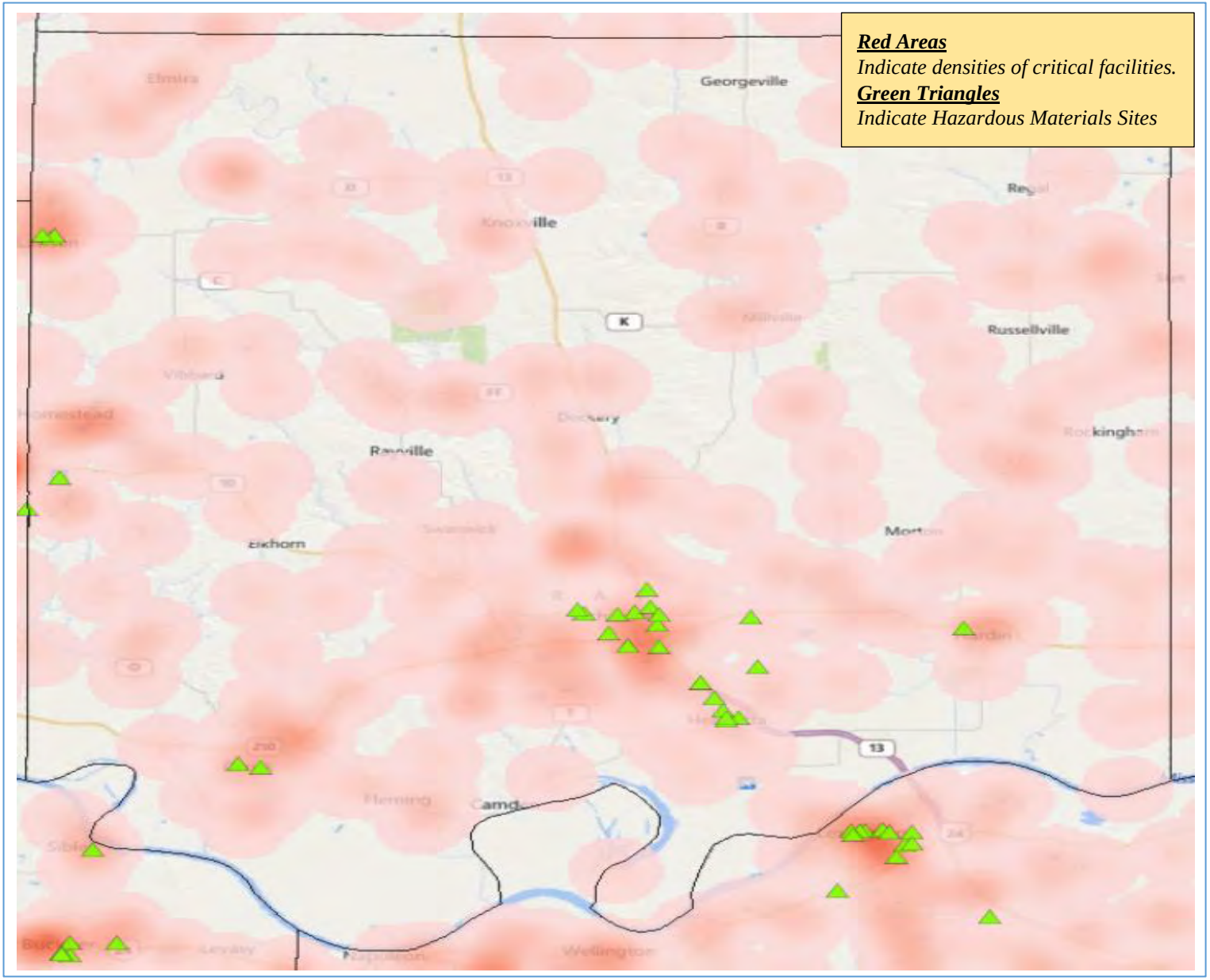
Attachment Map 4.19.8: Jackson County Hazardous Materials Sites and Areas of Critical Facilities



Attachment Map 4.19.9: Platte County Hazardous Materials Sites and Areas of Critical Facilities



Attachment Map 4.19.10: Ray County Hazardous Materials Sites and Areas of Critical Facilities



4.20 Public Mass Shooting Incidents

The definition of an active shooter — as agreed upon by U.S. government agencies, including the White House, U.S. Department of Justice/FBI, U.S. Department of Education, and U.S. Department of Homeland Security/Federal Emergency Management Agency — is "an individual actively engaged in killing or attempting to kill people in a confined and populated area."[cclxx]

For the purpose of this hazard analysis, the *Public Mass Shooting* definition expands and broadens the definition of *Active Shooter* to include the following:

1. Any number of actors targeting victims.
2. Use of any type of weapon to kill or injure victims (guns, knives, blunt force, fire and vehicles, etc.).
3. Any motive or reason for the attack.
4. Any event that happens in a relatively public place, including schools, places of worship, workplaces, restaurants, parking lots, public transit, public venues, private parties, etc.
5. Killing of four or more people no matter their relationship to the assailant(s).

The definition was broadened because all public mass shootings must be mitigated (if possible), responded to and resolved at the local level, regardless of the shooter or shooters' reasons, agenda or location of the event.

A public mass shooting incident describes a specific *In Progress* type of shooting situation faced by police and the public. This type of incident requires specific response protocols for law enforcement personnel and actions the public can take to seek protection while waiting for police to arrive. Immediate notification of the incident to authorities, quick response by police, protective actions by responders and citizens, and preparedness activities (e.g., training and education) can decrease a potential shooter's chances of successfully carrying out his or her plans.

The majority of public mass shooting situations are over within in five minutes or less, which means the emergency *Response Time* greatly exceeds the *Incident Duration,* giving law enforcement little or no opportunity to interdict the shooter or prevent further deaths or injuries sustained by the victims.[cclxxi] It only takes a few minutes for many victims to be killed or wounded before law enforcement can arrive at the scene; therefore, individuals and at-risk target facilities must be prepared both mentally and physically to deal with a public mass shooting situation before police arrive.

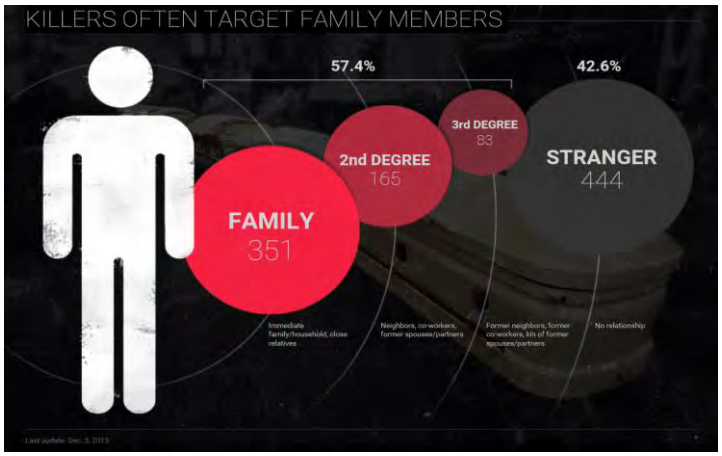
Experts have indicated that much work can be done to prevent public mass shootings.[cclxxii] Analyses of past incidents demonstrate that people do not simply *snap* one day and start shooting; they build up to it over months or even years. Along the way, they often say or do things that seem odd or raise red flags to the people around them. Some of the more recent statistics indicate that more than 50 percent of attackers had broadcast their intent before taking action.[cclxxiii] Many times people concerned about a fellow student, family member, co-worker, or a neighbor exhibiting red flags do not communicate concerns to authorities because they decide the person "was not serious," "just joking," "blowing off steam," "not their place or worry," etc.

There are five phases attackers progress through before the first bullet is fired or first bomb is placed.[cclxxiv] These include:

1. ***Fantasize*** – They fantasize about what they can do or what other shooters have done in the past.

2. ***Planning*** – They think about what they are going to do and plan different scenarios. An *Active Shooting* incident is a highly premeditated action.
3. ***Preparation*** – It takes time for shooters to acquire guns, ammunition, and in some cases a Kevlar protective vest or make Improvised Explosive Devices (IEDs), and figure out how to put all their equipment together.
4. ***Practice*** – They go to the location and study where they will park, where the doors are, whether doors are locked, the floor plan, and so on.
5. ***Event Horizon*** – This phase is where perpetrators implement and carry out their plans.

A good mitigation strategy is to disrupt attackers in one of the first four phases of developmental progress before their feelings manifest into violence they believe is justified or they obtain the capability to perpetrate the actions.



Source: USA Today Behind the Bloodshed (http://usatoday30.usatoday.com/news/nation/mass-killings/index.html#relationships)

Figure 4.20.1: Active Shooter Targets

Public mass shooting incidents occur for many reasons, such as personal vendetta, to incite terror, religious motivations, mental health issues, family arguments, holidays, financial stress, hate motivations, marital break-ups, etc. Many times assailants may know their targets and total strangers may be killed in the crossfire.[cclxxv] (See Figure 4.20.1) Other times assailants purposely target venues or facilities for the sole purpose of public massacres. Each public mass shooter incident is unique and many experts agree that a common workable detailed profile of a mass shooter does not exist.[cclxxvi] However, there are some observations that are often associated with attackers that perpetrate public mass shootings. The characteristics include the following:[cclxxvii]

- Attackers are likely to engage more than one target. They may target particular individuals or they may be intent on killing as many randomly chosen people as possible. They often go to locations with high concentrations of people, such as schools, theaters, shopping centers or other places of business.
- Attackers' intentions are usually an expression of hatred or rage, rather than financial gain or motives associated with other types of crimes. Thus, police tactics of containment and negotiation may be an inadequate response to an active shooter.
- Attackers often, but not always, are suicidal. Escape from the police is usually not a priority, nor do they attempt to hide their identity.
- They often have made detailed plans for the attack, are better armed than the police and will likely have significant quantities of ammunition. Attackers usually will have some familiarity with the chosen location. In some cases, they have planned diversions or booby traps, such as explosives.
- In some situations, attackers choose a location for tactical advantage, such as high ground or a protected location. In other incidents, active shooters have remained mobile, making police response exponentially more difficult.

4.20.1 Historical Occurrences

Normally when people think of Mass Public Shootings they refer to high profile incidents like the Sandy Hook Elementary School shootings in Newtown, Connecticut, the shooting in the Aurora, Colorado movie theater, the shooting in Tucson, Arizona involving U.S. Representative Gabrielle Gifford, Virginia Tech shootings, Columbine High School shootings, or the University of Texas–Austin shootings. Some of these incidents have occurred in public places, and some in locations that are considered more restricted, like elementary schools and high schools. USA Today conducted a study of public mass killings in the United States from 2006 to June 2015 and found 273 cases had occurred across the nation.[cclxxviii] (See Figure 4.20.2) The FBI conducted a study of *Active Shooter* incidents in the United States between 2000 and 2013 and concluded 160 cases had occurred.

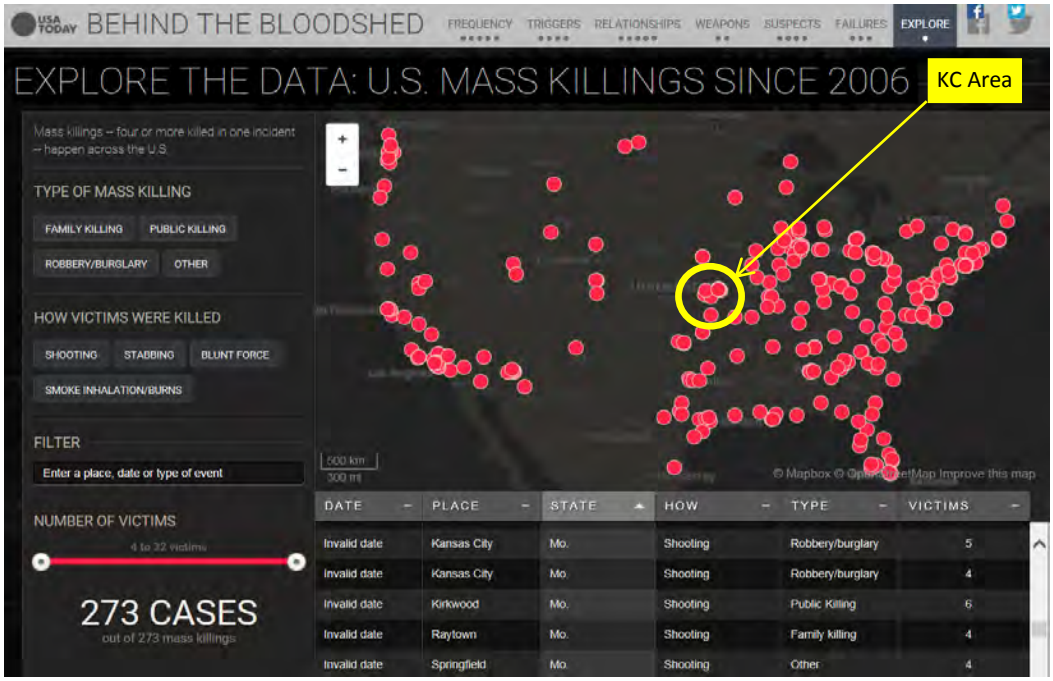


Figure 4.20.2: USA Today Mass Killings Locations, 2006 to Present

The Kansas City region and surrounding areas unfortunately have seen some mass public shootings as defined in this hazard analysis. (See Table 4.20.1)

Table 4.20.1: Local and Surrounding Area Mass Public Shootings (2006–2015)

Date	Location	Number Killed	Description
February 27, 2015	Tyrone, MO	7	Joseph Jesse Aldridge, 36, traveled to four homes in the dark of night, shooting people multiple times with a .45-caliber handgun. He left seven dead, including some relatives, and one wounded before killing himself. The killings occurred within about three miles of one another.
September 2, 2014	Kansas City, MO	5	A 34-year old ex-con went on a shooting and beating rampage and killed five individuals in their homes and yards.
April 13, 2014	Overland Park, KS	3	Two people were killed at the rear parking lot of the Jewish Community Center of Greater Kansas City. The suspect then killed a woman and injured two others in the parking lot of Village Shalom, a Jewish retirement community located a little more than a mile away from the Jewish Community Center.

Table 4.20.1: Local and Surrounding Area Mass Public Shootings (2006–2015)			
Date	**Location**	**Number Killed**	**Description**
December 13, 2013	Topeka, KS	4	After finding a woman in an alley with gunshot wounds, police found her car and then her house half a mile away, where her brother, ex-husband and another woman lay dead of gunshots. The first victim died two days later. No arrests have been made.
December 1, 2013	Topeka KS	4	One person shot and killed behind a strip mall and three other people killed in a residence. No one arrested for the crime.
November 23, 2013	Parsons, KS	4	A nurse and her three children — ages 4, 6 and 9 — were reported missing after the woman didn't show up for work. Their bodies were found in their home. David Cornell Bennett, Jr., a former boyfriend, has been charged with murder.
April 28, 2013	Ottawa, KS	4	Kyle Flack killed three adults and an 18-month-old toddler with a shotgun in their home.
June 22, 2009	Kansas City, Kansas	4	Adrian Burks went to the house where his girlfriend was staying, got in an argument and killed her and the other three people who lived there, including a 3-year-old girl. He pleaded guilty to the four shootings and was sentenced to life in prison.
March 16, 2009	Raytown, MO	4	Gevante Anderson walked into an apartment and opened fire. Three victims were shot and the fourth victim, the youngest, Gerard Clemons, was stabbed to death.
February 8, 2008	Kirkwood, MO	5	A gunman carrying a grudge against Kirkwood City Hall leaders left a suicide note on his bed warning "The truth will come out in the end," before he went on a deadly shooting spree at a council meeting, killing five people before being killed by police.
December 16, 2006	Kansas City, KS	6	Hersel M. Isadore Jr., 28, was "depressed and acting irrationally" in the weeks before he fatally shot his longtime girlfriend, four of their children and a cousin, according to a police report. Isadore then committed suicide.
October 14, 2006	Kansas City, KS	4	Three women and a man were found shot in a house about 3 a.m. after neighbors reported hearing gunshots. Two men were arrested the following month. The murders came to light when a 9-1-1 caller reported dead bodies and claimed responsibility for the killings. The caller stated that the reason the individuals were killed was that they were prostitutes and therefore they were "scum."
April 30, 2001	Kansas City, MO	4	A gunman suspected of wounding a police officer shot and killed two people and wounded at least two others at a shopping center in Kansas City, Missouri, before being gunned down by police. A fourth person was found dead at a home in the nearby area.

4.20.2 Probable Locations

The entire planning area is at risk from a public mass shooter incident. This is a particular concern for the 11 types of places identified below, where active shooter events have historically happened. An FBI report studied 160 active shooter incidents occurring in the United States between 2000 and 2013 and found that they mainly occur in the following places:

- Businesses open to public (pedestrian traffic)
- Businesses closed to public (pedestrian traffic)
- Shopping malls
- Educational environments (Pre-K to 12th grade)
- Educational environments (higher-education institutions)
- Open spaces
- Government properties (non-military)
- Government properties (military)
- Residences
- House of worship
- Health care facilities

The study also indicated that of the 11 defined location categories, the majority of incidents — 45.6 percent of the 160 — occurred in an environment related to business or commerce. The second most common incident locations were in educational environments (24.4 percent), which happened to involve some of the highest casualty numbers.[cclxxix] See Figure 4.20.3 and Map 4.20.1-Map 4.20.4 for potential locations of public mass shootings.

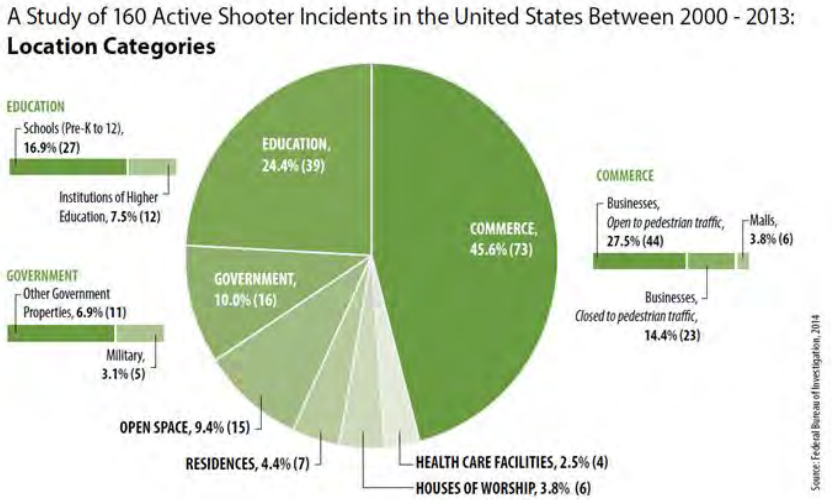
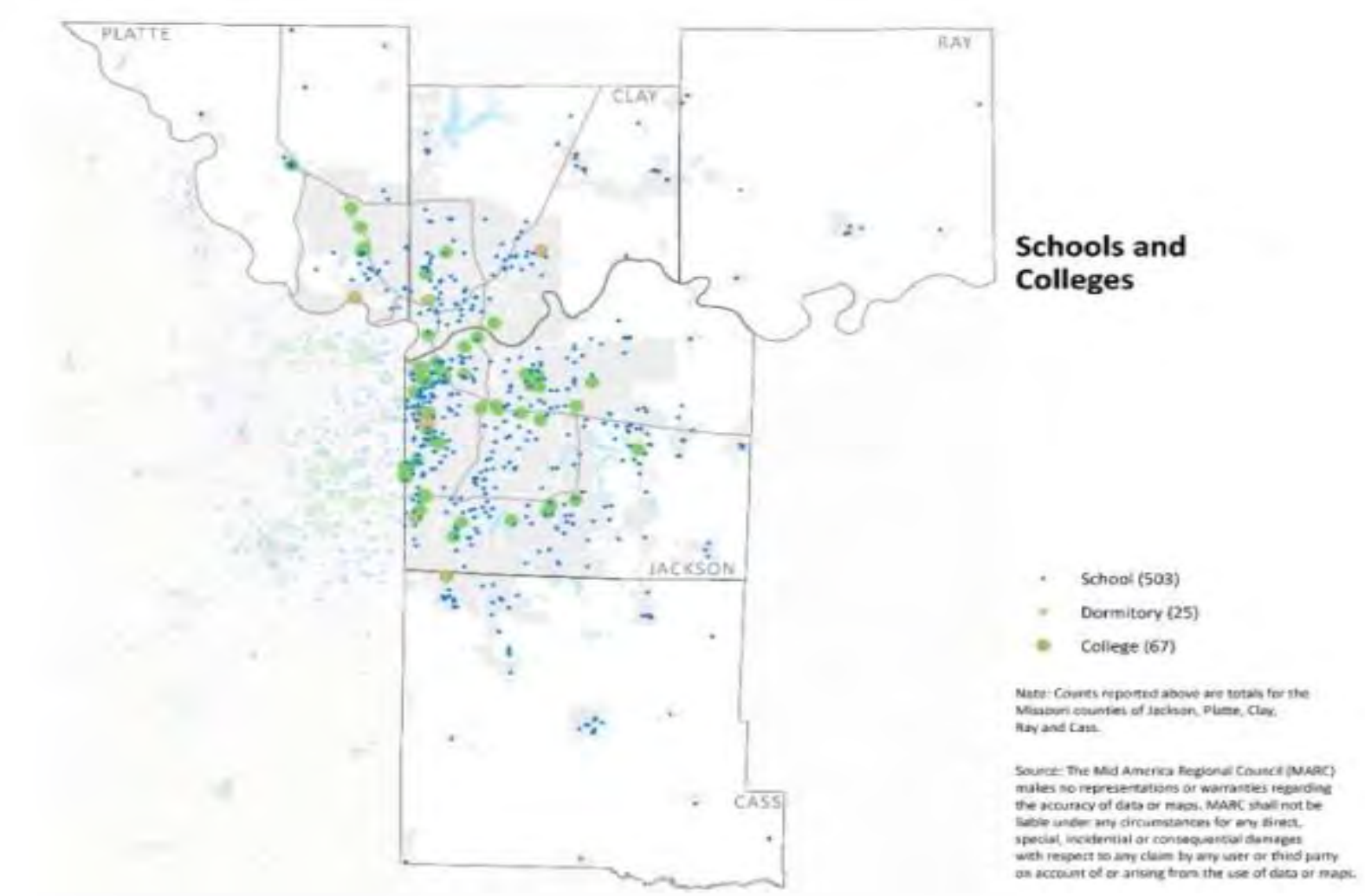


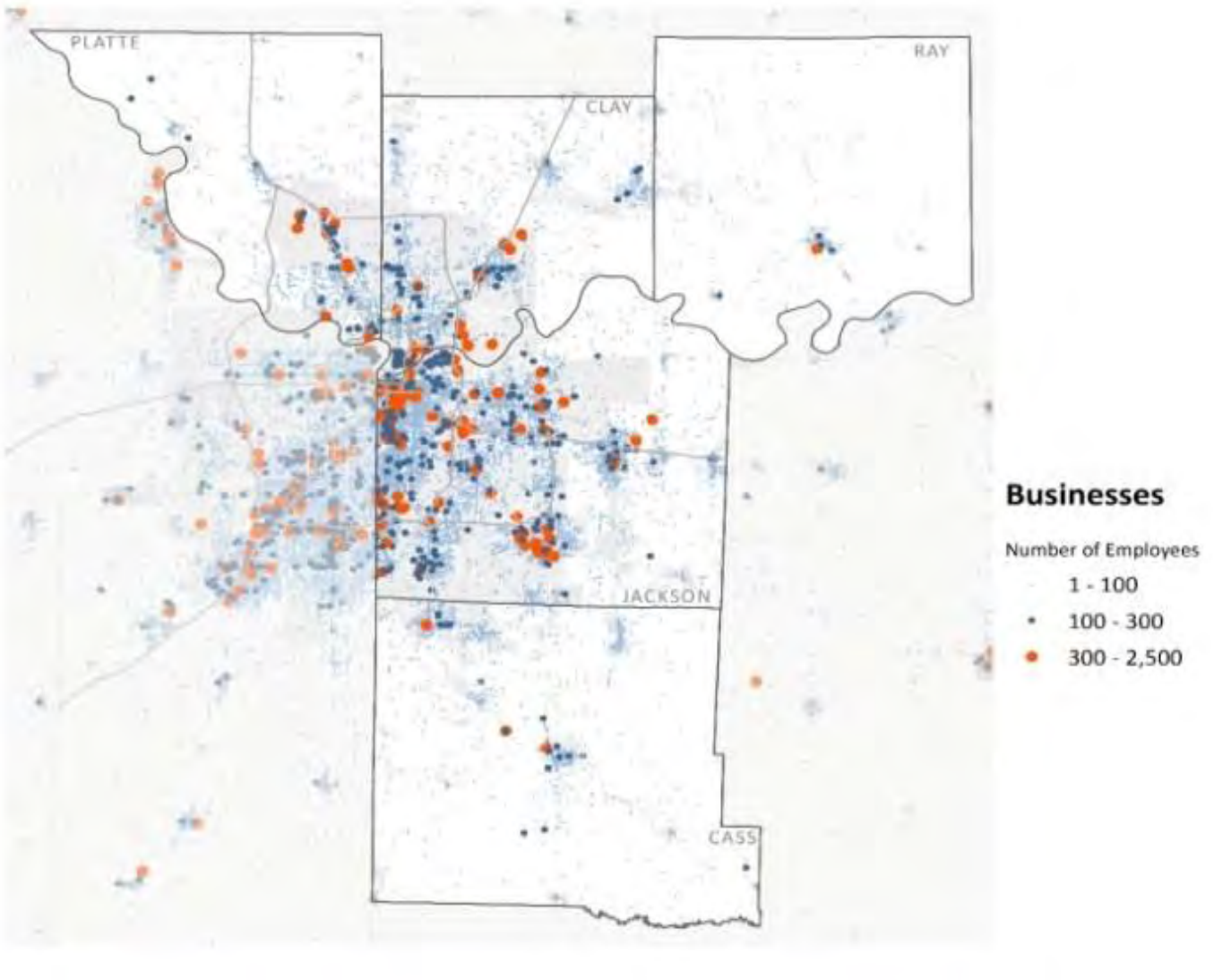
Figure 4.20.3: Potential Locations of Active Shooter Incidents



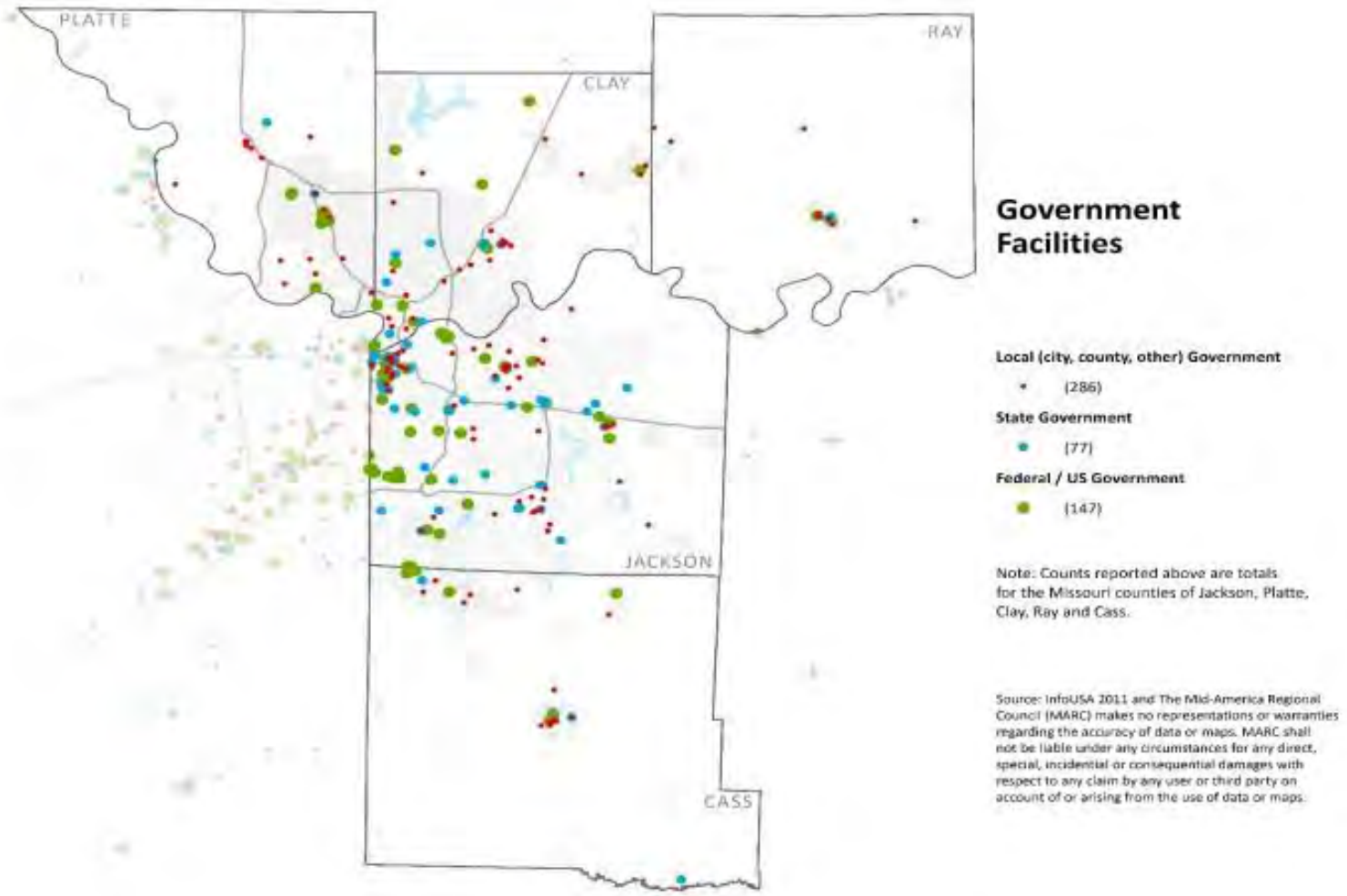
Map 4.20.1: Regional Schools and Colleges



Map 4.20.2: Regional Shopping Centers



Map 4.20.3: Regional Businesses



Map 4.20.4: Regional Government Facilities

4.20.3 Extent, Severity, Magnitude

Severity: High
Magnitude: High

During a public mass shooting, the actual areas where physical destruction of buildings and infrastructure are likely to occur make up less than 10 percent of the jurisdictional area. This is because areas affected would be contained in the buildings or confined space where the shootings take place. The major impact of a public mass shooting event is the loss of and/or injury to human life and disruption of community safety and routine. This type of event causes cascading interruptions not only to the facilities involved in the event, but to a majority of the local and surrounding communities. Public mass shooting events are no-notice, high-impact events that require quick and coordinated response from the traditional first responder community as well as facility employees and patrons where the shootings occur. These incidents are particularly devastating for public safety personnel and survivors, since many times family, friends, coworkers and acquaintances may be killed or injured. Many of these individuals are subject to post-traumatic stress disorders and the community as a whole may see increased mental health issues.[cclxxx]

These types of events tend to require enormous community resources, often for extended periods of time. The FBI and local law enforcement officials must complete detailed crime-scene investigations which can take weeks to months. Often the loss of life and injuries are so psychologically traumatic to the community that the facility where the event occurred becomes a reminder of the tragedy and must be removed so healing can begin. The actual shooting event itself tends to have no warning, but often the shooter's intentions were broadcast long before shooting event occurs. This makes the recovery/healing process harder because many members of community feel that the tragedy might have been avoided.

A good example of this took place in Newtown, Connecticut. After the Sandy Hook Elementary School shooting investigation was finished, the town spent almost $1.4 million on the abatement and demolition of the school building. The residents of the community voted to raze the structure and fund a permanent memorial to honor the 20 first-grade students and six educators killed in the massacre. The Cinemark Theater in Aurora, Colorado, reopened six months after the shooting and was renamed the Century Aurora. The facility was remodeled at a cost of $1 million.[cclxxxi]

A public mass shooting event can have significant impact on the lives and safety of people. The following recent incidents have some of the highest causality counts:

1. Cinemark Century 16 Theater in Aurora, Colorado – 70 (12 killed, 58 wounded), July 20, 2012.
2. Virginia Polytechnic Institute and State University in Blacksburg, Virginia – 49 (32 killed, 17 wounded), April 16, 2007
3. Ft. Hood Soldier Readiness Processing Center in Ft. Hood, Texas – 45 (13 killed, 32 wounded), November 5, 2009.
4. Sandy Hook Elementary School and a residence in Newtown, Connecticut – 29 (27 killed, 2 wounded), December 14, 2012.

Damages to property and public infrastructure are usually limited to the localized crime scene, depending on the incident. There is potential impact on the built environment from this type of event, but it is hard to quantify and would vary greatly with each incident. One of the largest impacts of these events is not economic, but the long term psychological and social changes and effects on the

community. These include such things as fear, anger, resentment, and many other mental health aspects that can take years to resolve, if ever. After such events occur, about 10 to 15 percent of people in the community will have symptoms of post-traumatic stress or depression. The entire community often defines itself as being the target or the victim, and the tragedy can cause collective disbelief and shock.[cclxxxii]

4.20.4 Probability of Future Occurrence: High

The probability that a public mass shooting incident will occur within the region is extremely high. There have been 14 incidents in Kansas City and surrounding areas in the last 14 years (2000–2014). These incidents involved 65 killings, or four people killed on average per year. (See Figure 4.20.4)

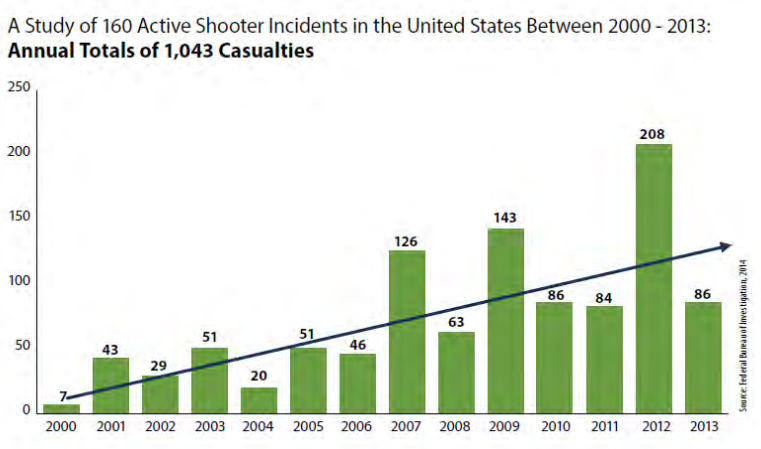


Figure 4.20.4: U.S. Active Shooter Incidents, 2000-2013

Nationwide, more than 200 mass killings have occurred since 2006, and the occurrence is far more predictable than many might think.[cclxxxiii] A USA Today study indicates a mass killing happens about every two weeks in the United States.[cclxxxiv] (See Figure 4.20.5)

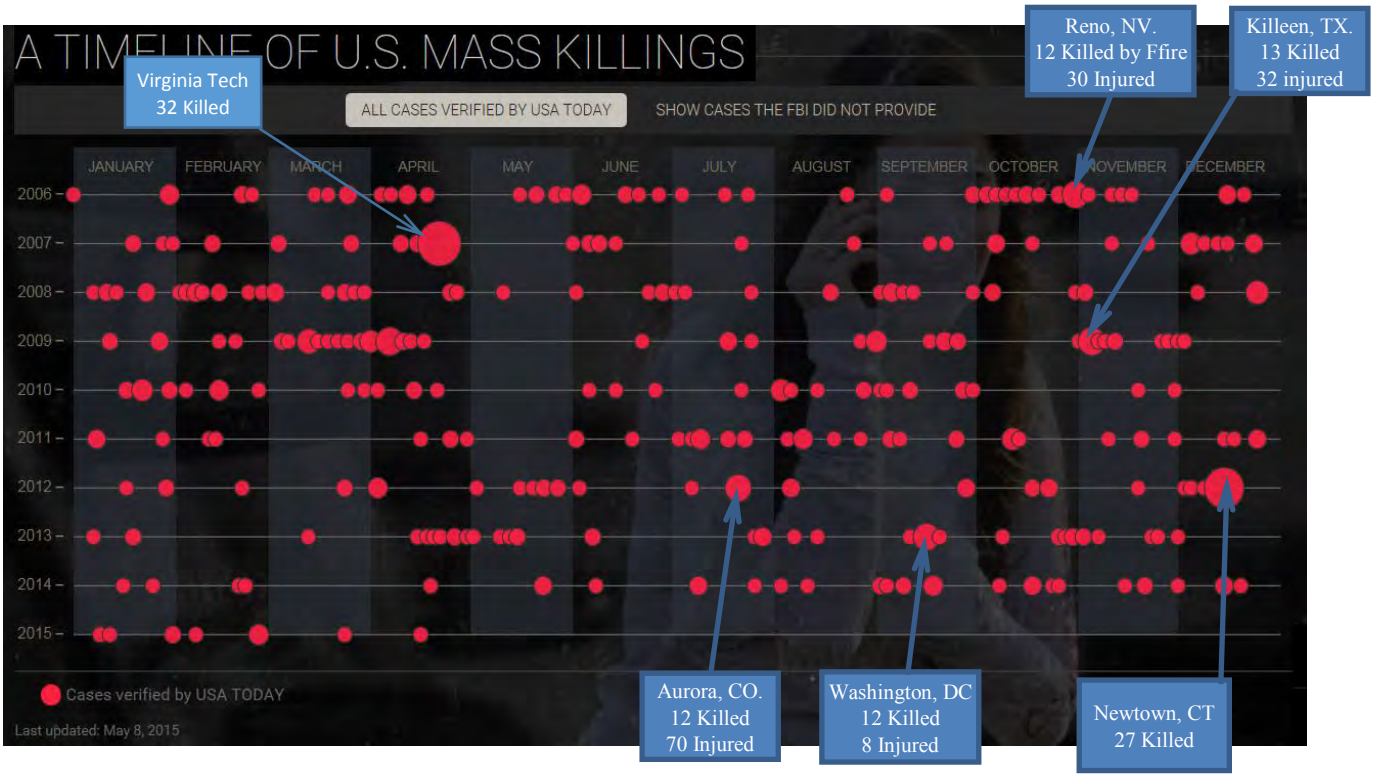


Figure 4.20.5: Timeline of U.S. Mass Killings, 2006-2015

The FBI studied the characteristics of 160 active shooter incidents between 2000 and 2013 and found an average of 11.4 incidents occurred annually in the United States. This trend is increasing; the first seven years averaged 6.4 incidents per year, while the average increased to 16.4 in the last seven years.[cclxxxv] Large public massacres like the one at Sandy Hook Elementary School in Newtown, Connecticut, account for one in six mass killings.[cclxxxvi]

4.20.5 Vulnerability Analysis and Potential Losses

People affected: Medium (Between 100,000 to 150,000 people affected)

A study of 160 active shooter incidents in the United States between 2000 and 2013, found 1,043 total causalities had occurred (486 killed, 557 wounded)[cclxxxvii] (See Figure 4.20.6). In addition, there is the psychological trauma experienced by all those directly involved in the event, their families and friends, and the wider community.

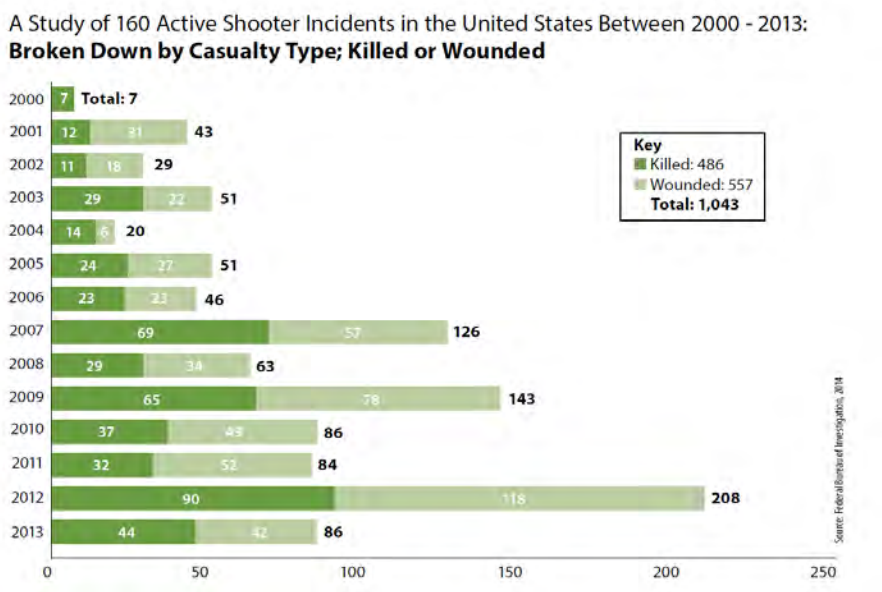


Figure 4.20.6: Study of U.S. Active Shooter Incidents, 2000-2013

As noted earlier, about 10 to percent of the community may experience psychological after effects from a mass shooting. The planning area has a population of 1,018,205 people, so this type of event could affect between 101,821 and 152,000 people.

Vulnerable Populations – The public mass shooting event most likely to involve considerable numbers of vulnerable populations would involve a health care facility. Of the 160 active shooter events identified by the FBI, 2.5 percent occurred at these types of facilities.[cclxxxviii] Some public mass shooter events have involved children, another vulnerable population. To mitigate these concerns, the community should make sure that plans and educational efforts are in place and they have been exercised, especially to practice evacuations and identify accessible safe areas.

Current Vulnerabilities – All counties and cities throughout the region are vulnerable to public mass shootings. Every jurisdiction has schools, businesses, places of worship, governmental offices, shopping centers, and health care facilities, etc., where these events have historically happened. Some jurisdictions have large public events, fairs, parades and local government meetings where public mass shootings could occur.

Future public mass shootings are inevitable. Vulnerabilities to this type of event may be exacerbated by a lack of preparation for the threat of potential mass shooting incidents or failure to implement methods to prevent individuals from harming others. These vulnerabilities may be overcome by

increased preparedness for at-risk targets and better methods of evaluating individuals and groups that may be prone to targeted violence.

Future Vulnerabilities – Data indicates mass public shooting events are increasing. This means educational institutions, private and governmental organizations, public venues, etc., must take the possibility of a mass public shooting event seriously. Mitigation strategies and actions must be included into future planning, educational and development projects. One major issue that educational facilities must look at in the future is designing new schools and retrofitting existing building to help protect students and faculty from potential perpetrators.

Public safety officials, social scientists, emergency management, business leaders and others must make an effort to develop programs that help frontline professionals identify the red flags often demonstrated by potential shooters before they act on their desire to harm others. Law enforcement officials can then use an assessment process to evaluate the actual threat that a person poses. This assessment process may not prevent every mass public shooting from occurring but the effort would help organizations cope with potential threats.

Total Exposure: High (*This hazard could involve damages greater than $10,000,000*)

Economic losses are associated with this type of event. FEMA's value of a statistical life for 2014 is 6.6 million. The cost of treating a gunshot wound injury, adjusted to 2015 present value of money, is $23,951.22.[cclxxxix] A study by the FBI of 160 active shooter incidents in the United States between 2000 and 2013 averaged 35 people killed and 40 injured each year. The report also found that the median number of individuals killed in each incident was two and the median number of individuals wounded in each incident was two.[ccxc]

The Kansas City area experiences about one mass public shooting event each year, with an average of four people killed in each event *(*see *Section 4.20.1 Historical Occurrences* in this hazard analysis*)*. Using these statistics, the estimated annual regional cost of a mass public shooting would be more than $26 million. (4 killed X $6,600,000 per life) + (2 injured X 23,951.22 medical cost of treating gunshot wounds) = $26,447,182.00. This figure does not include long-term health care disability costs, public safety response costs, damage to facilities, lost wages, or lost business operating income or workers compensation, which could easily add millions of dollars.

The chance of dying in a public mass shooting is about the same as the probability of being struck by lightning.[ccxci] The chance of being hit by lightning is 1:280,000.[ccxcii] The odds that a school shooting would occur in a U.S. school in 2013 (calculated by taking the average number of school shootings per year and comparing it to the number of schools in the U.S.) is 2.46:132,656.[ccxciii]

Natural environment – In most cases, mass public shootings do not have major impacts on the environment. Should the incident happen to involve the release of hazardous materials, however, the environment in surrounding areas could be seriously affected.

Loss Estimation for Region – Because of the randomness of these types of events, data limitations and low numbers of historical mass public shootings occurring in the planning region, the breakdown of cost and probabilities by county or jurisdiction is not practical or useful. Some jurisdictions in the planning region have more schools, shopping centers, places of worship, business etc., than others, but national data indicates these event scan occur anywhere across the region (See Table 4.20.2 and Table 4.20.3).

Table 4.20.2: Average Mass Public Shooter Loss Estimation				
Overall Risk (Probability + Severity/2)	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Value)**	**Total Population**	**Maximum Loss Estimation**
P=3 S=3	High	High	Medium	High
3	3	3	2	2.75

Specific Jurisdictional Vulnerabilities:

Table 4.20.3: Specific Vulnerabilities by County				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
Large number of public events	Large number of public events	Large number of public events	Large number of public events	Large number of public events
Multiple school districts Buildings	Multiple school districts Buildings	Multiple school districts buildings	Multiple school districts Buildings	Multiple school Buildings
Numerous businesses throughout the county	Numerous businesses throughout the county	Numerous businesses throughout the county	Numerous businesses throughout the county	Numerous businesses throughout the county
Numerous houses of worship	Numerous houses of worship	Numerous houses of worship	Numerous houses of worship	Numerous houses of worship
		Large sports and event arenas		
Numerous colleges and dormitories	Numerous colleges and dormitories	Numerous colleges and dormitories	Numerous colleges and dormitories	
Shopping Centers	Shopping Centers	Shopping Centers	Shopping Centers	Shopping Centers

4.20.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for public mass shooting incidents:

- Public mass shootings have little or no warning time and can happen anywhere in the region.
- Law enforcement and public/private organizations must work together to reduce mass public shootings.
- Evaluation process can be developed to help businesses, schools, etc., better identify potential shooters and communicate concerns to law enforcement.
- Education can help the public learn to take protective actions during the initial stages of a public mass shooting event.
- The Kansas City Regional Terrorism Early Warning Group can work with public and private organizations to help detect and deter possible events.
- A public mass shooting incident is distinguished from multiple homicide incidents by the need for an immediate response by law enforcement supported by many other sectors such as emergency medical services, transportation and utilities.

4.21 Civil Disorder

Civil disorder is a term that generally refers to groups of people purposely choosing not to observe a law, regulation or rule, usually in order to bring attention to their cause, concern or agenda. In Missouri, state statutes define civil disorder as "any public disturbance involving acts of violence by assemblages of three or more persons, which cause an immediate danger of or results in damage or injury to the property or person of any other individual." Civil disorder can take the form of small gatherings or large groups blocking or impeding access to a building or disrupting normal activities by generating noise and intimidating people. It can range from a peaceful sit-in to a full-scale riot in which a mob burns or otherwise destroys property and terrorizes individuals. Even in its more passive forms, a group that blocks roadways, sidewalks or buildings interferes with public order. Throughout this country's history, incidents that disrupted the public peace have figured prominently. Typical examples of such conflicting ideology include the protest movements for civil rights in the late 1960s and the Vietnam War protest demonstrations in the early 1970s.



Laws have evolved that govern civil disorder and peacefully resolve conflict. In the United States, gathering in a crowd is constitutionally protected under "the right of the people to peacefully assemble." However, assemblies that are not peaceable are not protected, and this is generally the dividing line between crowds and mobs. The laws that deal with disruptive conduct are generally grouped into offenses that disturb the public peace. They range from misdemeanors, such as blocking sidewalks or challenging another to fight, to felonies, such as looting and rioting. Missouri law makes "promoting civil disorder in the first degree" a class C felony, according to Section 574.070 of the Revised Missouri Statutes. As stated in one provision of the law, "whoever teaches or demonstrates to any other person the use, application, or construction of any firearm, explosive, or incendiary device capable of causing injury or death to any person, knowing or intending that such firearm, explosive or incendiary device be used in furtherance of a civil disorder, is guilty of promoting civil disorder in the first degree."[ccxciv]

Types of Crowds

"A crowd may be defined as a casual, temporary collection of people without a strong, cohesive relationship. Crowds can be classified into four general categories:

Casual Crowd — A casual crowd is merely a group of people who happen to be in the same place at the same time. Examples of this type include shoppers and sightseers. The likelihood of violent conduct is all but nonexistent.

Cohesive Crowd — A cohesive crowd consists of members who are involved in some type of unified behavior. Members of this group are involved in some type of common activity, such as worshiping, dancing, or watching a sporting event. Although they may have intense internal discipline (e.g., rooting for a team), they require substantial provocation to arouse to action.

Expressive Crowd — An expressive crowd is one held together by a common commitment or purpose. Although they may not be formally organized, they are assembled as an expression of common

sentiment or frustration. Members wish to be seen as a formidable influence. One of the best examples of this type is a group assembled to protest something.

Aggressive Crowd — An aggressive crowd is made up of individuals who have assembled for a specific purpose. This crowd often has leaders who attempt to arouse the members or motivate them to action. Members are noisy and threatening and will taunt authorities. They tend to be impulsive and highly emotional and require only minimal stimulation to arouse them to violence. Examples of this type of crowd include demonstrations and striking workers."[ccxcv]

Types of Mobs

"A mob can be defined as a large disorderly crowd or throng. Mobs are usually emotional, loud, tumultuous, violent and lawless. Like crowds, mobs have different levels of commitment and can be classified into four categories:

Aggressive Mob — An aggressive mob is one that attacks, riots and terrorizes. The object of violence may be a person, property or both. An aggressive mob is distinguished from an aggressive crowd only by lawless activity. Examples of aggressive mobs are inmate mobs in prisons and jails, mobs that act out their frustrations after political defeat, or violent mobs at political protests or rallies.

Escape Mob — An escape mob is attempting to flee from something such as a fire, bomb, flood or other catastrophe. Members of escape mobs have lost their capacity to reason and are generally impossible to control. They are characterized by unreasonable terror.

Acquisitive Mob — An acquisitive mob is one motivated by a desire to acquire something.
Riots caused by other factors often turn into looting sprees. This mob exploits a lack of control by authorities in safeguarding property. Examples of acquisitive mobs would include the looting in South Central Los Angeles in 1992, or food riots in other countries.

Expressive Mob — An expressive mob is one that expresses fervor or revelry following some sporting event, religious activity or celebration. Members experience a release of pent up emotions in highly charged situations. Examples of this type of mob include the June 1994 riots in Canada following the Stanley Cup professional hockey championship, European soccer riots, and those occurring after other sporting events in many countries, including the United States. Although members of mobs have differing levels of commitment, as a group they are far more committed than members of a crowd. As such, a "mob mentality" sets in, which creates a cohesiveness and sense of purpose that is lacking in crowds. Thus, any strategy that causes individual members to contemplate their personal actions will tend to be more effective than treating an entire mob as a single entity."[ccxcvi]

Flash Mob — "A flash mob has been defined as 'a large group of people who gather in some predetermined location, perform some brief action, and then quickly disperse.' he organizers of the first flash mobs intended the events to be coordinated group actions that were "inexplicable" and lacked an 'apparent agenda'. The brief actions performed as part of a flash mob have included activities such as participants freezing in place, singing a predetermined song, or performing a choreographed dance. The parameters of a flash mob (time, location and performed action) are communicated to participants via new and mobile communication technologies such as e-mail, texting, and social media. While the original flash mobs were intended to be 'good-natured spectacles', in the early 2010s, large groups of

youth "flash mobs" in Boston, Philadelphia, Brooklyn, New York, Kansas City, Missouri, Orange, New Jersey, and elsewhere in the United States have resulted in violence, vandalism, injuries, and arrests." [ccxcvii]

4.21.1 Historical Occurrences

Kansas City Riots of 1968
In April 1968, Kansas City was one of 37 cities in the United States to experience rioting after the assassination Martin Luther King Jr. Unlike other cities, the rioting in Kansas City did not erupt on April 4, the date of the assassination, but rather on April 9. The first sign of disorder in the streets of Kansas City was a student march in response to the government failing to close schools across the city on April 9, the day of King's funeral. This was seen as an apparent lack of respect for King by the students. The riot was sparked when Kansas City police officers used tear gas to quell the student protesters when they staged their performance outside City Hall. The deployment of tear gas dispersed the protesters from the area, but other citizens of the city began to riot as a result of the police action. The riot resulted in the arrest of over 100 adults, and left five dead and at least 20 admitted to hospitals.

Country Club Plaza Flash Mob April 10, 2010 – Kansas City, Mo.
Stampedes, fights and a general melee occurred in the County Club Plaza District on Saturday, April 10, 2010. Police estimated that as many as 1,000 teenagers, and some even younger, rampaged through the Plaza. It took multiple canisters of pepper spray and arrests to disperse the 'flash mob' that brought young people together through Twitter and Facebook communiques. Punches were thrown, a girl in a prom dress was shoved into a fountain, one woman was attacked and her purse stolen. The melee happened before the midnight curfew for minors.[ccxcviii] Other events occurred throughout the summer, though not to the same degree.

Country Club Plaza Flash Mob August 15, 2011 – Kansas City, Mo.
In a continuation of events in the spring and summer of 2010, Kansas City experienced several episodes of youth group "flash mob" violence at the Country Club Plaza and other locations. The most serious of these flash mobs occurred on August 15, 2011, when large groups of youth assembled at the Plaza and three youth (ages 14, 15 and 16) were shot. In response to these events, Kansas City implemented a new summertime curfew.[ccxcix]

Civil Unrest August – November 2014, Ferguson, Mo.
"Law enforcement officials in the Kansas City region were at a heightened state of alert after civil unrest across the state in Ferguson, Missouri. An ongoing series of protests and civil disorder began the day after the fatal shooting of Michael Brown by a police officer on August 9, 2014, in Ferguson. As the details of the shooting emerged, police established curfews and deployed riot squads to maintain order. Along with peaceful protests, there was looting and violent unrest in the vicinity of the original shooting. The unrest continued on November 24, 2014, after a grand jury decided not to indict the police officer who shot Michael Brown. A dozen buildings were burned down; there was gunfire, looting, vandalism, and destruction of two St. Louis County Police patrol cars, as well as burning of various non-police cars. Police in Ferguson deployed tear gas and ordered protesters in the street to disperse. There were 61 people arrested in Ferguson on charges including burglary and trespassing. In one case, firefighters evacuated the scene of a fire due to gunshots being heard, and for the same reason could not respond to other fires.

On November 25, CNN reported that thousands of people rallied to protest the grand jury's decision in more than 170 U.S. cities from Boston to Los Angeles, and that National Guard forces were reinforced in Ferguson to prevent the situation from escalating. At least 90 people were arrested for arson, looting, and vandalism in Oakland, California. Protests also took place internationally, with demonstrations held in several major cities in Canada and in London. Calls by protesters to boycott the Black Friday shopping day, which took place the Friday after the grand jury decision, were heeded in the St. Louis region, with hundreds of demonstrators disrupting shopping activity at the Saint Louis Galleria and other area shopping centers."[ccc]

On November 25, 2014, within the Kansas City metro, about 100 protesters took to the streets and marched through the Country Club Plaza and to Westport to protest the Ferguson grand jury decision. Several protesters were arrested but no injuries or damages occurred.[ccci]

4.21.2 Probable Locations

Civil disorder can arise from a number of causes for a variety of reasons. Circumstances may be spontaneous or resultant from escalating tensions, as was demonstrated in Ferguson, MO and other recent national examples. Civil disorder can erupt anywhere, but the most likely locations are those areas with large population groupings or gatherings. Sites that are attractive for political or other rallies should be considered as probable locations for the epicenter of civil disorder events. Civil disorder can also occur in proximity to locations where a "trigger event" occurred, as was the case in Ferguson.

4.21.3 Extent, Severity, Magnitude

Severity: Low – High
Magnitude: 1

The ultimate severity of any civil disorder event will depend on the magnitude of that event and its location. The more widespread an event is, the greater the likelihood of excessive injury, loss of life and property damage. Additional factors, such as the ability of law enforcement to contain the event, are also critical in minimizing damages.

4.21.4 Probability of Future Occurrence: Low

Across the nation, police reports reflect a fairly steady rate of theft, mugging, arson and homicide incidents**.** But these criminal acts do not amount to riots; a large crowd itself is not an incipient riot merely because it assembles a great many people. "Starting signals" must occur for civil disorder to erupt; these starting signals include certain kinds of high profile events[cccii]. Nationwide, riots are apt to be a recurrent, if unpredictable, feature of social life[cciii]. Without question, the Kansas City area will continue to experience future episodes of marches, protests, demonstrations and gatherings in various cities and communities that could lead to some type of disruptive civil disorder. However, based on the region's general history of civil disturbance, the probability that such incidents will develop into full-scale riots is considered low.

4.21.5 Vulnerability Assessment and Potential Loss Estimates

Data limitation: As discussed in the 2010 Plan, civil disorder can occur in any number of locations for any number of reasons. The severity of the event is determined by several variables including group size, the

cause of the incident, tactics used to de-escalate the incident and police presence. Each of these can significantly alter the severity of an event. For these reasons, use of the statistical risk assessment methodology to calculate loss potential is not appropriate. Therefore, only a general statement of loss potential can be made for civil disorder events.

In the Kansas City region, because of the generally confined nature of civil disorder and a lack of past historical examples of damage, potential loss is best characterized as low.

4.21.6 Problem Statements

- Wide scale civil disorder can quickly overwhelm the law enforcement resources of any single jurisdiction.
- The rise of social media (Twitter, Facebook, Instagram, etc.) can magnify the speed and onset of mass gatherings of people that can lead to civil disorder. [ccciv]
- In follow-up case studies of the Plaza "flash mobs," boredom was cited by teens as a leading cause of their participating in the flash mobs. Jurisdictions with inadequate social opportunities for young people may continue to face similar challenges.[cccv]

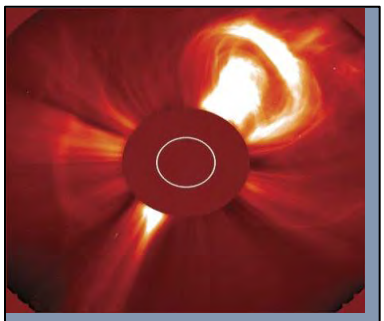
4.22 Cyber Disruption

Cyber disruption can be caused by many reasons, including natural hazards, equipment failure, loss of Internet connectivity, computer viruses, or state-sponsored hacking campaigns. Internet connectivity and cyberspace have created new ways to communicate, conduct business, send data from one part of the world to another, store data, purchase goods and services, share information, and even play games. Cyber technologies improve education, productivity, work and research and provide opportunities to make infinitely expanding knowledge available to everyone. Cyber technologies play a major role in our society and impact billions of users worldwide.

Today, private and governmental organizations have become reliant on this technology to function in a more innovative, engaging and cost-effective manner. In recent years, many businesses have integrated social media tools such as Facebook and Twitter in their marketing efforts to engage with customers more directly, increase sales and reach new markets. In a government context, cyber technologies can be used to engage citizens for purposes such as collecting feedback and ideas, providing information about available public services, and collecting taxes and utility payments. Technology gives governmental agencies the ability to touch broader audiences using non-traditional channels.

Cyber technologies have become increasingly important to modern society. People, businesses and governments rely on them for day-to-day operations and activities. Users have the ability to conduct banking and commerce, receive news/weather/warnings, and all forms of communications. The increasing importance of cyber technologies is proven by the 47 billion debit card transactions made in the United States in 2012, as compared to 15.6 billion in 2003.[cccvi]

Cyber technologies are one of the most powerful dynamics shaping social, intellectual and moral spheres. Serious problems occur when cyber technologies become unavailable or fail because of infrastructure issues or are compromised by nefarious acts. These technologies are becoming the cornerstone of private and public sector communications, software application access and use, information sharing, and a host of other taken-for-granted uses, causing the Internet to become less of an amenity and more of a necessity. Failure of cyber technologies is analogous to the loss of fuel for private and commercial cars and trucks — it would take away an integral component of America's economic engine. Cyber technologies must be considered as seriously as petroleum products are to the transportation sector.



On July 23, 2012, an extreme solar storm missed Earth. If it had impacted the planet, the total economic impact could have exceeded $2 trillion dollars and it might have taken years to pick-up the pieces

Figure 4.22.1: Extreme Solar Storm, July, 2012

Cyber technologies can fail or be compromised for some of the following reasons:

Technological failures – This occurs when equipment or communication systems fail or become damaged because of natural hazards such as lightning, flooding, tornados, earthquakes, etc. This category includes power failures, physical damages and loss of information from not backing up critical data. These types of events occur on a daily basis and can cause short- and long-term cyber disruptions. This category also includes some natural hazards such as coronal mass ejections (CME) from solar storms, which pose a threat to all forms of high-technology — especially cyber technologies (see Figure 4.22.1) — and severe storms and tornados.

Bandwidth limitations – In general, the backbone of the Internet is fairly robust and is capable of withstanding normal and enhanced service demands. During some emergencies such as epidemics, terrorist attacks, or denial-of-service events, the physical cyber infrastructures may not be resilient enough to hold up under the increased demands of school, business, home enterprise, emergency management and recreational users. Bandwidth limitations are becoming an ever increasing problem with the development of Smart Grid technologies, which businesses and utility companies use for computer-based remote control and automated systems that adjust individual or multiple control wires, substations, transformers, switches, etc., from a central location.

New devices being connected to the Internet every day - Smart thermostat systems, TVs, refrigerators, and washers and dryers use wireless connections for remote monitoring. These are sometimes classified as the Internet of Things (IoT) and allow for greater convenience. Some devices can access the Internet and call for service in the case of malfunction, while others monitor energy usage and send updates to the consumer. With the International Data Corporation predicting that over 200 million devices will be connected to the Internet by the Year 2020[cccvii], cyber-attacks could become a significant problem, particularly if these IoTs become part of a botnet attack due to a lack of malware protection.

Cyberterrorism, cybercrime and hacktivism – As new technologies develop, especially at the extremely vigorous pace that cyber technology has done over the past decades, beneficial changes from these technologies can also lead to a host of threats posed by computer criminals, hackers, social/ ethnic/religious groups, state-sponsored organizations, etc. Cyber technology has provided a new battleground for opportunists willing to exploit these technologies, either for criminal activities or through cyber-attacks at a minor or large scale for self-gain.

- **Cyberterrorism** – This term was coined by Barry Collin in the 1980s and so far, the international computing community has not decided on an exact definition of *terrorism* that can be applied universally.[cccviii] According to NATO, cyberterrorism is "a cyber-attack using or exploiting computer or communication networks to cause sufficient destruction to generate fear or intimidate a society into an ideological goal."[cccix]

  No matter the definition, cyber technologies have given terrorists new capabilities to conduct operations with little or no risk to themselves and to spread the fear of possible or actual attacks (physical or cyber) among many, with often painful economic results. Cyberterrorism seeks to achieve the same or similar results as classical terrorism — to provoke a state of terror among the general public, a group of persons, or particular individual for political purposes. These new technologies also have given terrorists a new mode of communicating with current and potential supporters, distributing propaganda, raise funds, recruit new members and engage in psychological warfare.

- **Cybercrime –** An increasing number of criminals are committing crimes using cyber technologies because these types of crimes are convenient, anonymous and quick, with a relatively low-risk of being caught. In the past, cybercrimes were often committed by individuals or groups without centralized organizations. Today, organized crime structures and highly trained professionals are deeply involved in this lucrative criminal activity.

  The criminals behind these cyber-attacks are well organized, with a sophisticated malicious distribution network behind them. Many cybercriminal organizations use a format where different attackers carry out different tasks. One group will focus on compromising computers, another will configure and administer those computers to carry out various

malicious activities, while yet another will broker deals for renting the use of those compromised computers to other cybercriminals.

Cybercrimes can encompass the following range of illegal activities:

- Attacks against computer data or networks
- Internet theft
- Internet fraud
- Interference with online financial services
- Distribution of sexual content concerning children
- Distribution of malicious software and botnets
- Email scams and phishing/pharming
- Copyright or intellectual property infringement
- Theft of money from financial institutions and businesses
- Data kidnapping

One example of cybercrime is organizations that use botnets. Cybercriminals involved in this type of e-crime generally start out by getting malware onto vulnerable computers, turning them into "zombies" and adding them to larger networks of similarly compromised computers, called botnets, or robot networks. A botnet can easily be controlled from a central location, either through a command and control (C&C) server or a peer-to-peer (P2P) network. Zombie computers connected to the same C&C operator become part of the same botnet.

Botnets are valuable to criminals because they can be used for a wide variety of purposes, such as sending large numbers of spam emails, stealing banking information, conducting distributed denial-of-service (DDoS) attacks against an organization/government, or a variety of other malicious activities.[cccx] They have also become a revenue source for criminals by allowing them to administer large numbers of compromised computers which are rented to a third party for malicious purposes. Adding computers to a botnet is generally just the first step in the attacker's plan. The individual typically seeks out other cybercriminals to lease his/her botnets for various other illegal purposes.

This rental of botnets gives the initial attacker a lot of leverage and flexibility concerning how to use, finance and expand the computers compromised and managed by the network. Types of botnet configurations can vary widely, depending on the types of computers, operating systems, geographic locations, languages or other features (See Table 4.22.1). Criminals rent these botnets to access data or commit crimes. Rental prices vary depending on the length of rental and the job for which the computers are to be used.

Table 4.22.1: Botnet Usage by Type

Spam Botnet Name	Percentage of Botnet Spam	Estimated Spam Per Day	Top Sources of Spam From Botnet[cccxi]		
KELIHOS	46.90%	10.41 Billion	Spain 8.4%	U.S. 7.2%	India 6.6%
CUTWAIL	36.33%	8.06 Billion	India 7.7%	Peru 7.5%	Argentina 4.8%
DARKMAILER	7.21%	1.60 Billion	Russia 12.4%	Poland 8.3%	U.S. 8.1%
MAAZBEN	2.70%	598.12 Million	China 23.6%	U.S. 8.2%	Russia 4.8%
DARKMAILER3	2.58%	573.33 Million	U.S. 18.2%	France 10.4%	Poland 7.5%
UNKNAMED	1.17%	259.03 Million	China 35.1%	U.S. 10.0%	Russia 7.5%
FESTI	0.81%	178.89 Million	China 21.9%	Russia 5.8%	Ukraine 4.7%

Table 4.22.1: Botnet Usage by Type					
Spam Botnet Name	**Percentage of Botnet Spam**	**Estimated Spam Per Day**	**Top Sources of Spam From Botnet[cccxi]**		
DARKMAILER2	0.72%	158.73 Million	U.S. 12.6%	Belarus 8.3%	Poland 6.6%
GRUM	0.53%	118.00 Million	Russia 14.5%	Argentina 6.9%	India 6.9%
GHEG	0.35%	76.81 Million	Poland 17.4%	Vietnam 12.1%	India 11.5%

- **Hacktivism –** This word combines two actions – hacking and activism. In short, hacktivism stands for low-level computer network attacks or digital activity that cause, in most cases, only temporary cyber disruptions. Like cyberterrorists, hacktivists pursue political goals, but this activity does not correspond quantitatively or qualitatively with the possible outcome of cyberterrorist acts.[cccxii] Unlike other types of hackers whose motivations are for financial gain, hacktivists often seek revenge against the intended targets. Hacktivists engage in acts of digital protest and disruption against an opponents' business or governmental entity. Often hacktivists differ from other classifications of hackers because there is public disclosure of the information taken, such as public officials' computer account passwords, home addresses, family member names, social security numbers, and email addresses. The public learns exactly how the hacking was accomplished.[cccxiii]

Distributed Denial of Service Attacks – The most common type of cyber disruptions come from Denial of Service attacks, which involve flooding a targeted server with massive external communication requests. This overload of traffic prevents the server from responding to legitimate traffic, or slows its response so significantly that it is rendered effectively unavailable. There is a difference between a Denial of Service (DoS) and Distributed Denial of Service (DDoS) attack.

In a DoS attack, one computer and one Internet connection are used to flood a server with packets, with the aim of overloading the targeted server's bandwidth and resources. This type of attack is fairly easy to defend against, because it deals with one particular source. A DDoS attack, however, uses many devices and multiple Internet connections, often distributed globally through a botnet. A DDoS attack is much harder to protect against, simply because there is no single attacker to defend against, as the targeted server(s) will be flooded with requests from many hundreds and thousands of multiple sources.[cccxiv] Typically, hacktivists use home PCs infected with malware to amass their DDoS attacks.

DDoS attacks can be divided in three types:

Volume Based Attacks – The attack's goal is to saturate the bandwidth of the attacked site, and magnitude is measured in *bits per second*.

Protocol Attacks – This type of attack consumes actual server resources, or those of intermediate communication equipment, such as firewalls and load balancers, and is measured in *packets per second*.

Application Layer Attacks – Comprised of seemingly legitimate and innocent requests, the goal of these attacks is to crash the web server, and the magnitude is measured in *requests per second*.

In the future, DDoS attacks are likely continue to increase. Similar to personal computers being unknowingly compromised to form botnets used to launch large-scale cyberattacks, cyber criminals have begun to commandeer home routers, smart appliances, TVs, refrigerators, and other IoT components to transform these common household items into *thingbots* to carry out the same type of malicious activity.[cccxv]

> "The 'Internet of Things' holds great promise for enabling control of all of the gadgets that we use on a daily basis, but it also can become a tool for cybercriminals to launch large and distributed attacks. The Internet-enabled devices represent an enormous threat because they are easy to penetrate, consumers have little incentive to make them more secure, the rapidly growing number of devices can send malicious content almost undetected. Few vendors are taking steps to protect against this threat, and the existing security model simply won't work to solve the problem."[cccxvi]

No matter the motivations of the cyberterrorist, cybercriminal or hacktivist, this technology will be used in multiple ways to cause harm and infect computers. Replicating programs can infect other files on a computer, causing the virus to spread and inflict more damage. These viruses can be spread through email attachments, portable devices, websites containing malicious scripts, and file downloads where a computer virus can attach itself to the host files and activate whenever the infected files are opened. See Attachment 4.22.1 for the different types of computer viruses.

The Internet has become so integral to economic and everyday life that governments, businesses and individual users are targets for ever-more frequent and threatening cyber-attacks. Joel Brenner, the former counsel to the National Security Agency (NSA) stated, “The Internet was not built for security, yet we have made it the backbone of virtually all private-sector and government operations, as well as communications. Pervasive connectivity has brought dramatic gains in productivity and pleasure but has created equally dramatic vulnerabilities. Huge heists of personal information are common [and] cyber theft of intellectual property and infrastructure penetrations continue at a frightening pace.”

In its October 2014 report, *Cyber Attacks Likely to Increase (Digital Life in 2025)*, the Pew Research Center asked this question to thousands of experts and Internet builders: “By 2025, will a major cyber-attack have caused widespread harm to a nation’s security and capacity to defend itself and its people?” Widespread harm was defined by the report as significant loss of life or property losses/damage/theft at the levels of tens of billions of dollars. Sixty-one percent of respondents replied that a major attack causing widespread harm would occur by 2025.

Cyber disruptions are sure to be a major concern now and in the foreseeable future. The hacker culture is not going away, with more of types of activity with greater sophistication expected in the future. All Internet users must be educated and vigilant to keep the negative aspects of cyber technologies to a minimum.

4.22.1 Historical Occurrences

Computer viruses started to emerge and evolve soon after the Internet appeared. The building blocks of computer viruses were laid in 1949, when scientist John von Neumann came up with his theory about self-replicating programs. In 1969, AT&T Bell Laboratories come up with the first multi-tasking operating system, UNIX, and, in the same year, ARPANET was developed by the Advanced Research Projects Agency which was the precursor of the Internet. These ARPANET systems were the first to have malicious programs with the Creeper virus.

In 1979, engineers at Xerox Palo Alto Research Center make a huge discovery: the computer worm. This rudimentary program is the ancestor of modern computer worms and is designed to search for idle processors in a network. In 1983, Fred Cohen of the University of Southern California coined the term computer virus to describe a program that is created to "affect other computer programs by modifying them in such a way as to include a (possibly evolved) copy of itself."

More than 60,000 documented cyber threat vulnerabilities (viruses/worms) have occurred over the last two decades.[cccxvii] Attachment 4.22.2 lists the major viruses and worms in the history of the Internet.[cccxviii] Between 200 and 500 computer viruses existed in 1990; by 2009, there were 1,122,311.[cccxix] In 2013, 41.6 percent of user computers were attacked at least once, with 315,000 new malicious files detected every day.[cccxx] In order to conduct all these attacks over the Internet in 2013, cybercriminals used 10,604,273 unique hosts, roughly 60.5 percent more than in 2012. The U.S. and Russia are the leading hosts of malicious web resources.[cccxxi]

Every year, computers belonging to many individuals, businesses and governmental organizations are infected by viruses. Many times only a small number of computers are infected and the issues are resolved by individuals or staff internally. Other times these viruses and worms cause very large data breaches and produce billions of dollars in damages. Attachment 4.22.3 lists the largest historical virus infections and data breaches and costs.

Some major Internet outages and computer breaches in and near the local planning region include:

1. **University of Central Missouri** – (2009) A student illegally hacked into the university's computer system and downloaded data containing private information of 90,000 faculty, alumni and students. The culprit attempted to sell the stolen identities for $35,000.[cccxxii]
2. **Time Warner Cable System-Wide Internet Outage** – (2011) Internet service for most of North America was interrupted and millions of users were kicked offline for hours.[cccxxiii]
3. **Schnuck Supermarkets** – (December 2012 through March 2013) A security breach affected an estimated 2.4 million credit and debit card users at the grocer's stores.
4. **City of Springfield, Missouri** – (2012) Springfield officials reported that personal information of about 2,100 citizens may have been obtained by hackers when the city's public-facing website was compromised
5. **Missouri Credit Union** – (Summer 2013) Private information was accessible on the credit union's website for a short period of time, with as many as 39,000 customers affected.
6. **Benjamin F. Edwards** – (May 2014) Customer data was stolen from the company's system. Officials did not release how many customers may have been affected by the breach.
7. **Jimmy John's** – (July through September 2014) Customer credit and debit card data was stolen from 216 locations nationwide, including 14 stores in Missouri (five in the KC area).
8. **Onsite Health Diagnostics** – (2014) Children's Mercy Hospital in Kansas City notified 4,076 individuals that Onsite Health Diagnostics — a vendor used by wellness program provider StayWell Health Management — experienced a breach that affected their personal information.[cccxxiv]
9. **Park Hill School District** – (2014) More than 10,000 current and former employees and students were notified that personal information may have been compromised by a data security breach. The breach occurred in January and February when a worker downloaded student and staff records from a district computer onto a hard drive without permission. The worker (who left the district a short time later) connected the hard drive to a home computer, making the information accessible online.[cccxxv]

10. **Time Warner Nationwide Internet Outage** – (August 2014) During an overnight network maintenance activity to manage IP addresses, an erroneous configuration was propagated throughout the national backbone resulting in a network outage for several hours.[cccxxvi]
11. **Internet Outage in Cass County Missouri** – (August 2014) Loss of phone and Internet service in the cities of Peculiar, Cleveland, Garden City, East Lynne, Drexel and Creighton was due to fiber optic lines being accidently cut.[cccxxvii]
12. **Anthem Blue Cross Blue Shield –** (January 2015) Unauthorized access of consumer information, including member names, member health identification numbers, dates of birth, Social Security numbers, addresses, telephone numbers, email addresses, employment information and income data occurred. The data compromise involved the personal information of more than 2 million Missourians and also included past enrollees—potentially up to 80 million people with compromised information.[cccxxviii]

Cyber Groups Operating in Missouri

In 2013, Missouri ranked fifth in the United States for data breaches, with more than 3.2 million records exposed, based on reported cyber data incidents. Traditionally many people assume the primary targets for cybercrime are banks. However, analysis of repeat incidents find that the top five targets, in order, are universities, financial services, federal agencies, technology providers and hospitals. In addition to financial transactions, personal data, health information and intellectual property are in the crosshairs for cybercriminals.[cccxxix]

According to the St. Louis Business Journal, "Cybercriminal groups are more interested in health care records because the values of those records are higher. Criminals can do more with it, whether it's to sell that data for other types of health care fraud or traditional credit card fraud. Health care records are typically 20 times more valuable than just credit card data on the black market."[cccxxx]

Cyber hacking groups can pose the greatest threats to cybersecurity and often have greater technical capabilities because coordinated attacks can be made using different technologies. One of the most notorious and well-publicized hacker groups recently working in Missouri is called Anonymous — an international underground network of anarchistic hacktivists.

The tactics used by Anonymous go beyond traditional DDoS attacks. In 2011, Anonymous intervened very successfully in the Tunisia revolution (calling it Operation Tunisia), making governments feel threatened by the fact that activists have become so effective at using these new technologies and social media against them. Using the contacts and skills at its disposal, the group ensured the revolution continued happening on the streets by receiving and distributing ample media coverage, hacking government websites, and distributing cyber "care packages" to protestors. These care packages (translated into Arabic and French) offered cyber dissidents advice on how to conceal identities on the web in order to avoid detection by governmental cyber police. Care packages have since been distributed at various rallies around the world, offering scripts that can be used to prevent government interception and other items helpful to a revolutionary.

Anonymous interventions occurred just hours after 18-year-old Michael Brown was shot and killed by a Ferguson, Missouri, police officer. Anonymous urged residents to the streets and the hackers vowed retribution if police harmed protesters. A video posted on Twitter warned Ferguson city officials, "If you abuse, harass or harm the protesters in Ferguson we will take every web-based asset of your departments and federal agencies off-line." The hackers also vowed to begin publicly releasing the personal information of the city's police officers.[cccxxxi] Soon after this threat, the Internet crashed at

Ferguson City Hall and the city website went dark along with its phones. City officials didn't say what happened — only that a flood of traffic aimed at the city hall website "just kept coming;" however, this outcome is what the Anonymous group had warned would happen.

4.22.2 Probable Locations

A cyber disruption can happen to any resident, business, non-governmental or government organization in the planning area. Wherever cyber technology systems exist and are used, disruptions and failures can occur. These disruptions will have an almost limitless potential to impact not only individuals but also private and public organizations. They can create cascading hazards in both expected and unforeseen ways. In regards to natural hazards, cyber disruptions cannot directly influence natural events, but they can potentially contribute to or greatly complicate natural hazards.

For instance, any computerized systems that manage flood control could potentially be impacted by a cyber-disruption, thereby possibly creating a flood event. A group of hackers dubbed "Dragonfly" and "Energetic Bear" exhibit the hallmarks of state-sponsored hacking campaigns and have infiltrated the networks of hundreds of energy firms and industrial control system manufacturers.[cccxxxii] These control systems — possibly some in the planning region — are used in water/electrical utilities, oil/natural gas energy firms, mining/heavy manufacturing plants and in the nuclear industry. Disruption of these vital industries by these hacker groups would not only affect the safety of citizens and impact the economy, but could create additional cascading hazards such as environmental hazards, power outages, and supply chain disruptions for basic needs, etc.

4.22.3 Extent, Severity, Magnitude

Severity: High
Magnitude: 4

A cyber disruption can impact any individual, business, government entity or nonprofit organization in the planning area. Roughly 25 percent to 50 percent of these groups will be affected at some level each year, as determined by past historical events. In 2014, the risk of a business experiencing a data breach was higher than ever, with almost half of organizations suffering at least one security incident.[cccxxxiii] Cyber disruptions caused by natural or man-made events normally happen every year and are usually localized to a confined area or entity, but some cyber disruptions caused by viruses, worms and malware can spread very fast and affect the entire region, state or country. The Nimda worm used several types of propagation techniques, causing it to become the Internet's most widespread virus/worm in history, spreading within 22 minutes and causing millions of computers to be infected.

Cyber disruptions can occur anytime with absolutely no warning. During natural hazard events, disruption of Internet service can occur due to physical damages and exposure to the elements. During natural events, cyber disruptions are expected and can be monitored and repaired as necessary. Threats like cyber terrorism, hacking events, data loss and exposure to computer viruses can occur at any time without notice. Many times, computer systems can be compromised without knowledge of the event for days, weeks, months or even years. Some destructive computer viruses can remain hidden in software and hardware for months or even years until they are designed to activate.

Cyber disruptions can impact society in many ways, including:

Loss of privacy – Many people have had their identities stolen, costing lots of time to restore their credit ratings and recover lost monies. In some cases, identity thieves inflicted so much financial damage that

affected individuals and companies were forced into bankruptcy or lost the ability to obtain home and car loans or other forms of credit.

Loss of intellectual property – One of the most important areas for property loss is in the theft of intellectual property and confidential business information, sometimes called economic espionage. The loss of intellectual property to a competitor can cost companies millions of dollars and in some cases bankrupt a business. This type of information might include plans, manufacturing processes and product formulas.

Loss of private, business and public information – This includes confidential information such as trade secrets or know how. These categories are similar to intellectual property, and their losses can impose similar costs, but can be distinguished: intellectual property includes information that makes it easier to produce a competing product, while confidential business information can give an advantage in commercial negotiations or in developing competing business strategies.

Reputational Damage – Many times, private emails or correspondences are released by hackers to embarrass a person or company. This type of exposure can lead to economic retaliation by the public, causing shareholders to sell stock, or damage an individual's reputation to a point where he loses his job. Reputational damage can also be extremely disruptive to a governmental organization.

Increased cost of security – Expenditures on cybersecurity as part of the total cost of defending against cyber espionage and cybercrime is very expensive. One estimate predicts that governments and companies spend perhaps 7 percent of their information technology budgets on security. Another estimate put annual spending globally on cybersecurity software at $60 billion, and growing at about 8 percent each year.[cccxxxiv]

Opportunity Cost – Examples of this cost include lost sales or lower productivity due to decisions by individuals and companies to avoid online transactions in fear of having their identities compromised.

Loss of equipment, systems and data – Some new computer viruses can actually cause system failures by infecting hard drives or bios of the computer. Ransomware commonly known as Cryptolocker causes even more damage to businesses, where not only the victims' files are encrypted but also files on shared or attached network drives. With the appearance of new online payment methods such as Bitcoins, ransomware is poised for growth in 2014. Small businesses and consumers are most at risk from losing data, files or memories from this type if cyber disruption.

It is estimated that malicious cyber disruption activities in 2013 cost the United States economy between $24 billion and $120 billion, or 0.2 to 0.8 percent of the Gross Domestic Product.[cccxxxv] Once a cyber-disruption occurs from a virus or malicious attack, it can be very hard to stop. If the cyber threat does not disable the computer or server it can take multiple attempts to remove the program using antivirus software. Often the virus can re-infect computers by being exposed to other computer systems that are infected. If the cyber disruption involves systems using Supervisory Control and Data Analysis Systems (SCADA), damages could occur to utility systems infrastructure, taking months to repair.

4.22.4 Probability of Future Occurrences: High

Cyber disruptions are expected to continue in the foreseeable future. The probability or likelihood of data breach varies considerably by industry, but it is one of the increasing threats from cyber-attacks

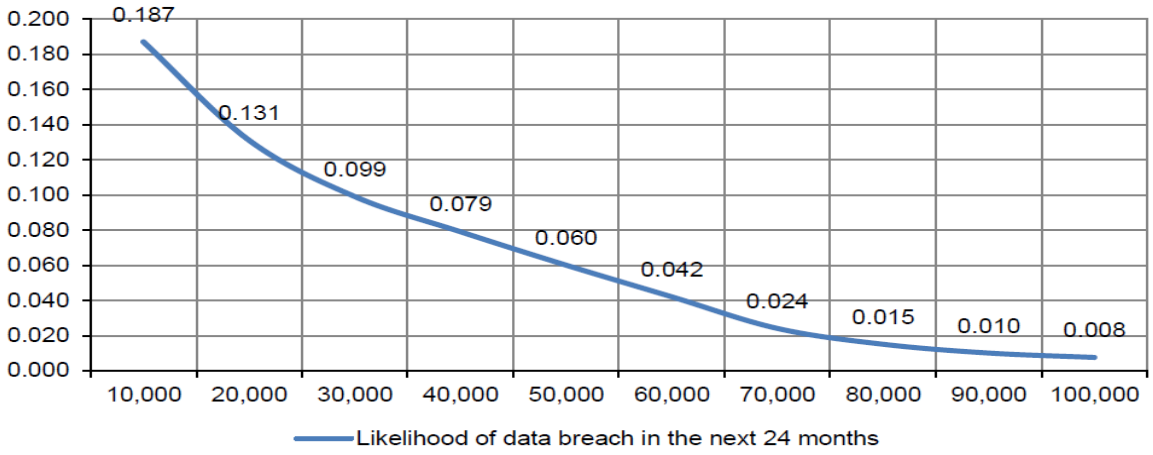


Figure 4.22.2: Probability of a data breach, minimum of 10,000 to 100,000 records

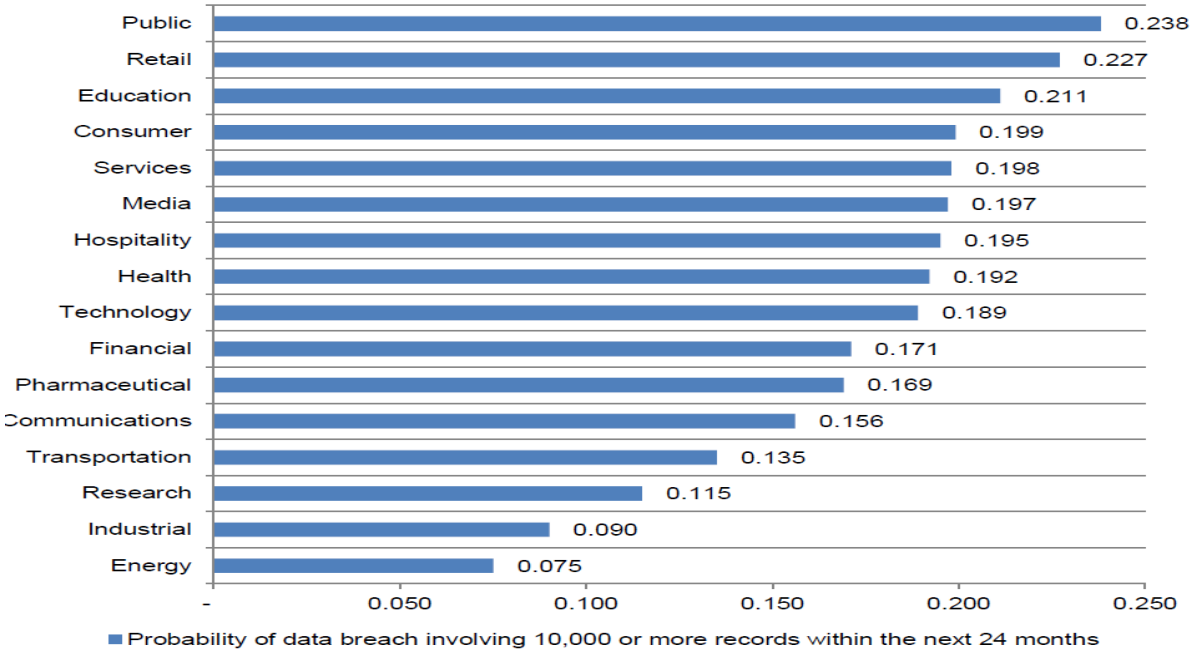


Figure 4.22.3: Probability of data breach by industry

and disruptions. Public sector organizations have the highest estimated probability of occurrence, at 23.8 percent, while energy and utilities have the lowest rate of occurrence, at only 7.5 percent.[cccxxxvi] (See Figure 4.22.3)

In the future, critical state government systems will continue to encounter and be vulnerable to phishing emails, denial of service attacks, attempts at unauthorized access, malware, probes and reconnaissance scans, and other malicious intrusions. Recent cyber-attack trends seem to indicate that these types of events will continue to increase in the coming years.

4.22.5 Vulnerability Analysis and Potential Losses

People affected – Medium (Between 100,000 to 500,000 people affected)

As more people, business and governmental organizations make use of cyber technologies, disruptions caused by natural and hacking events will continue. An estimated 4,096,426 Missouri residents are connected to the Internet, either at home, work, elsewhere or at multiple locations.[cccxxxvii] Cybercrimes continued to be the primary cause of data breaches and information loss in 2013. Hacking incidents can undermine institutional confidence in a company, exposing its attitude to security, and the loss of personal data in a highly public way can result in damage to an organization's reputation. Hacking accounted for 34 percent of data breaches in 2013.[cccxxxviii] As the Internet and computer systems become more integrated into our daily lives, cyber disruptions will cause greater monetary losses and inconveniences to people, business and government services.

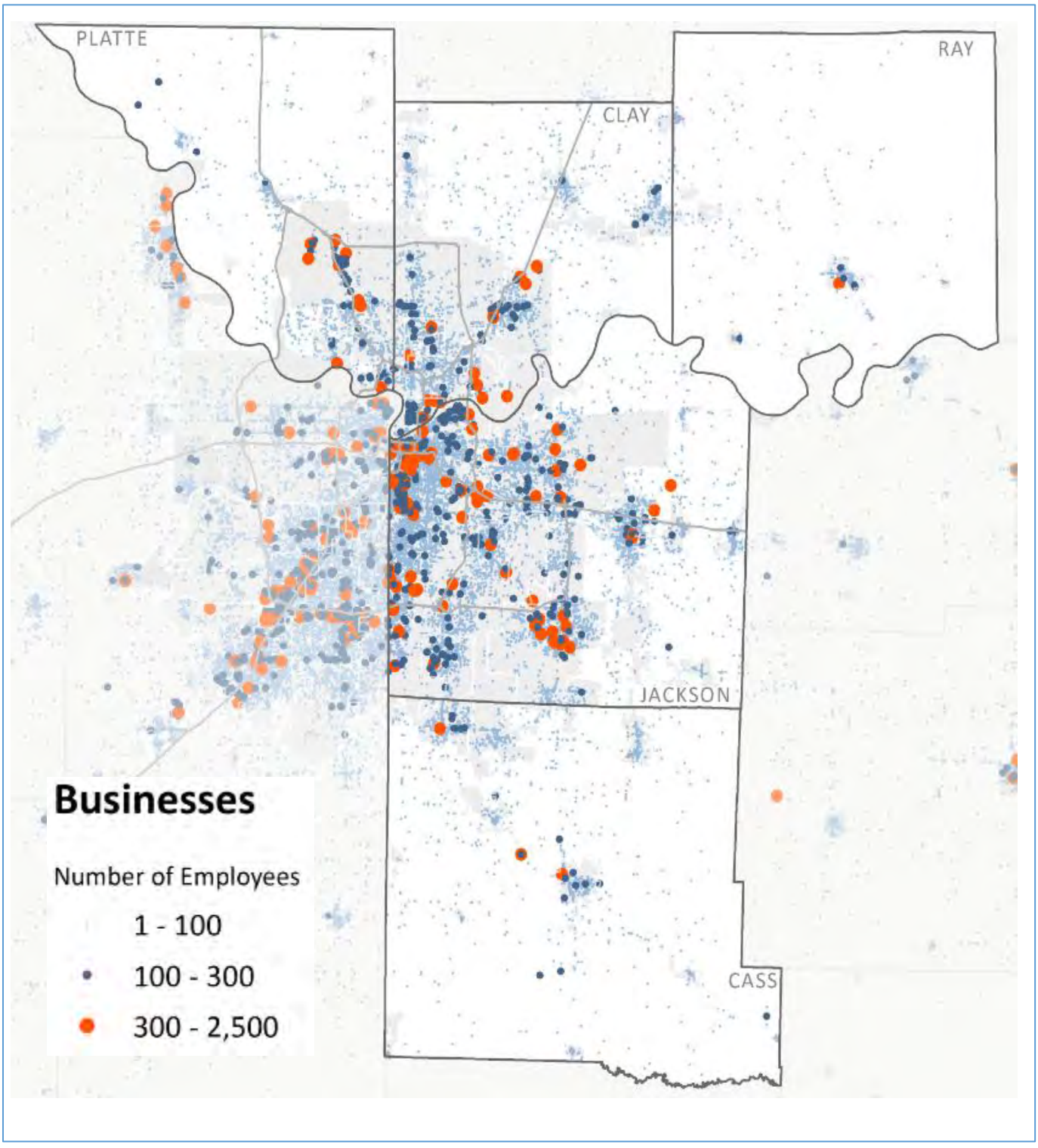
In Consumer Reports' 2008 State of the Net summary, the odds of contracting a serious computer virus problem were figured at one in seven, with yearly costs of $2.9 billion. The odds of a serious spyware problem are one in 14, with a yearly cost of $3.6 billion. (Note that these figures are for both businesses and consumers.)[cccxxxix]

Table 4.22.2: Potential Populations Affected by Cyber Disruptions**

County	Population (2014)	High Exposure to Cyber Disruption (20%)*	Low Exposure to a Cyber Disruption (10%)*
Clay	82,123	16,425	8,212
Cass	183,941	36,788	18,394
Jackson	654,941	130,988	65,494
Platte	73,826	14,765	7,383
Ray	23,374	4,675	2,374
Total	**1,135,499**	**227,100**	**101,820**

*Percentages averaged from Figure 4.5.17.2
**Cyber disruption can affect the total population due to business and government service disruptions.

Vulnerable Populations – Cyber-attacks can also affect vulnerable populations. Many computer systems include interfaces that allow people with specific disabilities to use computer programs. These systems are vulnerable to compromise. People of lower social economic status may not have the means to spend funds on antivirus software, making their computers more susceptible to viruses.



Map 4.22.1: Regional Businesses

Total Exposure – High (*This hazard could involve between $1,000,000 and $10,000,000 in damages*)

Given that many homes and almost all private and public organizations use computer infrastructure, any major disruptions to cyber technologies will affect the economy in a major way.

Cyber disruption in the short term would impact the economy by a shutdown of some businesses, disruption of online shopping and impact on government operations. However, the long term economic concerns are more devastating. Should a cyber-disruption shutdown critical infrastructure, such as utilities and manufacturing plants, the cost would be catastrophic.

Many times cyber disruption does not result in actual damages or slow down Internet speeds, but the loss of data and identity theft can create economic hardship on the individual or organization that is compromised. The Ponemon Institute estimates in 2014 the average cost for each lost or stolen record containing sensitive and confidential information was $201.00 and the total average cost paid by organizations to resolve data breaches increased $5.9 million.[cccxl]

Table 4.22.3: Potential Losses to Cyber Disruptions By County

County	Gross Domestic Product*	Cyber Disruption Cost Low 0.2% GDP	Cyber Disruption Cost High 0.8% GDP
Cass	$1,867,016,000	$37,340,320	$149,361,280
Clay	$10,962,563,336	$219,251,267	$877,005,067
Jackson	$30,118,038,000	$602,360,760	$2,409,443,040
Platte	$7,860,722,000	$157,214,440	$628,857,760
Ray	$318,562,000	$6,371,240	$25,484,960
Totals	$51,126,901,336	$1,022,538,027	$4,090,152,107

*Figure from U. S. Census Quick Facts 2007

Natural environment – The environmental consequence of a cyber-disruption depends on the types of systems affected and the extent of the cascading impacts. If the disruption involves chemical plants or waste water treatment systems, depending on the hazards, the environment could be severely impacted. If specific computer systems controlling dams, spillways, railroads, pipelines, etc., are compromised, creating hazardous materials releases and flooding the wetlands, ecosystems in the vicinity could be destroyed or severely contaminated.

Loss Estimation for Region – Table 4.22.4 and Table 4.22.5 show potential losses for the region from a cyber-disruption. A regional perspective was used because historically cyber disruptions do not only affect one jurisdiction; they encompass regional areas. Large cyber disruptions happen to Internet Service Providers (ISPs) with wide service areas encompassing many jurisdictions.

Table 4.22.4: Maximum Loss Estimation, Cyber Disruption

Overall Risk (Probability + Severity/2)	Magnitude (Percent of County Affected)	Total Exposure (Dollar Value)	Total Population	Maximum Loss Estimation
P=3 S=3 (High)	High	$4,090,152,107	227,100	Medium
3	3	2	2	2.5

Table 4.22.5: Minimum Loss Estimation, Cyber Disruption				
Overall Risk (Probability + Severity/2)	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Value)**	**Total Population**	**Maximum Loss Estimation**
P=3 S=3 (High)	High	$1,022,538,027	101,820	Medium
2	3	2	2	2.5

Specific Jurisdictional Vulnerabilities:

Table 4.22.6: Specific Vulnerabilities by County				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
Smaller budget for cyber security	Smaller budget for cyber security	Larger jurisdiction with lots of cyber data and an obvious target for potential data loss	Smaller budget for cyber security	Smaller budget for cyber security
Less populated county with more aerial exposed Internet data and fiber lines	Less populated county with more aerial exposed Internet data and fiber lines	A more densely populated area using underground data and fiber lines	Less populated county with more aerial exposed Internet data and fiber lines	Less populated county with more aerial exposed Internet data and fiber lines
Large number of businesses	Large number of businesses	Large number of businesses	Large number of businesses	
Multiple public safety services at risk	Multiple public safety services at risk	Multiple public safety services at risk	Multiple public safety services at risk	Multiple public safety services at risk
Multiple utilities at risk	Multiple utilities at risk	Multiple utilities at risk	Multiple utilities at risk	Multiple utilities at risk

4.22.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for cyber disruptions:

1. Cyber disruptions can occur at any time and without warning.
2. Criminal cyber-attacks can happen to both large and small governmental entities.
3. Public safety services are at risk from cyber-attacks and disruptions (911 dispatch, communications systems, etc.).
4. Public utility systems can be seriously affected, leaving large numbers of residents without power, water, etc.

4.22.7 Attachments

Attachment 4.22.1: Computer Virus List

The following is a list of some the many different types of computer viruses and what they do:

Macro Viruses – A macro virus is a type of computer virus that infects the macros within a document or template. These viruses infect files created by some applications or programs that contain macros such as doc, pps, xls and mdb files. They automatically infect the files with macros along with templates and documents that are contained in the file. They hide in documents shared through email and networks. When a word processing or spreadsheet document is opened, the macro virus is activated and it infects the Normal template (Normal.dot), a general purpose file that stores default document formatting settings. Every document opened refers to the Normal template, and hence gets infected with the macro virus. Since this virus attaches itself to documents, the infection can spread if such documents are opened on other computers.

Macro viruses include: Relax, bablas, Melissa.A, 097M/Y2K, DMV, Nuclear, Word Concept

Memory Resident Viruses – These viruses usually fix themselves inside the computer's memory. They are activated every time the operating system runs and they infect other opened files. They hide in random access memory (RAM).

Memory Resident Viruses include: CMJ, meve, randex, mrklunky

Overwrite Viruses – These types of viruses, once activated, delete any information in a file they infect, leaving them partially or completely useless. Once in the computer, they replace all the file content but the file size doesn't change.

Overwrite Viruses include: Trj.Reboot, way, trivial.88.D

Direct Action Viruses – These viruses mainly replicate or take action once they are executed. When a certain condition is met, the viruses will act by infecting the files in the directory or the folder specified in the AUTOEXEC.BAT. The viruses are generally found in the hard disk's root directory, but they keep changing location.

Direct Action Viruses Include: Vienna virus

Directory Viruses – Also known as cluster viruses or file system viruses, these infect the computer's directory by changing the paths indicating file locations. They are usually located in the disk but affect the entire directory.

Directory Viruses include: dir-2 virus

Web Scripting Viruses – Most web pages include some complex codes in order to create an interactive and interesting content, sometimes called defacements. Such a code is often exploited to cause certain undesirable actions. They mostly originate from the infected web pages or browsers.

Web Scripting Viruses include: JS.Fortnight (a virus that spreads via malicious emails)

Multipartite Virus – These types of viruses spread in many different ways. Their actions vary depending on the operating systems installed and presence of certain files. They tend to hide in the computer's memory but do not infect the hard disk. Hybrids called Boot and Program viruses infect program files and, when the infected program

is executed, these viruses infect the boot record. When the computer is rebooted, the virus from the boot record loads in memory and starts infecting other program files on disk.

Multipartite Viruses include: flip, invader, tequila, gostball

FAT Viruses – These viruses attack the file allocation table (FAT) which is the part of the disk used to store all information about the available space, location of files, unusable space, etc., on the hard drive.

FAT Viruses include: the link virus

Companion Viruses – These types of viruses infect files just like the direct action and the resident viruses. Once inside the computer, they 'accompany' other existing files.

Companion Viruses Include: Asimov.1539, stator and terrax.1069

Polymorphic Virus – These viruses encode or encrypt themselves in a different way every time they infect the computer. They use different encryption and algorithms when duplicating. This makes it difficult for the antivirus software to locate those using signature or string searches (since they are very different in each encryption).

Polymorphic Viruses include: Marburg, tuareg, Satan bug, Elkern

Worms – This program is very similar to a virus and has the ability to self-replicate, leading to negative effects on the computer.

Worm Viruses include: lovgate.F, sobig.D, trile. C, PSWBugbear.B, Mapson

Trojans – Trojans can illegally trace important login details of users' online activities. Trojans were designed to steal users' sensitive data, like online banking credentials or username-password combinations for other high-value sites by tracing login details, unless a powerful antivirus program is installed on the computer.

Email Virus – This is a virus spread via email, usually in an attachment. Such a virus will hide in an email and when the recipient opens the mail the computer will become infected.

Browser Hijacker – This virus can spread in many different ways, including a voluntary download from a website. The virus infects certain browser functions, especially by re-directing the user automatically to certain sites where additional malicious software can be downloaded.

Browser Hijackers include: The cool web search, Babylon Toolbar, CoolWebSearch, Coupon Server, RocketTab

Boot Infectors – These include the boot sector and master boot record types. In this virus, all the viral codes can be in separate locations; however they still can infect the hard disks or other drives. These viruses infect boot records or master boot records in hard disks. They replace the boot record program (which is responsible for loading the operating system in memory) copying it elsewhere on the disk or overwriting it. Boot viruses load into memory if the computer tries to read the disk while it is booting.

Boot Infectors include: The brain virus (the very first wild virus to be created), Form, DiskKiller, Michelangelo, Stone Virus

Program Viruses – These infect executable program files, such as those with extensions like .BIN, .COM, .EXE, .OVL, .DRV (driver) and .SYS (device driver). These programs are loaded in memory during execution, taking the virus with them. The virus becomes active in memory, making copies of itself and infecting files on disk.

Program Viruses include: Sunday, Cascade

Stealth Viruses – These viruses use certain techniques to avoid detection. They may either redirect the disk head to read another sector instead of the one in which they reside or they may alter the reading of the infected file's size shown in the directory listing. For instance, the Whale virus adds 9216 bytes to an infected file; then the virus subtracts the same number of bytes (9216) from the size given in the directory making it hard to detect.

Stealth Viruses Include: Frodo, Joshi, Whale

Active X – Java controls and ActiveX have become the scourge of computing. Most people do not know how to control their web browser to enable or disable various functions like playing sound or video on their computers. Many users do not change the default settings, which leaves a hole in the computers security because it allows any applets run into the machine. Many computers have been compromised because of this exposure. JAVA scripts also cause security issues.

Malware – The use of malware specifically designed to steal sensitive or confidential information from organizations isn't a new trend; it's been around for at least the past decade. However the scale of these attacks has always been relatively low in order to remain below the radar of security technology used to safeguard against them. A targeted attack uses malware aimed at a specific user or group of users within a targeted organization and may be delivered through a spear-phishing email, or a form of drive-by download known as a watering-hole attack (see Figure 4.22.4). No matter how these attacks are delivered they are designed to be low in volume, often with the malicious components aimed exclusively toward one target. Their ultimate goal is to provide a backdoor for the attacker to breach the targeted organization.

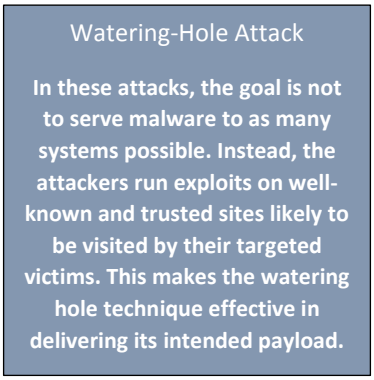


Figure 4.22.4: Watering-Hole Attack

Types of Malware:

Adware – The least dangerous and most lucrative Malware. Adware displays ads on the user's computer only.

Spyware – Spyware is software that spies on the user, tracking Internet activities in order to send advertising (Adware) back to the system.

Rootkit – This malware is likened to the burglar hiding in the attic, waiting until the homeowner leaves. It is the hardest of all malware to detect and therefore remove; many experts recommend completely wiping the hard drive and reinstalling everything from scratch once infected. It is designed to permit other information-gathering malware to get identity information from the computer without the user's knowledge. A rootkit is a collection of tools (programs) that enable administrator-level access to a computer or computer network. Typically, someone who gains access to the computer through other malware installs the rootkit virus, either by exploiting a known vulnerability or cracking a password. Once the rootkit is installed, it allows the attacker to mask intrusion and gain root or privileged access to the computer and, possibly, other machines on the network.

Backdoors – Backdoors are similar to Trojans or worms, but they open a "backdoor" onto a computer, providing a network connection for hackers or other malware to enter or for viruses or spam to be sent.

Keyloggers – These record everything the user types on the PC in order to glean log-in names, passwords, and other sensitive information, and send it on to the source of the keylogging program. Many times keyloggers are legitimately used by corporations and parents to acquire computer usage information.

Rogue security software – This type deceives or misleads users. It pretends to be a good program to remove malware infections, but all the while it is the malware virus itself. Often it will turn off the real anti-virus software.

Ransomware – Users see a screen that warns that they have been locked out of the computer until they pay for supposed cybercrimes. Sometimes the notification may look like it is from the FBI or Homeland Security, but that is part of the virus scam itself. Even if users pay to unlock the system, the system may be temporarily unlocked, but can still lock the user out again. The request for money, usually in the hundreds of dollars, is completely fake (Figure 4.22.5).



Figure 4.22.5: Ransomeware Screenshot

Browser Hijacker –This dangerous malware will redirect normal search activity and give search results the developers want the user to see. Its intention is to make money from the user's web surfing. Using this homepage and not removing the malware lets the source developers capture the user's surfing interests. This is especially dangerous when banking or shopping online. These homepages can look harmless, but in every case they allow other infections. (Figure 4.22.6)



Figure 4.22.6: Browser Hijacker Homepage

Attachment 4.22.2: Major Viruses and Worms in the History of the Internet[cccxli]	
Date	**History Virus/Worms on the Internet (Attachment 4.17.2)**
1945	Rear Admiral Grace Murray Hopper discovers a moth trapped between relays in a Navy computer. She calls it a "bug," a term used since the late 19thcentury to refer to problems with electrical devices. Murray Hopper also coined the term "debugging" to describe efforts to fix computer problems.
1949	Theories for self-replicating programs are first developed by John Von Neumann.
1971	The Creeper system, an experimental self-replicating program, is written by Bob Thomas at BBN Technologies which gained access via the ARPANET and copied itself to the remote system where the message, "I'm the creeper, catch me if you can!" was displayed.
1975	ANIMAL is written by John Walker for the UNIVAC 1108 the program asked a number of questions where the user in an attempt to guess the type of animal the user was thinking of, while the related program PERVADE would create a copy of itself and ANIMAL in every directory to which the current user had access.
1979	Engineers at Xerox Palo Alto Research Center discover the computer "worm," a short program that scours a network for idle processors. Designed to provide more efficient computer use, the worm is the ancestor of modern worms
1981	Apple Viruses 1, 2, and 3 are some of the first viruses “in the wild,” or in the public domain. Found on the Apple II operating system, the viruses spread through Texas A&M via pirated computer games.
1983	Fred Cohen, while working on his doctoral dissertation, formally defines a computer virus as “a computer program that can affect other computer programs by modifying them in such a way as to cause harm.
1986	Two programmers named Basit and Amjad Alvi from Pakistan released the first computer virus for MS-DOS called “The Brain” which replaced the executable code in the boot sector of a floppy disk with their own code designed to infect each 360kb floppy accessed on any computer.
1987	The Lehigh virus, one of the first file viruses, infects command.com files
1988	1) One of the most common viruses, called Jerusalem because that is where it was first detected, is unleashed. Activated every Friday the 13th, the virus affects both .exe and .com files and deletes any programs run on that day. 2) MacMag and the Scores virus cause the first major Macintosh outbreaks. 3) The Morris worm (or Internet worm) was created with innocent intentions. Robert Morris claims that he wrote the worm in an effort to gauge the size of the Internet. Unfortunately, the worm contained an error that caused it to infect computers multiple times, creating a denial of service and lead to the creation of other worm type programs.
1991	Tequila is the first widespread polymorphic virus found in the wild. Polymorphic viruses make detection difficult for virus scanners by changing their appearance with each new infection.
1992	1) 1300 viruses are in existence, an increase of 420% from December of 1990. 2) The Dark Avenger Mutation Engine (DAME) is created. It is a toolkit that turns ordinary viruses into polymorphic viruses. The Virus Creation Laboratory (VCL) is also made available. It is the first actual virus creation kit.
1994	Good Times email hoax tears through the computer community. The hoax warns of a malicious virus that will erase an entire hard drive just by opening an email with the subject line “Good Times.” Though disproved, the hoax resurfaces every six to twelve months.
1995	Word Concept becomes one of the most prevalent viruses in the mid-1990s. It is spread through Microsoft Word documents.
1996	Baza, Laroux (a macro virus), and Staog viruses are the first to infect Windows95 files, Excel, and Linux respectively.

Attachment 4.22.2: Major Viruses and Worms in the History of the Internet[cccxli]	
Date	**History Virus/Worms on the Internet (Attachment 4.17.2)**
1998	1) StrangeBrew is the first virus to infect Java files. The virus modifies CLASS files to contain a copy of itself within the middle of the file's code and to begin execution from the virus section. 2) The Chernobyl virus spreads quickly via .exe files. As the notoriety attached to its name would suggest, the virus is quite destructive, attacking not only files but also a certain chip within infected computers. 3) Two California teenagers infiltrate and take control of more than 500 military, government, and private sector computer systems.
1999	1) The Melissa virus, W97M/Melissa, executes a macro in a document attached to an email, which forwards the document to 50 people in the user's Outlook address book. The virus also infects other Word documents and subsequently mails them out as attachments. Melissa spread faster than any previous virus, infecting an estimated 1 million PCs. 2) Bubble Boy is the first worm that does not depend on the recipient opening an attachment in order for infection to occur. As soon as the user opens the email, Bubble Boy sets to work. 3) Tristate is the first multi-program macro virus; it infects Word, Excel, and PowerPoint files.
2000	1) The Love Bug, also known as the ILOVEYOU virus, sends itself out via Outlook, much like Melissa. The virus comes as a VBS attachment and deletes files, including MP3, MP2, and .JPG. It also sends usernames and passwords to the virus's author. 2) W97M.Resume.A, a new variation of the Melissa virus, is determined to be in the wild. The “resume” virus acts much like Melissa, using a Word macro to infect Outlook and spread itself. 3) The “Stages” virus, disguised as a joke email about the stages of life, spreads across the Internet. Unlike most previous viruses, Stages is hidden in an attachment with a false “.txt” extension, making it easier to lure recipients into opening it. Until now, it has generally been safe to assume that text files are safe. 4) The first documented “Distributed Denial-of-Service” attacks by “mafiaboy,” a 15-year-old Canadian hacker knock Yahoo, eBay, Amazon, and other high profile web sites offline for several hours.
2001	1) Shortly after the September 11th attacks, the Nimda virus infects hundreds of thousands of computers in the world. The virus is one of the most sophisticated to date with as many as five different methods of replicating and infecting systems. Nimda utilized several types of propagation techniques and this caused it to become the Internet’s most widespread virus/worm within 22 minutes. 2) The “Anna Kournikova” virus, which mails itself to persons listed in the victim's Microsoft Outlook address book, worries analysts who believe the relatively harmless virus was written with a “tool kit” that would allow even the most inexperienced programmers to create viruses. 3) Worms increase in prevalence with Sircam, CodeRed, and BadTrans creating the most problems. Sircam spreads personal documents over the Internet through email. 4) CodeRed attacks vulnerable webpages, and was expected to eventually reroute its attack to the White House homepage. It infected approximately 359,000 hosts in the first twelve hours. BadTrans is designed to capture passwords and credit card information.
2002	1) Author of the Melissa virus, David L. Smith, is sentenced to 20 months in federal prison. The LFM-926 virus appears in early January, displaying the message “Loading.Flash.Movie” as it infects Shockwave Flash (.swf) files. 2) Celebrity named viruses continue with the “Shakira,” “Britney Spears,” and “Jennifer Lopez” viruses emerging. 3) The Klez worm, an example of the increasing trend of worms that spread through email, overwrites files (its payload fills files with zeroes), creates hidden copies of the originals, and attempts to disable common anti-virus products. The Bugbear worm also makes it first appearance in September. It is a complex worm with many methods of infecting systems.

Attachment 4.22.2: Major Viruses and Worms in the History of the Internet[cccxli]	
Date	**History Virus/Worms on the Internet (Attachment 4.17.2)**
2003	1) In January the relatively benign "Slammer" (Sapphire) worm becomes the fastest spreading worm to date, infecting 75,000 computers in approximately ten minutes, doubling its numbers every 8.5 seconds in its first minute of infection. 2) The Sobig worm becomes one of the first to join the spam community. Infected computer systems have the potential to become spam relay points and spamming techniques are used to mass-mail copies of the worm to potential victims. 3) Blaster is a worm that triggered a payload that launched a denial of service attack against windowsupdate.com, which included the message, "billy gates why do you make this possible? Stop making money and fix your software!!"
2004	1) In January a computer worm, called MyDoom or Novarg, spreads through emails and file-sharing software faster than any previous virus or worm. MyDoom entices email recipients to open an attachment that allows hackers to access the hard drive of the infected computer. The intended goal is a "denial of service attack" on the SCO Group, a company that is suing various groups for using an open-source version of its Unix programming language. SCO offers a $250,000 reward to anyone giving information that leads to the arrest and conviction of the people who wrote the worm. 2) An estimated one million computers running Windows are affected by the fast-spreading Sasser computer worm in May. Victims include businesses, such as British Airways, banks, and government offices, including Britain's Coast Guard. The worm does not cause irreparable harm to computers or data, but it does slow computers and cause some to quit or reboot without explanation. The Sasser worm is different than other viruses in that users do not have to open a file attachment to be affected by it. Instead, the worm seeks out computers with a security flaw and then sabotages them. An 18-year-old German high school student confessed to creating the worm. He's suspected of releasing another version of the virus. This nasty worm spread by exploiting a vulnerable network port, meaning that it could spread without user intervention. Sasser wreaked havoc on everything from The British Coast Guard to Delta Airlines, which had to cancel some flights after its computers became infected.
2005	March saw the world's first cell phone virus: Commwarrior-A. The virus probably originated in Russia, and it spread via text message. In the final analysis, Commwarrior-A only infected 60 phones, but it raised the specter of many more—and more effective—cell phone viruses.
2007	1) The Storm virus like Blaster was targeted towards Microsoft, this worm's payload performed a denial-of-service attack on www.microsoft.com. During Symantec's tests an infected machine was observed sending a burst of almost 1,800 e-mails in a five-minute period. 2) The Backdoor.Win32.IRCBot backdoor computer worm that is spread through MSN Messenger and Windows Live Messenger. Once installed on a PC, the worm copies itself into a Windows system folder, creates a new file displayed as "Windows Genuine Advantage Validation Notification" and becomes part of the computer's automatic startup.[2] In addition, it attempts to send itself to all MSN contacts by offering an attachment named 'photos.zip'. Executing this file will install the worm onto the local PC. The Win32.IRCBot worm provides a backdoor server and allows a remote intruder to gain access and control over the computer via an Internet Relay Chat channel.[1] This allows for confidential information to be transmitted to a hacker.
2008	First discovered in November, the Conficker virus is thought to be the largest computer worm since Slammer of 2003. It's estimated that the worm infected somewhere between nine and 15 million server systems worldwide, including servers in the French Navy, the UK Ministry of Defense, the Norwegian Police, and other large government organizations. Since its discovery, at least five variants of the virus have been released. Authorities think that the authors of Conficker may be releasing these variants to keep up with efforts to kill the virus.

Attachment 4.22.2: Major Viruses and Worms in the History of the Internet[cccxli]	
Date	**History Virus/Worms on the Internet (Attachment 4.17.2)**
2010	Discovered in June, Stuxnet is a computer worm targeting Siemens industrial software through Microsoft Windows. It is the first worm that corrupts industrial equipment. Stuxnet is also the first worm to include a PCL (programmable logic controller), software designed to hide its existence and progress. In August, security software company Symantec states that 60% of the computers infected with Stuxnet are in Iran. In November, Siemens announces that the worm has not caused any damage to customers. However, the Iran nuclear program is damaged by Stuxnet. Iran uses embargoed Siemens equipment for its nuclear program. A Russian computer company, Kaspersky Lab concludes that Stuxnet is the kind of sophisticated attack that could only be conducted with the full support of a nation.
2012	1) Flame, a malware that attacks computers using Microsoft Windows, is discovered. A report, released on May 28 by Budapest University's CrySyS Lab, states that "arguably, it is the most complex malware ever found." Flame is capable of recording Skype conversations, audio, keyboard activity, network traffic and screenshots. It is spread over a local network or USB stick. Flame also has a kill command, wiping out all traces of it from the computer. 2) On June 1, an article in The New York Times states that Stuxnet is part an intelligence operation by the U.S. and Israel called "Operation Olympic Games." Started during George W. Bush's presidency, the operation has expanded under President Obama. 3) Trojan.Flame.A is a multi-component malware for targeted attacks. It is able to spy, leak data, download/execute other components.
2013	1) In June, the U.S. Justice Department announced that an international, cooperative effort dubbed Operation Tovar succeeded in gaining control of the GameOver Zeus (GOZ) botnet (a linked network of compromised computers), which had emerged in 2011. Up to 1 million Microsoft Windows computers were infected and the malware was mostly used to access banking credentials in order to illegally withdraw funds. 2) The GOZ malware was also used in the first example of "ransomware": Cryptolocker, which encrypts personal files and then demands payment in exchange for a key, or secret code, to unlock the files. According to the FBI, there were more than 121,000 victims in the United States and 234,000 victims worldwide, paying approximately $30 million in ransom between Sept. and Dec. 2013.
2014	In August two security firms, Fox-IT and FireEye, made public an online portal called Decrypt Cryptolocker to provide the half million victims an opportunity to "access free keys designed to unlock systems infected by CryptoLocker

Attachment 4.22.3: Large Historical Virus Infections and Data Breaches		
Date	**Breach**	**Cost**
1999	The Melissa virus was a particularly stealthy virus that sent out infected Microsoft Word documents through Microsoft Outlook, delivering viral messages to everyone listed in the Outlook address book.	$1.2 Billion [xiii]
2000	I LOVE YOU is another particularly malicious virus that spread quickly through email, websites and file sharing. The I LOVE YOU virus, or the "Love Letter" worm, affected more than 500,000 systems	$15.0 Billion in damages [cccxlii]
2001	1) One of the most well-known viruses to date is the Code Red virus. It had the ability to break into computer networks and exploit weaknesses in Microsoft software. Once the virus infects the machine, it actively looked for other machines on the networks to attack. 2) The SirCam was a worm that had the ability to compromise confidential information, delete items or use up space on your hard drive until there was not enough memory to store anything else. 3) Nimda is one of the Internet's most widespread viruses and among the costliest as well. The virus caused Internet browsing time to slow significantly. Additionally, it could affect a user's email account and send out a read-me file to all contacts listed in the email address book. The virus caused traffic and Internet speeds to slowdown.	1) $9.1 Billion [xiii] 2) $1.0 Billion [xiii] 3) $635 Million [xiii]
2003	1) The SoBig virus caused billion in devastation. This fast-spreading virus circulated through email as viral spam, and if exposed, the virus had the capability to copy files, emailing itself to others and causing serious damage to computer software and hardware. 2) SQL Slammer is a virus that greatly affected banks and caused Internet speed to lag significantly across the globe. SQL Slammer affected 200,000 computers worldwide.	1) $37.1 Billion [xiii] 2) $750 Million [xiii]
2004	1) The most devastating computer virus to date is MyDoom In addition to being the most expensive virus to date; its effects were far-reaching and fast-moving. When a user was infected with the virus it creates network openings which allowed others to have access to your computer. In addition, the virus also had the ability to open random programs. In 2004, an estimated 25% of all emails had been infected by the virus. 2) Sasser created quite a bit of trouble when it devastated the British Coast Guard mapping system and caused numerous canceled flights. The creator of Sasser was identified as a teenager from Germany, and was quickly apprehended when one of his "friends" turned him in for a $250,000 bounty posted by Microsoft.	1) $38.0 Billion [xiii] 2) $500 Million [xiii]
2005	**Card Systems** – 40 Million records stolen. CardSystems Solutions was a third-party processor of payment card transactions. A hacker gained access to CardSystems's database. The company later filed for bankruptcy protection.	Not disclosed

Attachment 4.22.3: Large Historical Virus Infections and Data Breaches		
Date	**Breach**	**Cost**
2007	1) **TJX Retail Stores** – 100 Million records stolen 2) The Conficker virus infected millions of computers around the world. The virus scanned computers for weaknesses and vulnerabilities, logged keystrokes and downloaded code from hacker-selected websites and more. 3) **Hannaford Brothers** - Maine based supermarket chain suffered a breach in which it lost 4.2 million customers' credit card details through malware on their servers, even though Hannaford was fully compliant with the Payment Card Industry data security standards.	1) $250 Million [xi] 2) $9.1 Billion [xiii] 3) $31 Million [xi]
2008	Republican and Democratic Presidential Campaigns - Computer systems hacked and undetermined amount of information downloaded by unknown foreign intruders.	Cost Unknown
2009	1) **Heartland Payment Systems** – 130 Million records stolen 2) **U. S. Military Veterans** – 76 Million records stolen from a laptop that a Department of Veterans Affairs employee had taken home.	1) $140 Million [xi] 2) $25 to $30 Million [cccxliii]
2011	1) **Canadian Government** - A major cyber-attack against its agencies, including Defense Research and Development Canada, a research agency for Canada's Department of National Defense. The attack forced the Finance Department and Treasury Board, Canada's main economic agencies, to disconnect from the Internet. 2) **Epsilon** – This Texas based firm conducted email marketing campaigns for dozens of blue chip clients including seven large companies in the Fortune 100. Cybercriminals stole 60 million email account details from their customer databases, and some industry insiders put the figure as high as 250 million. 3) **Citigroup** - Reported a breach of 200,000 customer accounts compromised. 4) **Tricare** - Computer backup tapes with 5 million military service members and beneficiaries personal data were stolen from the car of an employee of Science Applications International Corp., a defense contractor for Tricare, the health care program for service members. Much of the data was not encrypted	1) Cost Unknown 2) $255 Million to $4.0 Billion [xi] 3) $2.7 Million [xii] 4) $130 Million [x]

Attachment 4.22.3: Large Historical Virus Infections and Data Breaches		
Date	**Breach**	**Cost**
2012	1) **Red October** - The Russian firm Kaspersky discovered a worldwide cyber-attack dubbed "Red October," that had been operating since at least 2007. Hackers gathered information through vulnerabilities in Microsoft's Word and Excel programs. The primary targets of the attack appear to be countries in Eastern Europe, the former USSR and Central Asia, although Western Europe and North America reported victims as well. The virus collected information from government embassies, research firms, military installations, energy providers, nuclear and other critical infrastructures. 2) **Global Payments Inc.** - Global Payments discovered a breach on a "handful" of its servers in North America, with 1.5 Million credit and debit card information stolen.	1) Cost Unknown 2) $65.25 Million to $90.0 Million [cccxliv]
2013	1) **Court Ventures** – 200 Million records stolen 2) **Adobe Systems** – 152 Million records stolen 3) **Target** – 110 Million records stolen 4) **Evernote** – 50 Million records stolen 5) **Sony** - PlayStation network hosts multiuser online games along with video and music streaming services. The network was hacked and 100m personal credentials of Sony customers were stolen, including credit card data, phone numbers and emails and passwords. The company was hit with 65 class actions suits and substantial fines from data regulators in different jurisdictions worldwide. The whole network was off line for three weeks causing further losses. 6) **City of Wichita's Kansas** - Electronic procurement website was the victim of a sophisticated hacking operation from Turkey with as many as 29,000 vendor and employees Social Security numbers, taxpayer identification numbers and banking information exposed. 7) **Neiman Marcus (retail)** - Between July and October 2013, the credit card information of 350,000 individuals was stolen, and more than 9,000 of the credit cards have been used fraudulently since the attack. Sophisticated code written by the hackers allowed them to move through company computers, undetected by company employees for months. 8) **Michaels (retail)** - Between May 2013 and January 2014, the payment cards of 2.6 million of Michael's customers were affected. Attackers targeted the Michaels POS system to gain access to their systems.	1) 2) $1.5 Billion [cccxlv] 3) $162 Million [cccxlvi] 4) $140 Million [xii] 5) $1.5 Billion [xii] 6) Undisclosed 7) $4.1 Million legal fees $68 Million in sales [cccxlvii]
2014	1) **Ebay** – 145 Million records stolen 2) **Home Depot** - point-of-sales systems had been infected with malware that was masquerading as antivirus software but was actually stealing credit card details. Some 56 million cards were compromised. 3) **J.P. Morgan** - Russian hackers stole details of 76 million client accounts from this premier US Bank. The criminal gang stole gigabytes of sensitive data over a two month period. The company has a $250m annual budget on cyber security. 4) **Yahoo! Mail (communications)** - The e-mail service for 273 million	1) Loss annual sales by $200 Million [cccxlviii] 2) $80 Million [x] 3) $1.0 Billion [x] 4) Undisclosed

Attachment 4.22.3: Large Historical Virus Infections and Data Breaches		
Date	**Breach**	**Cost**
	users was reportedly hacked in January, although the specific number of accounts affected was not released	
	5) **Aaron Brothers (retail)** - The credit and debit card information for roughly 400,000 customers of Aaron Brothers, a subsidiary of Michaels, was compromised by the same POS system malware.	5) Undisclosed
	6) **AT&T (communications)** - For two weeks AT&T was hacked from the inside by personnel who accessed 280,000 user information, including social security information.	6) 25 Million[cccxlix]
	7) **Five Chinese hackers indicted** - Five Chinese nationals were indicted for computer hacking and economic espionage of U.S. companies between 2006 and 2014. The targeted companies included Westinghouse Electric (energy and utilities), U.S. subsidiaries of SolarWorld AG (industrial), United States Steel (industrial), Allegheny Technologies (technology), United Steel Workers Union (services), and Alcoa (industrial).	7) Cost Unknown
	8) **Feedly (communications)** - Feedly's 15 million users were temporarily affected by three distributed denial-of-service attacks.	8) Cost Unknown
	9) **P.F. Chang's China Bistro (restaurant)** - Between September 2013 and June 2014, credit and debit card information from 33 P.F. Chang's restaurants was compromised and reportedly sold credit card information for 7 million customers.	9) Three lawsuits filed cost unknown
	10) **U.S. Investigations Services** - U.S. Investigations Services, a subcontractor for federal employee background checks, suffered a data breach in August, which led to the theft of employee personnel information. Although no specific origin of attack was reported, the company believes the attack was state-sponsored.	10) Potential loss of $200 Million Contract with DHS[ccl]
	11) **Community Health Services (health care)** - At Community Health Service (CHS), the personal data for 4.5 million patients were compromised between April and June. CHS warns that any patient who visited any of its 206 hospital locations over the past five years may have had his or her data compromised. The sophisticated malware used in the attack reportedly originated in China. The FBI warns that other health care firms may also have been attacked.	11) $150 Million[ccli]
	12) **UPS (services)** - Between January and August, customer information from more than 60 UPS stores was compromised, including financial data, reportedly as a result of the Backoff malware attacks.	12) Undetermined at this time
	13) **Defense Industries (defense)** - Su Bin, a 49-year-old Chinese national, was indicted for hacking defense companies such as Boeing. Between 2009 and 2013, Bin reportedly worked with two other hackers in an attempt to steal manufacturing plans for defense programs, such as the F-35 and F-22 fighter jets.	13) Cost Undefined[cclii]
	14) **Google (communications)** - Reportedly, 5 million Gmail usernames and passwords were compromised. About 100,000 were released on a Russian forum site.	14) Undisclosed
	15) **Apple iCloud (technology)** - Hackers reportedly used passwords hacked with brute-force tactics and third-party applications to access Apple user's online data storage, leading to the subsequent posting of celebrities' private photos online. It is uncertain whether users or Apple were at fault for the attack.	15) 4% drop in stock prices[ccliii]
	16) **Goodwill Industries International (retail)** - Between February 2013	16) Unknown

Attachment 4.22.3: Large Historical Virus Infections and Data Breaches		
Date	**Breach**	**Cost**
	and August 2014, information for roughly 868,000 credit and debit cards was reportedly stolen from 330 Goodwill stores. Malware infected the chain store through infected third-party vendors.	
	17) **SuperValu (retail)** – This company was attacked between June and July, and suffered another malware attack between late August and September. The first theft included customer and payment card information from some of its Cub Foods, Farm Fresh, Shop 'n Save, and Shoppers stores. The second attack reportedly involved only payment card data.	17) Profit down 23%[ccliv]
	18) **Bartell Hotels (hotel)** - The information for up to 55,000 customers was reportedly stolen between February and May.	18) Undisclosed
	19) **U.S. Transportation Command contractors (transportation)** - A Senate report revealed that networks of the U.S. Transportation Command's contractors were successfully breached 50 times between June 2012 and May 2013. At least 20 of the breaches were attributed to attacks originating from China.	19) Undisclosed
	20) **Dairy Queen International (restaurant)** - Credit and debit card information from 395 Dairy Queen and Orange Julius stores was compromised by the Backoff malware.	20) Unknown at this time
	21) **Snapsave (communications)** - Reportedly, the photos of 200,000 users were hacked from Snapsave, a third-party app for saving photos from Snapchat, an instant photo-sharing app.	21) Snapsaved.com shut down[cclv]

4.23 Terrorism

Acts of terrorism are intentional, criminal, malicious acts. Terrorism is defined as the unlawful use or threatened use of force or violence against people or property with the intention of intimidating or coercing societies or governments. The Federal Bureau of Investigation (FBI) categorizes terrorism in the U.S. primarily as one of two types:

Domestic Terrorism – This involves groups or individuals whose terrorist activities are directed at elements of our government or population without foreign direction. The bombing of the Alfred P. Murrah federal building in Oklahoma City is an example of domestic terrorism. The FBI is the primary response agency for domestic terrorism. The FBI coordinates domestic preparedness programs and activities of the United States to limit acts posed by terrorists, including the use of weapons of mass destruction.

According to the FBI, domestic groups with actual or potential terrorist intent represent interests that span the full spectrum of political and economic viewpoints, as well as social issues and concerns. Figure 4.23.1 presents a list of known perpetrators of attacks from 2000-2013. See also Figure 4.23.2 for the number of persons arrested by country since September 11, 2001. Currently the FBI has indicated the primary domestic terrorist threats are from the following groups:

- ***Right-Wing Terrorists*** – Right-wing terrorist groups often adhere to the principles of individual rights and embrace antigovernment, antiregulatory beliefs. Generally, extremist right-wing groups engage in activities that are protected by constitutional guarantees of free speech and assembly. Examples of this type of group include Aryan Nations, the Order, and Posse Comitatus.
- ***White Supremacist*** – These groups can be motivated by any number of religious or political ideologies targeting racial, ethnic, and religious minorities.
- ***Militia Extremist*** – Missouri has seen some activity from these groups in the past few years. According to the Southern Poverty Law Center, Missouri has two extremist groups operating within its borders. Although a state statute against paramilitary training exists, one of these groups is known to have such a facility within the state of Missouri. In addition, several special gatherings of extremist groups have taken place within the state in recent years.[ccclvi]
- ***Black Separatists*** – United States-based black separatist groups often follow radical variants of Islam and in some cases express solidarity with state sponsors of terrorism, al-Qa'ida, and other international terrorist groups.
- ***Sovereign Citizens*** – Also called "freemen on the land" or "organic citizens" believe that they, not judges, juries, law enforcement or elected officials, get to decide which laws to obey and which to ignore, and they don't think they should have to pay taxes.
- ***Animal Rights and Environmental Terrorists*** – Operating under the umbrella of the Animal Liberation Front and Earth Liberation Front, these terrorists use a variety of tactics against their

Known Perpetrators**	Attacks 2000-2013
Unaffiliated Individual(s)	64
Earth Liberation Front	60
Animal Liberation Front	42
Anti-Abortion Activists	15
Coalition to Save the Preserves	8
Al-Qa'ida	4
Neo– Nazi Group	2
Revolutionary Cells-Animal Liberation Brigade	2
White Extremists	2
Al-Qa`ida in the Arabian Peninsula	1
Anarchists	1
The Justice Department	1
Ku Klux Klan	1
Minutemen American Defense	1
Revenge of the Trees	1
Tehrik-i-Taliban Pakistan	1
Veterans for Non-Religious Memorials	1

***Information on the perpetrator(s) responsible for an attack is unknown in 72 attacks. Nine attacks were conducted by both ELF and ALF.*

Figure 4.23.1: Known Perpetrators

targets, including arson, sabotage/vandalism, theft of research animals, and the occasional use of explosive devises.

- ***Anarchists*** – The potential for violence by anarchists and other emerging revolutionary groups, such as the Anarchist Black Cross Federation (ABCF), will continue to be an issue for law enforcement. The stated goals of the ABCF are "the abolishment of prisons, the system of laws, and the capitalist state." The ABCF believes in armed resistance to achieve a stateless and classless society. The ABCF has continued to organize, recruit, and train anarchists in the use of firearms.
- ***Anti-abortion Extremists*** – The FBI has investigated anti-abortion groups with potential violent anti-abortion extremists views and are linked to terrorism ideologies or groups that pose a current threat.

International Terrorism – This category involves groups or individuals whose terrorist activities are foreign based and/or directed by countries or groups outside the United States, or whose activities transcend national boundaries. Examples include the 1993 bombing of the World Trade Center, the U.S. Capitol, Mobil Oil's corporate headquarters and the attacks of September 11, 2001 at the World Trade Center and the Pentagon. The United States continues to face an ongoing challenge from international terrorism. In general terms, the international terrorist threat can be divided into three categories which represent threats to U.S. citizens and interests both abroad and at home, are described below:

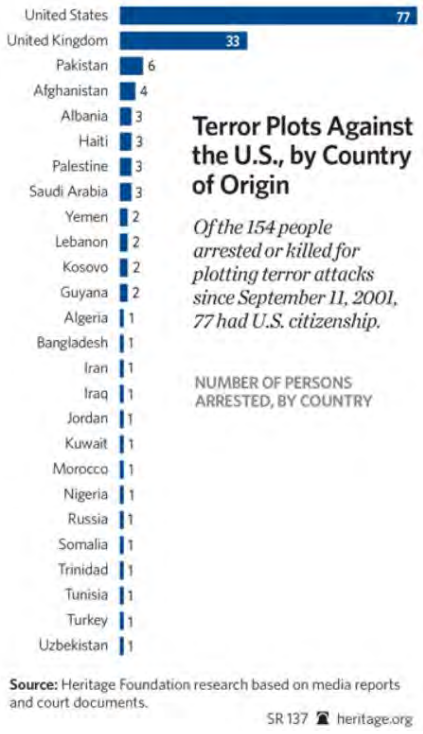


Figure 4.23.2: Terror Plots by Country of Origin

- ***Homegrown Violent Extremists –*** The FBI and DHS define an HVE as a person of any citizenship who has lived and/or operated primarily in the United States or its territories who advocates, is engaged in, or is preparing to engage in ideologically-motivated terrorist activities (including providing support to terrorism) in furtherance of political or social objectives promoted by a foreign terrorist organization, but is acting independently of direction by a foreign terrorist organization
- ***Foreign Terrorist Organizations (FTOs)*** – These are foreign organizations that are designated by the Secretary of State in accordance with *Section 219* of the Immigration and Nationality Act (INA), as amended. These are designated as extremist groups and are characterized as autonomous and transnational organizations
- ***State Sponsors of Terrorism*** – This is a designation applied by the United States Department of State to countries which the Department alleges to have "repeatedly provided support for acts of international terrorism. These include such countries as Iran, Sudan, and Syria.

Definition of Terrorism – The term "terrorism" refers to intentional, criminal, malicious acts, but the functional definition of terrorism can be interpreted in many ways. Officially, terrorism is defined in the Code of Federal Regulations as "…the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of

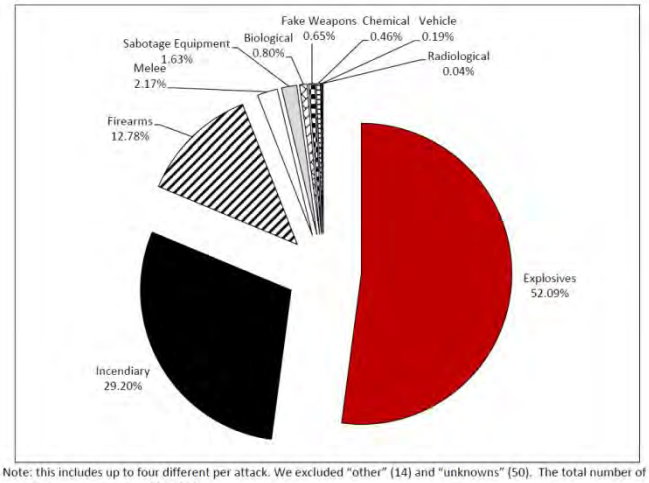
political or social objectives" (28 CFR §0.85). Terrorists use threats to create fear, to try to convince citizens of the powerlessness of their government, and/or to get publicity for their cause.

Terrorism events can be distinguished from other types of man-made hazards by three important considerations:

- In the case of chemical, biological, and radioactive agents, their presence may not be immediately obvious, making it difficult to determine when and where they were released, who was exposed, and what danger is present for first responders. There is limited concern and scientific understanding of how these agents affect the population at large.
- Terrorist events evoke very strong emotional reactions, ranging from anxiety, to fear to anger, to despair to depression.
- Failed attacks have long-term economic impacts for the targeted government and critical infrastructure sector disproportionate to the cost of the attack itself.

Terrorists often choose targets that offer limited danger to themselves and involve areas with relatively easy public access. They look for visible targets where they can avoid detection before and after an attack, such as international airports, large cities, major special events, and high-profile landmarks. Two terrorist techniques of growing concern in the public safety arena are the targeting of first responders by employing secondary explosive devices and hoaxes involving weapons of mass destruction.

Terrorist attacks can take many forms depending on the technological means available to the terrorist group or individual, the motivation of the attack and the opportunity of their target. Many people equate terrorism with the use of weapons of mass destruction, such as chemical, biological, radiological, nuclear and explosive weapons. However, terrorism also includes arson, incendiary and explosive devices, school shootings, sabotage, hazardous materials releases, agro-terrorism and cyberterrorism (Figure 4.23.3). See also Figure 4.23.5 for the percentage of weapons used by decade.



Note: this includes up to four different per attack. We excluded "other" (14) and "unknowns" (50). The total number of recorded weapons analyzed is 2,630.

Figure 4.23.3: Types of Terrorist Weapons

Potential terrorist actions include the following:

Explosives – Bombings have long been used in terrorist attacks and probably represent the most "traditional" form of terrorism. These types of incidents range from small-scale letter bombs to large-scale attacks on specific buildings. Other bomb-related incidents frequently involve "suicide bombers," who believe that by using themselves as the delivery and detonation method of a bomb attack they demonstrate their dedication to an ideology. Bombs are terrorist's weapon of choice. Explosive incidents account for 70 percent of all terrorist attacks worldwide. According to the FBI, 172 improvised explosive devices were reported in the United States between October 2012 and April 2013.[cccvii]

- ***Secondary explosive*** – This type of devices may be hidden in everyday objects such as vehicles, briefcases, flower pots or garbage cans, or can be sequential suicide attacks in the same locations. They are generally detonated less than one hour after an initial terrorist attack, intending to target first responders as well as the general population. The goal of secondary explosives is to incite more terror. If there's an initial explosion and a second explosion, then everyone is thinking about a third explosion which can delay emergency responses.

- ***Vehicle Bomb*** – This is one of the most important considerations regarding explosives because it is a preferred method used by terrorists. The size of vehicle affects how close it can get to a target and how large an explosive device it can deliver, as shown in Figure 4.23.4.

Threat	Threat Description	Explosive Capacity	Building Evacuation Distance	Outdoor Evacuation Distance
	Small Package/letter	1 lb	40 ft	900 ft
	Pipe Bomb	5 lb	70 ft	1,200 ft
	FedEx Package	10 lb	90 ft	1,080 ft
	Vest/Container Bombs	20 lb	110 ft	1,700 ft
	Parcel Package	50 lb	150 ft	1,850 ft
	Compact Car	500 lb	320 ft	1,900 ft
	Full Size Car/Minivan	1,000 lb	400 ft	2,400 ft
	Van/SUV/Pickup Truck	4,000 lb	640 ft	3,800 ft
	Delivery Truck	10,000 lb	860 ft	5,100 ft

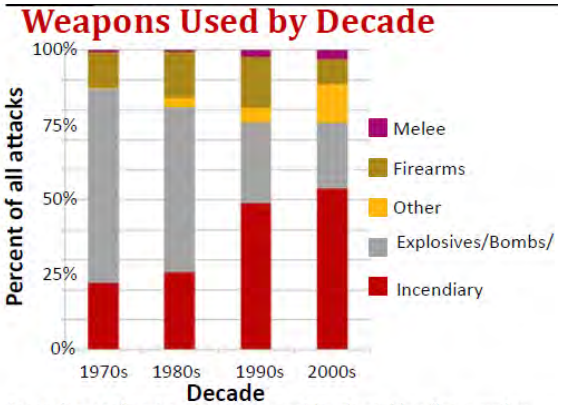
Courtesy, U.S. Technical Support Group (TSWG)

Figure 4.23.4: Explosive Threat Distances

Airline Attacks – In the past, terrorist acts involving aircrafts were generally limited to hijackings and bombings. However, the attacks on the World Trade Center buildings in New York City and the pentagon in 2001 brought a new avenue to light—the use of commercial aircrafts to attack infrastructure targets. Such incidents could include airplane bombing, sabotage or hijacking, airport bombings or shootings, or the tampering with air navigation and control systems, resulting in plane crashes or collisions. Foreign surface-to-air missile attacks also present a threat to U.S. aircrafts.

Weapons of Mass Destruction (WMD) Attacks – WMD attacks usually involve Chemical, Biological, Radiological, Nuclear and explosive (CBRNE) such as Improvised Explosive Devices (IEDs) or crude biological or chemical agents which include the following:

- ***Chemical*** – These types of agents are poisonous gases, liquids or solids that have toxic effects on people, animals, or plants. Many chemical agents can cause serious injuries or death. In this case, severity of injuries depends on the type and amount of the chemical agent used and the duration of exposure.
- ***Biological Agents*** – This is a category of infectious microbes or toxins used to produce illness or death. They can be dispersed as aerosols or airborne particles directly onto a population, producing an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). Severity of injuries depends on the type and amount of the agent used and duration of exposure. Because some biological agents take time to grow and cause disease, an attack using this type of agent may go unnoticed for several days.



Incendiary refers to a weapon capable of catching fire, causing fire, or burning readily and producing intensely hot fire when exploded.

Melee refers to a weapon that can only be used at very close range, e.g., blunt objects, knives, materials that can be used to strangle or suffocate victims.

Figure 4.23.5: Weapons Used by Decade

- ***Nuclear/Radiological*** – Though less likely, this event could involve non-fissile radioactive materials, such as Cesium and would have the potential to cause immense damage to infrastructure and cause large numbers of casualties. Even a small event such as the use of a Radiological Dispersion Device (RDD) has the ability to destroy cities and cause the immediate and delayed deaths of tens of thousands of people.
- ***Improvised Explosive Devices (IEDs)*** – This is a bomb constructed and deployed in ways other than in conventional military action and fall into three categories: 1) Package Type 2) Vehicle-Borne and 3) Suicide Bomb (see *Explosives* section in this hazard review)

Infrastructure Attacks – These types of attacks can impact various potential targets, including water distribution systems and treatment plants, utility companies and services, emergency services, gas and oil production facilities, telecommunications centers, transportation terminals, media facilities, government buildings, and religious institutions. The goal is the disruption and removal of critical services to the populace that depends upon them. Though the loss of life usually is limited, infrastructure attacks can have a direct effect on the health and wellbeing of the population.

Cyberterrorism – Cyberterrorism pertains to attacks on computer-based systems that are designed to spread disinformation and propaganda, deny service to legitimate computer users, spread electronic viruses to corrupt vital data, data ransomware or cause critical infrastructure outages. (See *Cyber Disruption Section 4.22* of this mitigation plan)

Trans-Boundary Animal Disease and Agro-terrorism – This type of hazard involves intentional contamination of commercial produce or meat supplies. Because the United States supplies approximately 16 percent of the world's meat, 40 percent of its soybeans, and 41 percent of its corn, a deadly fungus or bacteria could be devastating to the food supply and local/U.S economy. Of the 222 possible bioterrorism attacks that have occurred worldwide in the twentieth century, only 17 of these targeted commercial livestock or plants, according to the Institute for National Strategic Studies. (See *Trans-Boundary Animal Disease Section 4.17* of this mitigation plan)

Incendiary Devices & Arson – FEMA defines arson and incendiary attack as the initiation of fire or of explosion on or near a target either through direct contact or remotely by other means. Incendiary devices are mechanical, electrical, or chemical devices used to intentionally initiate combustion and start fires. Their purpose is to destroy and ignite their target or other nearby materials or structures or to provide a diversion preceding an even larger terrorist or criminal act. These devices are detonated singularly or in series. Generally, the extent of damage can be determined by type or quantity of accelerant and the materials present at or near the target. Arson can further be defined as any willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling, public building, motor vehicle, or other property. Intentional fires have caused extensive damage during terrorist-related incidents in the past. These types of incidents may also be associated with bombings and usually target specific structures, such as churches. Although deliberately set fires have been reported at 15 churches in Missouri, none have been determined to be hate crime-related or terrorist-related incidents.

Kidnappings/Assassinations/Hostage Taking – The taking of hostages can provide terrorist groups publicity for their political or social objectives. It can allow for ongoing negotiations which can continue their aims resulting in events which are designed to invoke sympathy for their causes. The main goal of response agencies is to end the incident with the absolute minimum loss of innocent lives as possible. A common belief by most terrorist groups is public safety response agencies are willing to give in to demands preventing the endangerment of hostages, which is not a realistic statement or outcome in

most of these incidents. Kidnappings and assassinations incidents that are terrorist-related can be very detrimental to public perception that local jurisdictions can protect their safety.

Active Shooters – As defined by the US Department of Homeland Security, is an individual actively engaged in killing or attempting to kill people in a confined area; in most cases, active shooters use firearm[s] and there is no pattern or method to their selection of victims. No substantive research has yet been compiled to address the potential vulnerability to an active shooter incident. As a very open, public society, these incidents are easier to accomplish for those determined on doing harm. Some of these incidents have occurred in public places, and some in places that are considered more restricted (like elementary schools and high schools). There is no discernible pattern to the location chosen by the shooter. (See *Section 4.20 Public Mass Shooting Incidents* hazard profile)

Federal Partners

The Bureau of Counterterrorism in the State Department – This department continually monitors the activities of terrorist groups working around the world in attempts to identify potential targets they have designated for attacks. When reviewing potential targets, this group looks not only at the actual terrorist attacks that a group has carried out, but also at whether the group has engaged in planning and preparations for possible future acts of terrorism, maintains the capability and intent to carry out such acts. To see the current list of FTOs, released in November 2014, see Attachment 4.23.1:

U.S. Department of Homeland Security (DHS) – After the attacks on September 11, 2001 of the World Trade Centers in New York City, parts of 22 domestic agencies were consolidated into one department creating the U.S. Department of Homeland Security (DHS), to protect the nation against future terrorist threats. The mission of this agency and its departments include analyzing threats and intelligence, guarding national borders and airports, protecting critical infrastructure, and coordinating response efforts for future emergencies.

DHS makes resources available through the Office for Domestic Preparedness (ODP) to support the planning, equipment, training, and exercise needs for the State of Missouri to build an enhanced and sustainable capacity to prevent, respond to and recover from threats or acts of terrorism that may involve the use of a weapons of mass destruction. The state passes the Homeland Security grant monies down to the local jurisdictions. In 2015 the Kansas City area was left off the latest list of cities able to receive homeland security money.[ccclviii]

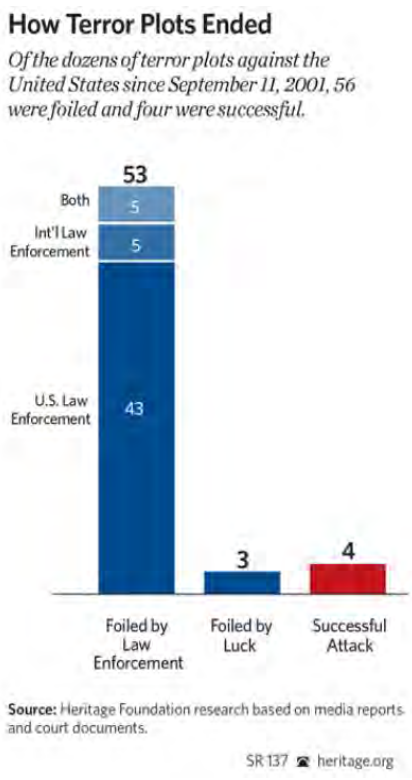


Figure 4.23.6: How Terror Plots Ended

Federal Bureau of Investigation – The FBI has been assigned as the lead federal agency for investigating terrorism. The FBI is authorized to open an investigation whenever, "facts or circumstances reasonably indicate that individuals or groups are engaged in an enterprise for the purpose of furthering political or social goals wholly or in part through activities that involve force or violence and a violation of the criminal laws of the United States." In any given year, the FBI engages in approximately 24 full-scale domestic terrorism investigations.[ccclix] The FBI

maintains a state-of-the-art computer database known as the Terrorist Information System, which contains information on known or suspected terrorist groups and individuals. The system contains information on over 200,000 individuals and over 3,000 organizations.

Joint Terrorism Task Force (JTTF) Fusion Centers – One of the essential weapons in the battle against terrorism are the JFFTs. They are our nation's front line on terrorism: small cells of highly trained, locally based, passionately committed investigators, analysts, linguists, SWAT experts, and other specialists from dozens of U.S. law enforcement and intelligence agencies. When it comes to investigating terrorism, they do it all: chase down leads, gather evidence, make arrests, provide security for special events, conduct training, collect and share intelligence, and respond to threats and incidents at a moment's notice. (See Figure 4.23.6 for a graph of how plots ended since September 11, 2001.)

A national JTTF, located at FBI Headquarters, includes representatives from the U.S. Department of Defense, U.S. Department of Energy, FEMA, Central Intelligence Agency, Customs Service, Secret Service, and the Immigration and Naturalization Service. Additionally, there are Seventy-one (71) local JTTFs where representatives from federal agencies, state and local law enforcement personnel, and first responders work together to track down terrorists and prevent acts of terrorism in the United States. There are two JTTFs in Missouri, one in Kansas City and one in St. Louis.

State and Major Urban Areas Fusion Centers – Located in states and major urban areas throughout the country, fusion centers are uniquely situated to empower front-line law enforcement, public safety, fire service, emergency response, public health, critical infrastructure protection, and private sector security personnel to understand local implications of national intelligence, thus enabling local officials to better protect their communities. Fusion centers provide interdisciplinary expertise and situational awareness to inform decision-makers at all levels of government. With timely, accurate information on potential terrorist threats, fusion centers can directly contribute to and inform investigations initiated and conducted by federal entities, such as the Joint Terrorism Task Forces led by the Federal Bureau of Investigation. There are three fusion centers located in Missouri.

4.23.1 Historical Occurrences

All throughout history, control over people and societies has more than often been accomplished through threat and terror or basically by inciting fear. Totalitarian regimes in the modern era have been founded on fear. *Terrere* means "to make tremble" in Latin. Historians of terrorism may point out that the word *terror* applies to the state terror of the French Revolution. This was when the term "terrorism" was first used, but they often neglect to add that, to varying degrees, the "terror" phenomenon has been constant in earlier eras and has been prevalent ever since.[cccix]

Terrorists are typically driven by particular ideologies. In this respect, domestic terrorists are a widely divergent lot, drawing from a broad array of philosophies and worldviews. From 1970 through 2013, more than 2,600 terrorist attacks took place in the United States, resulting in more than 3,500 fatalities[cccixi]. Historically, most US terrorists have been Anarchist or Communist, especially in the 70s[cccixii]. (For a complete list of U.S. terrorist attacks see Attachment 4.23.2)

Some local terrorist related incidents occurring in the Greater Kansas City and surrounding area are outlined in Table 4.23.1.

Table 4.23.1: Terrorist Related Incidents in the Greater Kansas City Area		
Date	**Location**	**Damage**
April 8,1970[cccclxiii]	Unknown perpetrators bombed the building of Anchor Savings & Loan in Lawrence, Kansas. There were no casualties but two windows were shattered.	$10,000
April 8, 1970[cccclxiv]	Unknown perpetrators bombed the car of a person working at a strike bound company in Baxter, Kansas, United States. There were no casualties but the car was damaged.	$12,000
April 13, 1970[cccclxv]	Black militant group bombs the Kansas City Kansas Police Academy. There were no casualties but the windows of the Police Academy and surrounding buildings were shattered.	Damages Unknown
May 5, 1970[cccclxvi]	Unknown perpetrators firebombed a Selective Service office that was located in a Federal building in Kansas City, Kansas. There were no casualties.	Damages Unknown
May 20, 1970[cccclxvii]	Unknown perpetrators firebombed the Student Union at the University of Kansas, Lawrence, United States. There were no casualties. This attack occurred during heightened racial tensions in Lawrence Kansas.	$3,000,000
June 13, 1970[cccclxviii]	Revolutionary leftist bombing in Kansas City Kansas at the Mid-Continental National Bank.	
December 11, 1970[cccclxix]	Unknown perpetrators bombed the University of Kansas Computer Center in Lawrence Kansas.	$70,000
December 29, 1989[cccclxx]	Planned Parenthood of Greater Kansas City Independence Missouri Office was damaged with an incendiary device. The incident took place at 3:15 AM. The Planned Parenthood facility did not perform abortions. Waiting room destroyed. Also, rest of building sustained smoke and water damage.	$50,000
June 21, 1992[cccclxxi]	Unknown perpetrators failed in their attempts to firebomb the Planned Parenthood of Greater Kansas City's Midtown Center in Kansas City Missouri. The incendiary device burnt out almost immediately after it was ignited. The Firebomb consisted of a pipe and a plastic jar containing flammable liquid	No damages
May 5, 1993[cccclxxii]	A single shot from a 12-gauge shotgun shattered two windows of Doctor Robert Crist son's playroom. The attack occurred in the middle of the night no one was injured in the attack.	$2,000
September 21, 1994[cccclxxiii]	Two members of the Aryan Republican Army robbed the Boatman's Bank in Overland Park, Kansas. The Aryan Republican Army robbed banks to simultaneously dispose the state of capital and to provide logistical support for their revolutionary war to overthrow the United States government. The money from the bank robberies was used to purchase guns, vehicles, and safe houses. A portion of the money was also donated to various right-wing extremist causes.	$13,000

Table 4.23.1: Terrorist Related Incidents in the Greater Kansas City Area		
Date	**Location**	**Damage**
December 14-15, 1994[cccIxxiv]	In a series of related attacks, unknown perpetrators attempted to light a firebomb in front of the Planned Parenthood of Greater Kansas City in Kansas City, Missouri, however, the incendiary device failed to ignite. The perpetrators were protesting the practice of abortion and to sabotage abortion facilities operating in Kansas City. The incendiary device consisting of two 5-gallon water jugs placed in a plastic basket decorated with a Christmas ribbon	No Damages
December 27, 1994[cccIxxv]	Four members of the Aryan Republican Army robbed the Commercial Bank in Maryland Heights, Missouri, United States. Before leaving the bank, one of the perpetrators set off a smoke grenade. A Taurus 9-millimeter pistol, Ruger 9-millimeter handgun, fake bomb, and a smoke grenade were used	$34,144
January 3, 1997[cccIxxvi]	Another letter bomb was discovered, a day after federal officials found seven letter bombs disguised as holiday cards at the federal prison in Leavenworth and in the Washington area. All three letters found in Leavenworth were addressed to the parole officer at the prison. No one has been injured by the bombs. Prison officials and the FBI examined the Leavenworth inmate population, which includes Mohammed Salameh who was one of four people convicted in the World Trade Center bombing.	No Damages
April 3, 2000[cccIxxvii]	A letter mailed to the IRS office in Kansas City, Missouri contained an unknown chemical agent that injured 3 people. No group or individual took credit for the attack.	No Damages
December 31, 2000[cccIxxviii]	An unknown perpetrator fired twenty-five shots into the Planned Parenthood Kansas and Mid-Missouri in Overland Park, Kansas, United States. There were no casualties and attack was to protest the practice of abortion and to sabotage abortion facilities operating in Kansas. Large caliber bullets capable of piercing through drywall. Twenty-five rounds fired.	$25,000
August 6, 2008[cccIxxix]	A pylon and two galvanized-steel power poles were cut along with the wheel assembly of a rail car was cut at a railroad site located in the 8100 block of Wilson Road in Kansas City, Missouri. A propane torch was used to cut the poles. Considered a Facility/Infrastructure Attack. The specific motive for the attack is unknown or was not reported.	$30,000
December 22, 2008[cccIxxx]	Hugh L. Riley, Jr., 35 was sentenced in federal court today for threatening to lace Wal-Mart stores in the Kansas City Area's food products with cyanide unless the store paid him $200,000.	No Damages
June 4-8, 2009[cccIxxxi]	Dave Strano of Disrupt Lake City (DLC) started a campaign to "Stop the War at the Point of Production" by disrupting operations at the Lake City Army Ammunition Plant in Independence, MO, but the effort was dissuaded by law enforcement attention.	No Damages

Table 4.23.1: Terrorist Related Incidents in the Greater Kansas City Area		
Date	**Location**	**Damage**
October 1, 2013[cccLxxxii]	Manuel Garcia threatened to contaminate water supplies in Kansas and Missouri and was sentenced to two years in federal prison. Garcia admitted making three telephone calls to authorities about the fake plot to contaminate water supplies in Kansas City, St. Louis, Wichita and Topeka.	No Damages
March 8 – April 6, 2014	Mohammed Pedro Whitaker charged in 9 shootings, although as many as 12 were reported in Grandview Triangle, an area located in the southern part of Kansas City. Mo., where Interstates 435, 470, and US 71/I-49 come together.	Unknown Damages
April 13, 2014	A pair of shootings committed by a lone gunman occurred at the Jewish Community Center of Greater Kansas City and Village Shalom, a Jewish retirement community, both located in Overland Park, Kansas. A total of three people were killed in both shootings by an avowed white supremacist F. Glenn Miller Jr., also known as Frazier Glenn Cross Jr. who was taken into custody at a nearby school shortly after the rampage, shouting "Heil Hitler" as he was loaded into a police car. Miller is a neo-Nazi self-proclaimed neo-Pagan and former aspiring politician who founded and formerly led the Carolina Knights, a paramilitary organization with ties to the Ku Klux Klan in the 1980s.	Unknown
September11, 2014[cccLxxxiii]	Eric G. King of Kansas City attempted to firebomb the local office of Rep. Emanuel Cleaver. King has espoused anti-government, anarchist views on social media. King was also linked to a group called KC Fight Back Insurrection Collective. Minor damage was done to the building's windows.	$5,000

4.23.2 Probable Locations

The form and locations of many natural hazards are identifiable and, even in some cases, predictable; however, there is no defined geographic boundary for terrorism. Based on previous historical events, it is presumed that critical facilities, services and large gatherings of people are at higher risk.

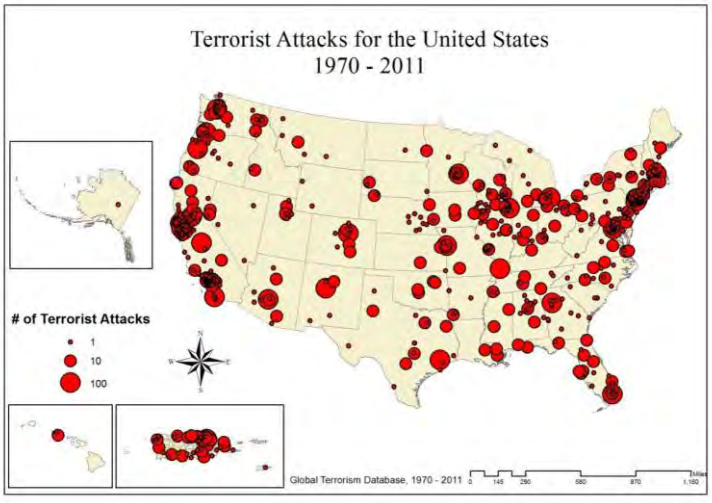


Figure 4.23.7: U.S. Terrorist Attacks by Location, 1970-2011

From 1970 through 2013 terrorist attacks occurred in all 50 U.S. States, District of Columbia, and Puerto Rico; however, 50 percent of all attacks took place in California, New York, and Puerto Rico. From 2000 through 2013 fewer attacks occurred compared to earlier periods, but terrorist attacks still occurred in 35 states, the District of Columbia, and Puerto Rico. Three states — California, New York, and Washington State accounted for 35 percent of all attacks.[cccLxxxiv]

All terrorist attacks occurring in the U.S. from 1970 to 2011 are shown in Figure 4.23.7 by geographic location. The larger the circle indicates the greater the number of attacks. The largest circles indicate concentrations of more than 100 attacks, and these circles are limited to New York City, Washington DC, Miami, Los Angeles and San Francisco. In the most general terms, Figure 4.23.7 indicates at least two main conclusions. First, terrorist attacks in the United States have been closely associated with large urban areas. Second, attacks are also fairly dispersed.[cccIxxxv]

Table 4.23.2: Hate and Extremist Groups in Missouri

Group	Type	Location
Aryan Strikeforce	Racist Skinhead	Missouri
Aryan Terror Brigade	Racist Skinhead	Missouri
Conservative Citizens Foundation Inc.	White Nationalist	Saint Louis
Creativity Movement	Neo-Nazi	Missouri
Faith Baptist Church and Ministry	Christian Identity	Houston
Invictus Books	General Hate	Wentzville
Israelite Church of God in Jesus Christ	Black Separatist	Kansas City
League of the South	Neo-Confederate	West Plains
Nation of Islam	Black Separatist	Kansas City
Nation of Islam	Black Separatist	St. Louis
National Socialist Movement	Neo-Nazi	Springfield
New Black Panther Party	Black Separatist	St. Louis
Southern National Congress	Neo-Confederate	West Plains
Supreme White Alliance	Racist Skinhead	Missouri
Traditionalist American Knights of the Ku Klux Klan	Ku Klux Klan	Potosi
Watchmen Bible Study Group	Christian Identity	Wappapello
White Boy Society	White Nationalist	Missouri

The Southern Poverty Law Center (SPLC), founded by civil rights lawyers Morris Dees and Joseph Levin Jr. in 1971, is internationally known for tracking and exposing the activities of hate groups. The SPLC indicates there are 19 hate and extremist groups located in the State of Missouri. Two of these groups are mainly located in the Jackson County Area (Israelite Church of God in Jesus Christ and Nation of Islam). (See Table 4.23.2)

With these domestic groups working in Kansas City metro and surrounding areas, it increases the chances of a terrorist event occurring or impacting in the area. One group "The National Socialist Movement" operating out of Springfield Missouri held a public rally along with other party related activities on November 9th 2013 in the Kansas City area. Although the rally occurred without any violence or arrests they accused the Kansas City Missouri Government of being hostile, hateful and thanked them for their intolerance.[cccIxxxvi] This group staged a similar rally in Toledo Ohio on December 10th 2005 when they made international news after a planned march through a black neighborhood sparked rioting by residents and counter-protesters. The riots cost the city more than $336,000.[cccIxxxvii].

The Anti-Defamation League (ADL) reports Thirty-six individuals living in the U.S. have been linked to terrorism motivated by Islamic extremist ideology in 2015 thus far. This surpasses the total of each of the past two years: 26 individuals living in the U.S. were linked to such terrorism in all of 2014 and 22 in 2013. Twenty-four of the individuals arrested in 2015 were charged with providing material support to terrorism. Of them, 14 had joined or attempted to join terrorist groups abroad. Twelve had joined or attempted to join ISIS, one had joined Jabhat al Nusra (Al Qaeda in Syria), although he had allegedly also

considered joining ISIS, and one was a longstanding member of Al Qaeda who was arrested and charged in 2015. Three of the 24 were attempting to aid other Americans in joining ISIS, and 7 were attempting to fund ISIS.[cccixxxviii]

Individuals engaged in material support in 2015 generally did not work alone. However, the size of their conspiracies varied. The largest plot involved at least 9 individuals from Minneapolis, MN. Six of the individuals were arrested in April 2015 and one in February 2015. One individual was arrested in 2014 and one, who is believed to be fighting with ISIS in Syria and actively recruiting Americans, was charged in absentia in 2014. In February 2015, six individuals were arrested in New York, Illinois, and St. Louis Missouri, for working together to fund ISIS[cccixxxix].

4.23.3 Extent, Severity, Magnitude

Severity: Medium (Injuries and damage to people, property and environment is expected)
Magnitude: 1 (Less than 10% of the area will be affected by this hazard)

In the past, most incidents of terrorism or sabotage were associated with bombings that affect specific localized areas. If a terrorist would utilize a WMD device, which is very unlikely, then large areas and populations could be affected. Today, the standard the scope and magnitude of sabotage/terrorism acts include many additional methods and threats including:

1. Nuclear, chemical, explosives and biological weapons.
2. Information warfare (Cyber Disruption).
3. Ethnic/religious/gender intimidation (hate crimes).
4. State and local militia groups that advocate the overthrow of the U.S. Government.
5. Eco-extremism, designed to destroy or disrupt specific research or resource related activities
6. Pre-meditated attacks upon schools, workplaces, transportation systems, or places of public assembly.
7. Organized criminal enterprises and activities.
8. Agra-terrorism
9. Assassinations
10. Intentional Hazardous Materials releases
11. Kidnappings/hostage situations
12. Active shooter/sniper incidents

All these methods can, in some way, hinder a government or population and lead to extremely threatening conditions for all people involved including innocent people who unfortunately get caught up in the terrorist's path. Many terrorist targets are often located near high traffic/high-visibility routes with convenient transportation access.

The five-county planning areas has many types of infrastructure and industries that could be attacked producing catastrophic results including HSPD-7 defined and identified 17 critical infrastructures/key resource sectors that provide the essential services which maintain American society. The incapacitation, exploitation, or destruction of these sectors through terrorist attack(s), would have a debilitating effect on security and economic well-being of the community.

These sectors are located throughout the jurisdictions covered in this mitigation plan including:

Agriculture and Food	Telecommunications systems

Public Health and Health Care
Drinking Water and Wastewater Treatment Systems
Energy (pipelines)
Banking and Finance
National Monuments and Icons,
Defense Industrial Base
Information Technology*

Chemical manufacturing and distribution systems,
Transportation Systems (Rail, airports)
Emergency Services
Postal and Shipping
Dams
Commercial Facilities (corporate headquarters
Nuclear Reactors, Materials, and Waste.

* See 4.22 Cyber Disruption Hazard

Other possible threats to terrorist attacks include symbolic targets. These are defined as targets associated with the American way of life or with name recognition such as national symbols, high profile skyscrapers and major corporate headquarters have also been listed as attractive to terrorists.

Large Venue Targets: Additional targets of terrorist can be facilities, areas and venues involving high population densities/crowds. (Table 4.23.3)

Table 4.23.3: Large Venue Locations	County location
St. Patrick's Day Parade (Kansas City)	Jackson
Sprint Arena (Kansas City)	Jackson
Bartle Hall (Kansas City)	Jackson
Kauffman Center (Kansas City)	Jackson
Starlight Theater (Kansas City)	Jackson
Kemper Arena (Kansas City)	Jackson
Sports Complex (Kansas City)	Jackson
Independence Santa-Cali-Gon Days (Independence)	Jackson
World War One National Museum and Memorial	Jackson

International Companies: Another potential terrorist target can be on international companies doing business in the United States. Recently Islamic State fighters had indicated that their leader, Iraqi Abu Bakr al-Baghdadi, had several surprises in store for the West. They hinted that attacks on American interests or even U.S. soil were possible through sleeper cells in Europe and the United States[cccxc]. These international companies may be potential targets of terrorists. (See Attachment 4.23.3 for list of foreign companies in the planning region)

Future Vulnerabilities of Terrorism

Terrorist activities/tactics and targets are likely to change in the future causing private and public organizations as well as citizens to become more susceptible to terrorist activities. These changes include:

1. Targets may become more individualized based on specific causes or to avoid specific countermeasures or to exploit individual vulnerabilities (targets of opportunity). These types of attacks have lower consequences than catastrophic chemical, biological, radiological, or nuclear (CBRN) attacks or using improvised explosive device attacks, but have a higher probability of succeeding.[cccxci] Possible future targets of terrorist attacks include oil and emergency systems and because of current vulnerabilities in the agricultural sector attacking the nation's food supply is possible.[cccxcii]
2. Increased "Active Shooter" incidents with terrorist/individuals that take hostages and carrying supplies to fortify areas to extend the length of time they can operate, and attacking public safety response teams which differ from current training procedures and protocols.

3. Terrorist will find new ways to conceal weapons, explosives and other dangerous materials using concealment tactics like drug smugglers forcing businesses, schools, emergency managers and first responders to reconsider screening procedures during special events and high risk facilities.
4. Increased technologies throughout the world will provide terrorist groups with easier access to CBRN weapons, as well as to advanced conventional weapons.[cccxciii] As these new technologies start being employed by terrorist it will increase the competition for response and mitigation preparedness monies between natural hazards and terrorism programs. Social networking can also be used by terrorists to influence people and recruit members by distributing gruesome news and images, as well as the possibility that terrorists conducting the attack to follow the actions of emergency responders through, etc.[cccxciv]
5. Domestic terrorist events will continue to increase. Between 2000 and 2012 the majority of terrorist attacks in which the perpetrators were identified were carried out by environmental and animal rights violent extremist groups.
6. The number of cases where American citizens or permanent residents were radicalized and recruited to participate in Islamic terrorist activities increased sharply in 2009.[cccxcv] One area of concern is the terrorist recruitment in prisons. The radicalization of prisoners, called "Prislam" is a problem unlike any other faced by correctional administrators today, or at any other time in history. It grows in the secretive underground of inmate subcultures through prison gangs and extremist interpretations of religious doctrines that inspire ideologies of intolerance, hatred and violence.[cccxcvi]
7. The influence of the internet may facilitate the radicalization of American citizens. According to a report from the Homeland Security Institute, "the Internet plays a vital role in creating social bonds that are necessary for radicalization and recruitment, as well as providing a venue for perpetuating radicalization among groups of recruits," including individuals who "self-radicalize" by seeking out terrorist organizations. [cccxcvii] The possibility exists that terrorist attacks perpetrated by radicalized Americans may be more successful and lethal due to terrorist organizations' ability to connect to radicalized Americans remotely and provide resources and suggested tactics.[cccxcviii]
8. Disruption of cyber systems is the emergence of a new and potentially devastating threat. See *Section 4.22 Cyber Disruption* hazard profile.
9. As the Kansas City Metro area increases in size including, population, industry and technology it has the increased potential of becoming a terrorist target.

Because there is no defined geographic hazard boundary, all people and property in the planning region are potentially exposed to risk of damage from a terrorist event. The impact resulting from a terrorist event can vary from nominal to catastrophic, depending on the type, location, and severity of the event. The greatest impact would be the significant loss of life for humans and the health and safety issues of the citizens. Other impacts would be the loss of government operations, facilities, and critical infrastructure along with damages to local economic stability.

Additionally, the impact of the attack itself may be exacerbated by the fact that human services agencies like community support programs, health and medical services, public assistance programs, and social services could experience physical damage to facilities, supplies, and equipment along with the disruption of emergency communications. There may also be catastrophic ancillary effects of terrorism such as urban fires or, in the case of a radiological device, radioactive fallout that can multiply the impact of a terrorist event.

Critical protective actions may be required of first responders or the entire population (shelter-in-place). Should mass evacuations be required it could lead to traffic congestion and a breakdown in civil order, further exacerbating the situation. Government operations may be disrupted, due to being displace or

forced to operate under a reduced capacity. Critical infrastructure may be irreparably damaged and a loss in agriculture productivity could cause food shortages or permanently affect the area's agricultural economy.

4.23.4 Probability of Future Occurrence: Low (Less than 1 % chance of occurrence in any given year)

Terrorist events are unpredictable by nature. Terrorism can strike not just large cities, but in any community of any size. While no amount of planning and mitigation can remove 100-percent of the risk from terrorism, mitigation and preparedness efforts can help reduce the risk. While significant improvements have been made in terrorist detection and prevention, these types of events remain challenging to predict in size, scope, intent, and frequency. Although the likelihood of an occurrence in the planning area is low, it is possible the region could experience a terrorist event and it effects in the future.

A Terrorism Risk Report dated February 7, 2014 by the Kansas City Terrorism Early Warning Group was sent to the Department of Homeland Security's Federal Emergency Management Agency outlining the region's terrorism *Threat Picture*. In that report several terrorist threats and vulnerabilities were evaluated including:[cccxcix]

- According to Transportation Security Administration data, Kansas City International Airport is ranked fourth out of 57 Category I airports in the U.S. for TSC encounters," it said. TSC refers to the Terrorist Screening Center, which maintains a database of those known or suspected of being involved in terrorist activity. "This makes KCI a primary hub for KST (Known or Suspected Terrorist) travel."
- The document also noted that Kansas City is the single largest railroad hub in the U.S. based on total tonnage, and the third-largest freight shipping center for trucks.
- The report says the Kansas City metro area "provides a nexus for a variety of Domestic Terrorism targets." Domestic terrorism groups in the region, according to the report, include neo-Nazis, white supremacists, eco-terrorists, sovereign citizens, animal rights groups, anarchists, anti-abortion extremists, black separatists and lone wolf extremists. National white supremacist leaders, the report indicated, "have found a home in and near the metropolitan area."

In the last five years, the odds of an American being killed in a terrorist attack have been about 1 in 20 million (including both domestic attacks and overseas attacks). Terrorist attacks obviously loom much larger in our collective consciousness because they are designed to horrify. So, understandably, they get much more attention[cd]. Given the unpredictable nature on observed historical damages, frequency of occurrence, intensity and damage parameters, no realistic estimate is available for the probability of a future occurrence of a terrorist event.

4.23.5 Vulnerability Analysis and Potential Loss Estimates

Counties in the planning area have numerous targets a terrorist could attack and all people and property are potentially exposed to risk of damage from a terrorist event. Specific targets may become more appealing when it symbolizes their ideology or events like high profile personalities and dignitaries visit them. Examples of these type targets include:

- Government office buildings, courthouses, schools, hospitals, emergency services, and shopping centers

- Symbolic targets whose operations, practices or associations represent values in conflict with the terrorists' ideology
- Dams, water supplies, electrical and gas distribution systems, pipelines, chemical facilities
- Military installations and suppliers
- National monuments and historical sites
- Railheads, interstate highways, tunnels, airports, ferries, bridges, seaports, overpasses and other transportation systems
- Recreational facilities such as sports stadiums, theaters, parks, casinos, concert halls, public venues
- Financial institutions and banks
- Sites of historical and symbolic significance
- Scientific research facilities, academic institutions, museums
- Telecommunications, newspapers, radio and television stations
- Chemical, industrial, and petroleum plants
- Business offices, convention centers
- Law, fire, emergency medical services, and responder facilities and operations centers
- Special events, parades, religious services, festivals, celebrations
- Planned Parenthood facilities and abortion clinics.

The counties in the planning area contain a large number of all these potential targets. See Table 4.23.4 below for estimated effects in each county in the region. Other areas that could be affected do not just include physical infrastructure, but also social interruptions including:

Population – The effects of terrorism include, but are not limited to death, injury and a feeling of fear and helplessness in the general population. It can destroy property, lifelines and the basic social fabric of the community. On a large scale, attacks can destroy major portions of a large city's infrastructure creating physical and economic hardship for some time in addition to the initial death and destruction. Long term psychological damage to a portion of the population is also possible.

Public Safety Responders – Impacts to responding personnel are similar to what can affect the citizens residing or working in the terrorists' target area. They include medical problems and death from chemical agent exposure, explosion and fire trauma. There may long term hazards such as hazardous chemicals or material (asbestos) that can cause illness, either acute or chronic and psychological issues.

Continuity of Operations / Delivery of Services – The magnitude and type of event of the terrorist attack determines the impact on agencies and services. Continuity of operations for agencies that have their main administration or critical components of their operations within the target area could find their operational continuity at risk. If files, paper or electronic, are damaged or destroyed, an organization may not be able to: contact clients; assign work; complete scheduled jobs; meet deadlines; access, track, and pay accounts; or pay staff. Without a Continuity of Operations Plan that takes these issues into account, they may not be able to operate in their normal mode, if at all.

Public Confidence in Jurisdiction's Governance – The reputation of any individual jurisdiction covered by this mitigation plan or the public's confidence in any governmental agency is highly dependent on the public's perception on how well response and recovery are handled during and after any disaster event. A response that either shows or gives the impression the jurisdiction is prepared and responsive to the public's needs and manages its recovery by getting its services back and damage repaired in a timely

manner will maintain or enhance a jurisdictions' reputation. However, if the perception develops, rightly or wrongly, that the jurisdiction is incompetent, slow to react, or ignores the needs of its citizens, the reputation of the jurisdiction and the confidence in its abilities may suffer for years.

People affected – Low (*Less than 100,000 people affected*)

A terrorist could involve just one person (assassination) or impact tens of thousands (biological/radiological) depending upon the type of materials or weapons used. For instance a biological or chemical attack may go undetected for hours, days, or potentially weeks until people, animals, or plants show symptoms. The first source of detection for such an attack will likely be by local health care workers observing a pattern of unusual illness or by early warning monitoring systems that detect airborne pathogens.

Table 4.23.4: Estimated Effects of Terrorist Attack on Population

County	Population	Small Attack (0.005% of Pop.)*	Large Attack (15% of Pop.)*	Catastrophic Attack (30% of Pop.)*
Cass	100,889	504	15,133	30,267
Clay	233,682	1,168	35,052	70,105
Jackson	683,191	3,416	102,479	204,957
Platte	94,788	474	14,218	28,436
Ray	22,949	115	3,442	6,885

*Percentages based on people killed, injured, incurring any economic loss or loss of services generalized from historical U.S terrorist events.

For an aerosol release, an area affected would depend on the quantity of agent release whether the release is indoors or outdoors, and on specific weather conditions. Agents that are released outdoors would disperse in the direction of the wind, while agents released indoors could have a higher concentration overall.
The main effect of a terrorist attack that would impact a large number of people would be if a significant food (whether through processing, transport, or distribution) or water contamination (whether through backflow contamination or disabling or sabotaging the drinking water system) would occur. This would result in serious health effects on the general public as well as the public anxiety and fear created from such an attack. The extent of people affected and the severity of health impacts would depend on the concentration of the chemical or toxin present and the associated effects.

Responders to a terror threat will face danger themselves as they attempt to control the current threat which is often ongoing in the wake of the first signs of a terrorist act. While attempting to control an event, first responders may also become the targets of terrorist threats and their lives and safety will almost certainly be at risk.

One objective of a terrorist attack is to place fear and reduce the trust in government by its citizens. If terrorist acts are unprovoked, random and intentional, it causes overwhelming fear in people. These random unpredictable acts evoke feelings of helplessness in individuals because terrorists randomly target innocent and defenseless groups of people disrupting their predictable, orderly and controllable world.

An exception to this rule is when an attack is made publicly (facility is warned before the event occurs such as a bomb Threat) or a terrorist attack is threatened to occur in the future such as al-Qaida has done when issuing a fatwah against America. This type of warning moves the battlefield from physical reality to the psychological eliciting fear, anger and worry in the general population. Even though a terrorist attack may not have physically occurred, these threats cause many of the same psychological feelings and worries just as if an actual physical attack had taken place. Mitigation actions and

precautions must be taken to ensure not only the physical but mental safety of the public is protected even during these false threats.

Vulnerable Populations – Vulnerable populations experience a disproportionate burden on the psychosocial impact of terrorism threats and our national response.[cdi] This is due to physical, mental or emotional problems often associated with vulnerable populations. Researchers found that the mentally ill, the disabled, African Americans, Latinos, Chinese Americans, Korean Americans and non-U.S. citizens were likelier to think the HSAS (now the National Terrorism Advisory System NTAS – See Figure 4.23.8) alert level was higher than it was, and to worry more and change their behavior due to those fears.



The National Terrorism Advisory System

The National Terrorism Advisory System, or NTAS, replaces the color-coded Homeland Security Advisory System (HSAS). This new system will more effectively communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation hubs, and the private sector.

Figure 4.23.8: National Terrorism Advisory System

"Terrorism-related fears and avoidant behavior can be considered part of the 'disaster burden'—the amount of adverse health effects ranging from loss of well-being or security to injury, illness or death caused by a disaster associated with terrorism and national terrorism policies. The disaster burden associated with terrorism and consequent policies may fall disproportionately on the vulnerable groups we studied."[cdii]

Other factors that increase vulnerable populations risk to terrorist attacks include locations where they live, age of homes, increased reliance on support systems, reduced preparedness capabilities, difficulties in communicating risk, increased dependence on public transportation, and lack of funds to evacuate or leave impacted areas.

Total Exposure – Low (*This hazard would involve less than $1 Billion dollars in damages*)

Economically, the after effects of a terrorist attack will depend directly on the type of terrorist activity and how much damage was done to the population, businesses, tax base, and the local infrastructure, etc. An individual home or business damaged by the attack can be devastating to an individual or family, but it will have very little effect on the overall economic condition of the community. However, when a large number of homes and businesses are damaged or destroyed, it can negatively alter the tax base decreasing the ability of the local jurisdiction to pay, not just for infrastructure repair and community restoration, but also for the normal day to day programs that make the community a viable area in which to live and work. After a terrorist event, people and business may need to relocate, and in some cases move out of the community or area should local infrastructure be damaged or large numbers of housing stock affected.

Damage to the business and industry sector does not only affect the tax base, but may also remove jobs from the local economy. The loss of jobs can escalate into other problems. The unemployed may either move away, go on unemployment, or be forced to take a lower paying job, all of which further decreases the financial stability of the individual and jurisdiction. If the loss of financial stability is not corrected, there are other social problems that arise. Those out of work can develop a loss of self-

esteem that can lead to an increase in crime, alcohol and drug abuse, psychological problems, spouse abuse and an increase in medical problems. Other potential impacts include (see also Table 4.23.5 for county-specific economic losses):

- The cost of a terrorist act would be felt in terms of loss of life and property, disruption of business activity and long-term emotional impacts. Recovery would take significant resources and expense at the local level.

- Utility losses could cause a reduction in employment, wholesale and retail sales, utility repairs, and increased medical risks. Local governments may lose sales tax, and the finances of private utility companies and the businesses that rely on them would be disrupted.

- The economic impact of computer security breaches associated with data and telecommunications losses can be staggering.

- The economic impacts should a transportation facility be rendered impassable would be significant. The loss of a roadways or railways would have serious effects on the economy and local jurisdictions' ability to provide services. Loss of travel routes would result in loss of commerce, and could impact the ability to provide emergency services to citizens by delaying response times or limiting routes for equipment such as fire apparatus, police vehicles, and ambulances. The ability to receive fuel deliveries would also be impacted.

Table 4.23.5: Potential Economic Loss, Terrorism

Description	Cass	Clay	Jackson	Platte	Ray
Manufactures Shipments	$483,706,000	$10,903,503,000	$8,939,022,000	$2,077,389,000	$0
Merchant Wholesaler Sales	$351,585,000	$4,517,272,000	$11,179,928,000	$3,535,450,000	$92,227,000
Retail Sales	$898,675,000	$3,366,942,000	$8,460,776,000	$1,737,430,000	$141,668,000
Accommodation and Food Service Sales	$1,505,780,000	$822,122,000	$1,505,780,000	$465,596,000	$10,157,000
Total Health Care & Social Assistance receipts& Rev.	$187,496,000	$1,189,718,000	$4,847,185,000	$221,343,000	$33,934,000
Total Gross Products**	$3,427,242,000	$20,799,557,000	$34,932,691,000	$8,037,208,000	$277,986,000
Potential cost of a minimal Terrorist Event (.0013%)*	$4,455,415	$27,039,424	$45,412,498	$10,448,370	$361,382
Potential cost of a maximum Terrorist Event (.031%)***	$106,244,502	$644,786,267	$1,082,913,421	$249,153,448	$8,617,566

*Based on economic loss data from the Boston Marathon Bombing Incident [cdiii]
**All manufactures, merchant, sales and services figures from 2007 Census business Quick Fact (Census.gov)
***Based on the 2001 World Trade Center Terrorist Attack[cdiv]

Natural environment – A terrorist attack could cause extensive damage to the environment. Depending on the event the environment may experience damaging long term effects from things like radiation fallout, chemical introduction into the ground water, or biologic/germ introduction into the ecosystem. Critical infrastructure may be irreparably damaged and a loss in agriculture productivity could permanently affect all areas of the county's economy. The infrastructure of a large city if destroyed, can cause cascading effects with lingering problems regarding contaminates, pollutants, hazardous debris, etc.

A good example of this is the collapse of the World Trade Center Towers in New York City which led to the release of as much as 300 to 400 tons of asbestos from the North Tower and the destruction of two electrical substations underneath World Trade Center #7 that contained 130,000 gallons of transformer oil contaminated with PCBs. In fine-particle samples taken near the site in October 2001, by the UC-Davis team found lead, sulfuric acid, and silicon; some levels of these metals were the highest ever recorded in air in the United States.[cdv]

Potential Loss Estimation for Region – See Table 4.23.6 and Table 4.23.7igation Plan Section 3. Capabilities Assessment

Table 4.23.6: Maximum Loss Estimation By County					
County	**Overall Risk (Probability + Severity/2)**	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
Cass	(P=Low-1 S=Med-3) = 2	Medium = 2	$1,469,376 = 1	30,267=1	1.5=Low
Clay	(P=Low-1 S=Med-3) = 2	Medium = 2	$3,428,544 = 1	70,105=1	1.5=Low
Jackson	(P=Low-1 S=Med-3) = 2	Medium = 2	$14,693,760 = 1	204,957=2	1.75=Med
Platte	(P=Low-1 S=Med-3) = 2	Medium = 2	$1,632,640 = 1	28,436=1	1.5=Low
Ray	(P=Low-1 S=Med-3) = 2	Medium = 2	$408,160 = 1	6,885=1	1.5=Low

Table 4.23.7: Minimum Loss Estimation By County					
County	**Overall Risk (Probability + Severity/2)**	**Magnitude (Percent of County Affected)**	**Total Exposure (Dollar Amount)**	**Total Population**	**Maximum Loss Estimation**
Cass	(P=Low-1 S=Med-3) = 2	Low = 1	$4,455,415=1	504=1	Low=1.25
Clay	(P=Low-1 S=Med-3) = 2	Low = 1	$27,039,424=1	1,168=1	Low=1.25
Jackson	(P=Low-1 S=Med-3) = 2	Low = 1	$45,412,498=1	3,416=1	Low=1.25
Platte	(P=Low-1 S=Med-3) = 2	Low = 1	$10,448,370=1	474=1	Low=1.25
Ray	(P=Low-1 S=Med-3) = 2	Low = 1	$361,382=1	115=1	Low=1.25

Specific Jurisdictional Vulnerabilities (Table 4.23.8):

Table 4.23.8: Specific Vulnerabilities by County				
Cass	**Clay**	**Jackson**	**Platte**	**Ray**
Agricultural areas	Agricultural areas	International Airport	Agricultural areas	Agricultural areas
Major Public Utility Infrastructure	Major Public Utility Infrastructure	Major Rail yards	Major Public Utility Infrastructure	Major Public Utility Infrastructure
Educational Institutions	Educational Institutions	Diverse ethnic cultures	Educational Institutions	Educational Institutions
		Sports stadiums and cultural centers		
		Public Utility infrastructure		

4.23.6 Problem Statements

Problem statements, such as those below, can support development of mitigation strategies for Terrorism:

- ISIS and al Qaeda affiliates have called for lone offender attacks against soft targets. This will be a challenge for LE, as these attacks are very difficult to detect and can be easily carried out.
- The KC metro area is host to numerous special events and is home to religious and ethnic minorities who receive regular threats and face complex security challenges.
- The KC metro area is known for extremist and radical fundraising. Fundraising events are not usually violent and although this activity is illegal, it is very difficult to prove.
- Critical infrastructure owners and operators may see terror attacks on the news, however, most do not know of key indicators of someone plotting an attack or how to respond once an attack has taken place.

4.23.7 Attachments

Attachment 4.23.1: Foreign Terrorist Organizations Designated by the Secretary of State (11/2014)	
10/08/1997	Abu Nidal Organization (ANO)
10/08/1997	Abu Sayyaf Group (ASG)
10/08/1997	Aum Shinrikyo (AUM)
10/08/1997	Basque Fatherland and Liberty (ETA)
10/08/1997	Gama'a al-Islamiyya (Islamic Group) (IG)
10/08/1997	HAMAS
10/08/1997	Harakat ul-Mujahidin (HUM)
10/08/1997	Hizballah
10/08/1997	Kahane Chai (Kach)
10/08/1997	Kurdistan Workers Party (PKK) (Kongra-Gel)
10/08/1997	Liberation Tigers of Tamil Eelam (LTTE)
10/08/1997	National Liberation Army (ELN)
10/08/1997	Palestine Liberation Front (PLF)
10/08/1997	Palestinian Islamic Jihad (PIJ)
10/08/1997	Popular Front for the Liberation of Palestine (PFLF)
10/08/1997	PFLP-General Command (PFLP-GC)
10/08/1997	Revolutionary Armed Forces of Colombia (FARC)
10/08/1997	Revolutionary Organization 17 November (17N)
10/08/1997	Revolutionary People's Liberation Party/Front (DHKP/C)
10/08/1997	Shining Path (SL)
10/08/1999	al-Qa'ida (AQ)
9/25/2000	Islamic Movement of Uzbekistan (IMU)
05/16/2001	Real Irish Republican Army (RIRA)
12/26/2001	Jaish-e-Mohammed (JEM)
12/26/2001	Lashkar-e Tayyiba (LeT)
03/27/2002	Al-Aqsa Martyrs Brigade (AAMB)
03/27/2002	Asbat al-Ansar (AAA)
03/27/2002	al-Qaida in the Islamic Maghreb (AQIM)
08/09/2002	Communist Party of the Philippines/New People's Army (CPP/NPA)
10/23/2002	Jemaah Islamiya (JI)
01/30/2003	Lashkar i Jhangvi (LJ)
03/22/2004	Ansar al-Islam (AAI)
07/13/2004	Continuity Irish Republican Army (CIRA)
12/17/2004	Libyan Islamic Fighting Group (LIFG)
12/17/2004	Islamic State of Iraq and the Levant (formerly al-Qa'ida in Iraq)
06/17/2005	Islamic Jihad Union (IJU)
03/05/2008	Harakat ul-Jihad-i-Islami/Bangladesh (HUJI-B)
03/18/2008	al-Shabaab
05/18/2009	Revolutionary Struggle (RS)
07/02/2009	Kata'ib Hizballah
1/19/2010	al-Qa'ida in the Arabian Peninsula (AQAP)
8/6/2010	Harakat ul-Jihad-i-Islami (HUJI)
9/1/2010	Tehrik-e Taliban Pakistan (TTP)
11/4/2010	Jundallah
5/23/2011	Army of Islam (AOI)
9/19/2011	Indian Mujahedeen (IM)

Attachment 4.23.1: Foreign Terrorist Organizations Designated by the Secretary of State (11/2014)	
3/13/2012	Jemaah Anshorut Tauhid (JAT)
5/30/2012	Abdallah Azzam Brigades (AAB)
9/19/2012	Haqqani Network (HQN)
3/22/2013	Ansar al-Dine (AAD)
11/14/2013	Boko Haram
11/14/2013	Ansaru
12/19/2013	al-Mulathamun Battalion
1/13/2014	Ansar al-Shari'a in Benghazi
1/13/2014	Ansar al-Shari'a in Darnah
1/13/2014	Ansar al-Shari'a in Tunisia
4/10/2014	Ansar Bayt al-Maqdis
5/15/2014	al-Nusrah Front
8/20/2014	Mujahidin Shura Council in the Environs of Jerusalem (MSC)

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
14 Apr 1865	Washington, DC	1	3	President Abraham Lincoln shot by John Wilkes Booth in Washington DC; secretary of state William H. Seward injured separately by accomplice Lewis Powell; Lincoln died 15 April
2 Jul 1881	Washington, DC	1	0	President James Garfield shot by Charles J. Guiteau in Washington, DC, died 19 Sep.
4 May 1886	Chicago, Illinois	12	60	Bomb thrown during labor rally at Haymarket Square kills 7 policemen, many injured; police fire into crowd, killing 4; 8 anarchists accused
28 Feb 1890	Washington, DC	1	0	Kentucky Representative William Taulbee shot outside U.S. Capitol by Charles Kincaid; Taulbee died 11 March
6 Sep 1901	Buffalo, New York	1	1	President William McKinley shot by Leon Czolgosz in Buffalo, NY, died 14 Sep
30 Dec 1905	Caldwell, Idaho	1	0	Frank Steunenberg, former Idaho governor, killed by bomb
1 Oct 1910	Los Angeles, California	21	20	Bombing by labor activists at The Los Angeles Times building caused partial collapse of the building; two bombs at other locations were defused
14 Oct 1912	Milwaukee, Wisconsin	0	1	Former President Theodore Roosevelt shot and injured in attempted assassination outside hotel in route to speech
3 Jul 1915	Glen Cove, New York	0	1	Shooting attack on financier J. P. Morgan in failed hostage taking
22 Jul 1916	San Francisco, California	10	44	Bomb in suitcase explodes at Preparedness Day parade
24 Nov 1917	Milwaukee, Wisconsin	10	2	Bombing at police station
31 Jan 1919	Washington, DC	3	?	3 Chinese assassinated
29 Apr 1919	Atlanta, Georgia	0	2	Mail bomb sent to home of senator Thomas Hardwick explodes, injuring a housekeeper and the senator's wife
2 Jun 1919	New York City, New York	2	3	Anarchist bombings kill a night watchman and a terrorist; additional bombings occurred in Washington, DC, Philadelphia, PA, Paterson, NJ, Cleveland, OH, and two in Pittsburgh, PA
2 Jun 1919	Boston, Massachusetts	0	1	Anarchist bombing at the home of a state representative injured one child; a second bombing at the house of a judge caused no injuries
16 Sep 1920	New York City, New York	38	300	Bomb in horse-drawn wagon exploded near Morgan bank in lower Manhattan
18 May 1927	Bath, Michigan	45	58	Andrew Kehoe, the 55-year-old school board treasurer, was angered by increased taxes and his defeat in the Spring 1926 election for township clerk. The deadliest school massacre killed 45 people including 38 children. Andrew Kehoe planted dynamite throughout the Bath Consolidated School in Bath Township, Michigan, and detonated it; Authorities later discovered 500 pounds of explosives underneath the school that failed to go off, keeping the death toll from reaching even higher.
21 Feb 1928	New York City, New York	0	0	(Thwarted Terrorist Attack) silver nitrate poison mailed to 9 New York City officials
15 Feb 1933	Miami, Florida	1	4	Attempted assassination of President-elect Franklin Roosevelt by anarchist Joseph Zangara; Chicago mayor Anton Cermak shot instead, dying 6 March
10 Oct 1933	Chesterton, Indiana	7	0	Mid-air bombing destroys a Boeing 247
8 Sep 1935	Baton Rouge, Louisiana	2	0	Senator Huey Long shot by Carl Weiss who was shot and killed by bodyguards; Long died 10 Sep

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
21 Sep 1935	Brooklyn, New York	0	1	Plane hijacked from Brooklyn and flown across Atlantic, crashing in Irish Free State; 1 injured
23 Feb 1936	Utuado, Puerto Rico	0	1	Police officer shot by Puerto Rican nationalists
23 Feb 1936	San Juan, Puerto Rico	1	0	Police officer killed in shooting attack by Puerto Rican nationalists
21 Jan 1938	Seattle, Washington	1	0	(Thwarted Terrorist Attack) peace advocate drowned trying to bomb Japanese steamer
4 Jul 1940	New York City, New York	2	2	Bomb explodes at British Pavilion at the World's Fair, killing 2 police officers and injuring 2
1 Jan 1940	New York City, New York	0	15	January 1940 through January 1956 - George Metesky after sustaining an injury while working for Consolidated Edison Co. began placing bombs around New York City in 1940, eventually exploding 22 of them and injuring 15 people. The papers nicked named him the mad bomber.
22 Jul 1948	New York City, New York	0	0	(Thwarted Terrorist Attack) Stephen J. Supona dropped homemade bomb from airplane over United Nations building; no damage caused
1 Nov 1950	Washington, DC	2	1	Assassination attempt on President Harry Truman, two Puerto Rican nationalists try to shoot their way into Blair House; 2 killed, including 1 terrorist
21 Dec 1951	Mims, Florida	2	0	NAACP state director Harry Moore and his wife killed in bombing of their house
1 Mar 1954	Washington, DC	0	5	Puerto Rican nationalists fire from gallery of U.S. House of Representatives; 5 Congressman injured
7 Nov 1954	New York City, New York	0	4	Bomb explodes in seat at Radio City Music Hall during a movie showing
2 Dec 1956	Brooklyn, New York	0	6	Bomb explodes at Paramount Theater
12 Oct 1958	Atlanta, Georgia	0	0	The oldest Jewish temple in the United Stated was damaged extensively by the dynamite-fueled explosion, although no one was injured. The bombing had ties to the anti-civil rights movement.
1 Nov 1958	Punta Tabaio, Cuba	17	3	Cubana Airlines flight hijacked from Miami by members of 26th of July Movement; plane crashed near Punta Tabaio, Cuba, killing 17 of 20 aboard
1 Oct 1960	New York City, New York	1	24	October through November 1960 - An unknown bomber planted and detonated several bombs on New York public transit system through October and November of 1960 on holidays, injuring dozens and killing 15-year-old Sandra Breland.
1 May 1961	Florida	0	0	Puerto Rican hijacks National Airlines plane to Havana, Cuba
22 May1962	Unionville, Missouri	44	0	Continental flight bombed
12 Jun 1963	Jackson, Mississippi	1	0	Medgar Evers, NAACP Mississippi field secretary, shot and killed at his home
15 Sep 1963	Birmingham, Alabama	4	23	Bomb exploded under the steps of the Sixteenth Street Baptist Church, killing 4 young girls (ages 11-14) attending Sunday school.
22 Nov 1963	Dallas, Texas	1	2	President John Kennedy shot and killed by Lee Harvey Oswald, himself later fatally shot by Jack Rudy before trial
22 Jun 1964	Philadelphia, Mississippi	3	0	Three civil rights workers kidnapped in Mississippi, bodies found 4 Aug, 7 whites convicted of murders
16 Feb 1965	New York City, New York	0	0	(Thwarted Terrorist Attack) three individuals, including members of Black Liberation Front and Montreal Separatist Party, arrested plotting to bomb Liberty Bell, Statue of Liberty, and Washington Monument.

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
21 Feb 1965	New York City, New York	1	0	Malcolm X fatally shot
25 Mar 1965	Selma, Alabama	1	0	Civil rights protestor killed by Ku Klux Klan
11-16 Aug 1965	Los Angeles, California	34	1000	Racial riots in Watts; $20 million in damage
10 Jan 1966	Hattiesburg, Mississippi	1	1	Firebombing by Ku Klux Klan
15 Mar 1966	Los Angeles, California	2	25	Racial riots in Watts
1 Aug 1966	Austin, Texas	19	31	Sniper shooting from tower on University of Texas campus
7 Jan 1967	Las Vegas, Nevada	6	12	R. Parks commits suicide in bombing of Las Vegas motel
29 Jan 1967	Washington, DC	0	2	Simultaneous bombing of Yugoslav missions in Washington, DC, Chicago, IL, San Francisco, CA, New York City, NY, Ottawa, Canada, and Toronto, Canada; the Washington bombing injured two embassy employees.
2 May 1967	Sacramento, California	0	0	(Thwarted Terrorist Attack) 26 Black Panthers walk into California State Legislature in Sacramento carrying loaded guns to read a political statement
12-17 Jul 1967	Newark, New Jersey	26	1500	Racial riots
23-30 Jul 1967	Detroit, Michigan	43	2000	Racial riots
4 Apr 1968	Memphis, Tennessee	1	0	Martin Luther King Jr. shot and killed by James Earl Ray
5 Jun 1968	Los Angeles, California	1	0	Robert Kennedy shot by Jordanian Sinhan Bishara Sirhan, died 6 Jun
1 Jun 1969	Sacramento, California	0	13	Gunfight at Black Panther Party headquarters, injures 13 policemen
7 Aug 1969	New York City, New York	0	20	Bombing of Marine Midland Building
6 Mar 1970	New York City, New York	3	0	Three killed, apparently while building bombs for Weathermen
17 Mar 1970	Boston, Massachusetts	1	1	Eastern Airlines flight hijacked; copilot shot and killed
24 Aug 1970	Madison, Wisconsin	1	0	Bombing at Sterling Hall kills scientist at University of Wisconsin; bomb planted in protest of Vietnam War
1 Nov 1970	Fort Detrick, Maryland	0	0	(Thwarted Terrorist Attack) US Army learns of Weathermen plot to blackmail homosexual officer at Fort Detrick, MD, to steal a biological weapon for use in the water supply of a major city.
21 Nov 1970	Portland Oregon	0	0	An explosion ripped through Portland, Oregon's City Hall building early in the morning of November 21, 1970, damaging the 75 year-old structure and destroying a replica of the Liberty Bell, but no one was injured.
1 Jan 1971	Washington, DC	0	0	A bomb exploded in front of the Soviet Cultural building in Washington, DC, damaging the structure but injuring no one. Shortly after the attack, an anonymous woman called news agencies, reportedly saying "This is a sample of things to come. Let our people go. Never again!" The Jewish Defense League, which had voiced increasing support for violent action against anti-Semitism, denied having taken part in the attack, but declared, "We do not condemn the act."
1 Mar 1971	Washington, DC	0	0	The Weather Underground, a radical faction of Students for a Democratic Society, exploded a bomb in the U.S. Capitol Building, causing $300,000 in damage but leaving occupants unharmed. The action was in response to the U.S.-supported invasion of Laos.

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
20 Oct 1971	New York City, New York	0	0	JDL members fire into apartment occupied by members of Soviet UN delegation
1 Jan 1972	Chicago, Illinois	0	0	(Thwarted Terrorist Attack) two teenagers, members of RISE, arrested for plotting to introduce typhoid bacteria into Chicago water supply
22 Jan 1972	Saint Louis, Missouri	2	0	Murder of two young police officers – one black, one white – who were gunned down by alleged black militants outside an East Village diner
26 Jan 1972	New York City, New York	2	13	Jewish Defense League firebombs two Sol Hurok offices; one killed at each location, with 13 total additional injuries
27 Jan 1972	New York City, New York	2	0	Black Liberation Army kills 2 police officers
7 Mar 1972	New York City, New York	0	0	(Thwarted Terrorist Attack) caller threatens to bomb four TWA airliners, one every 6 hours, unless a $2,000,000 ransom was paid; caller stated bomb was aboard TWA Flight 7 en route from New York City to Los Angeles; flight returned to New York City and the bomb defused
8 Mar 1972	Las Vegas, Nevada	0	0	Attack on TWA airliner; bomb exploded in emptied airliner in Las Vegas following its arrival from New York City
8 Apr 1972	Harris County, Texas	0	1	Intentional irradiation of child using radioactive sources. A man used radioactive sources to intentionally irradiate his 11-year-old son on multiple occasions.
15 May 1972	Laurel, Maryland	0	4	Alabama governor George Wallace and 3 others injured, shot by Arthur Bremer
7 Jan 1973	New Orleans, Louisiana	9	13	Shootings by former Black Panther member
4 Mar 1973	New York City, New York	0	0	Attempted bombings of three Israeli targets
1 Jul 1973	Chevy Chase, Maryland	1	0	Israeli military attache Colonel Yosef Alon shot outside his home, claimed by PFLP
6 Nov 1973	Oakland, California	1	0	SLA kills Marcus Foster, black school superintendent
22 Feb 1974	Baltimore, Maryland	3	1	Gunman attempts to hijack plane in Baltimore and fly it into White House to kill President Nixon; kills 2 at airport and himself, injures one.
17 May 1974	Los Angeles, California	6	0	6 SLA suspects in Hearst kidnapping killed in gun battle with police.
6 Aug 1974	Los Angeles, California	3	35	A Yugoslavian immigrant detonated a bomb in the LAX terminal of PAN-AM airlines, killing three and wounding dozens. He also firebombed the houses of a judge and two police commissioners as well as one of the commissioner's cars. He burned down two Marina Del Rey apartment buildings and threatened Los Angeles with a gas attack. His bomb defused at the Greyhound Bus station was the most powerful the LAPD bomb squad had handled up until that time. His personal vendetta against a judge and the commissioners grew into demands for an end to immigration and naturalization laws, as well as any laws about sex.
21 Aug 1974	Los Angeles, California	0	0	(Thwarted Terrorist Attack) Alphabet Bomber, having threatened to kill the President with nerve gas, arrested with all but one of necessary components
11 Dec 1974	East Harlem, New York	0	1	FALN bombing injures police officer
24 Jan 1975	New York City, New York	4	63	FALN bombing of Fraunces Tavern in Wall Street
29 Jan 1975	Washington, DC	0	0	Weather Underground bombing of U.S. State Department

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
5 Sep 1975	Sacramento, California	0	0	(Thwarted Terrorist Attack) Secret Service agent prevents Lynette Fromme, a Charles Manson follower, from shooting President Gerald Ford
22 Sep 1975	San Francisco, California	0	0	(Thwarted Terrorist Attack) President Gerald Ford unharmed in assassination attempt by Sara Jane Moore, a political activist
29 Dec 1975	New York City, New York	11	75	Bomb explodes in locker at La Guardia Airport; killing 11 and wounding 75 more.Croatian nationalists suspected
1 Jun 1976	?	0	0	(Thwarted Terrorist Attack) B. A. Fox threatens to use mail to disperse ticks carrying pathogens
27 Jul 1976	Washington, DC	1	0	(Thwarted Terrorist Attack) gunman scales White House fence, is shot and killed by guards
10 Sep 1976	New York City, New York	1	3	Croatian terrorists hijack TWA jet and have it flown to France; 1 policeman killed by bomb at Grand Central Terminal in New York City
21 Sep 1976	Washington, DC	2	0	Two Chileans killed in car bombing a leading opponent of Chilean dictator Gen. Augusto Pinochet. Letelier, who was living in exile in the United States, was killed along with his American assistant, Ronni Karpen Moffitt. The assassination was perpetrated by agents of the Chilean secret police (the DINA), and was one among many carried out as part of Operation Condor.
9 Mar 1977	Washington, DC	0	0	Hanafi Muslim gunmen seize 3 buildings in Washington, DC, and hold 134 hostages for 39 hours before surrendering
22 Mar 1977	Denver, Colorado	1	0	Bombing attributed to Chicano activist
23 Apr 1977	Washington, DC	1	0	Bomb explodes in locker at airport a custodian was killed at National Airport in Washington, DC, when a bomb exploded in an employees' locker room.
3 Aug 1977	New York City, New York	1	7	FALN bombs two office buildings; 1 killed at Mobil headquarters, 7injured Bombs planted at six locations. Another explosion occurred at the Defense Department Office at 43rd street and Madison Avenue. These bombings bring the number of bombings connected to the group to 50 over the last three years.
25 May 1978	Evanston, Illinois	0	1	mail bomb slightly injures campus police officer at Northwestern University
1 Jan 1979	Wilmington, North Carolina	0	0	(Thwarted Terrorist Attack) extortion attempt threatening release of uranium dioxide
3 May 1979	Chicago, Illinois	0	5	FALN bombing at Shubert Theatre
9 May 1979	Evanston, Illinois	0	1	bomb slightly injures student at Northwestern University
3 Nov 1979	Greensboro, North Carolina	5	11	shooting attack at protest
15 Nov 1979	Chicago, Illinois	0	12	bomb ignites on American Airlines flight which lands safely; 12 passengers suffer from smoke inhalation
1 Dec 1979	Sabana Seca, Puerto Rico	2	10	Macheteros members ambush Navy bus in Puerto Rico, killing 2 sailors and injuring 10
29 May 1980	Fort Wayne, Indiana	0	1	Vernon Jordan Jr., civil rights leader, shot and injured.

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
03 Jun 1980	New York City, New York	0	0	A bomb detonated in the Statue of Liberty Story Room after hours, destroying exhibits and causing thousands of dollars' worth of damage, but no deaths. The FBI believed that Croatian separatists were behind the attack.
10 Jun 1980	Chicago, Illinois	0	1	Mail bomb injures president of United Airlines
22 Jul 1980	Bethesda, Maryland	1	0	Ali Akbar Tabataba'i, former senior officer in Iranian Shah's SAVAK, shot at home by Daoud Salahuddin, a radical black Muslim under instructions from Iran.
12 Jan 1981	Muniz ANGB, Puerto Rico	0	0	Macheteros terrorists bomb 9 Air National Guard jets, causing $40 million in damage
20 Mar 1981	Mobile, Alabama	1	0	Ku Klux Klan attack
30 Mar 1981	Washington, DC	0	4	President Ronald Reagan and 3 others injured in attempted assassination by Hinkley
16 May 1981	New York City, New York	1	0	bomb explodes in JFK airport terminal
29 Jul 1981	Tulsa, Oklahoma	1	0	fatal self-inflicted radiation dose using stolen source
20 Oct 1981	New York City, New York	3	0	Weather Underground member Kathy Boudin captured after killing 3
21 Dec 1981	Warren County, New Jersey	1	0	UFF members murder New Jersey State Police officer
28 Jan 1982	Los Angeles, California	1	0	Kemal Arikan, Turkish Consul-General, assassinated by Armenian terrorists
4 May 1982	Somerville, Massachusetts	1	0	Orhan Gunduz, honorary Turkish Consul in Boston, assassinated by Armenian terrorists
5 May 1982	Nashville, Tennessee	0	1	mail bomb injures secretary at Vanderbilt University
16 May 1982	San Juan, Puerto Rico	1	3	shooting attack on navy sailors
2 Jul 1982	Berkeley, California	0	1	mail bomb injures professor at University of California
25 Sep 1982	Wilkes-Barre, Pennsylvania	13	0	shooting attack
31 Dec 1982	New York City, New York	0	3	two bombings in Manhattan and Brooklyn by FALN
15 Jul 1983	Los Angeles, California	1	0	bomb in car kills Armenian Victor Galustian
1 Aug 1983	Detroit, Michigan	3	0	Ahmadiyya Movement in Islam secretary killed by members of Fuqra, a black Islamic sect; 2 members killed setting fire in AMI temple
7 Nov 1983	Washington, DC	0	0	Members of the "Armed Resistance Unit" detonated a bomb in the U.S. Senate building around 11 p.m. in response to U.S. military involvement in Lebanon and Grenada. No one was harmed in the bombing. The explosion occurred three weeks after a tourist walked into the House gallery with a homemade bomb under his shirt. The police arrested the man, Israel Rubinovitch, a 22-year-old Israeli who threatened to blow up the Capitol when officers approached. The Capitol police said the bomb failed to detonate only because it was not properly wired.
1 Dec 1983	Seattle, Washington	0	0	(Thwarted Terrorist Attack) authorities prevent attempt by pro-Khomeini students to set fire to theater where 500 anti-Khomeini Iranians were attending a singing performance
31 Dec 1983	New York City, New York	0	1	FALN bombings at federal and city buildings; 1 policeman injured

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
1 Apr 1984	New York	0	0	(Thwarted Terrorist Attack) two Canadians arrested in NY attempting to purchase large amounts of pathogenic bacteria (tetanus and botulinal toxin) from a Rockville, MD, firm
18 Jul 1984	San Ysidro, California	22	19	shooting attack at McDonalds restaurant
18 Jul 1984	Denver, Colorado	1	0	Alan Berg killed by white supremacists
29 Aug 1984	The Dalles, Oregon	0	2	followers of Bhagwan Shree Rajneesh use water to infect two officials with salmonella; both sickened, one hospitalized
9-19 Sep 1984	The Dalles, Oregon	0	751	salmonella poisoning in restaurants by followers of Bhadwan Shree Rajneesh
7 Dec 1984	Whidbey Island, Washington	1	0	Robert Matthews, leader of The Order, a right-wing group, killed in raid by federal agents
25 Dec 1984	Pensacola, Florida	0	0	three abortion clinics bombed
1 Apr 1985	New York City, New York	0	0	(Thwarted Terrorist Attack) letter writer threatens to contaminate New York City's water reservoirs with plutonium unless charges against Bernhard Goetz are dropped; testing was announced to have detected femtocurie levels of plutonium in the water on 26 July.
13 May 1985	Philadelphia, Pennsylvania	11	0	police assault on headquarters of radical black group Move starts fire
15 May 1985	Berkeley, California	0	1	Mail bomb injures student at University of California
15 Aug 1985	Paterson, New Jersey	0	1	Tscherim Soobzokov, alleged Nazi war criminal, injured by bombing possibly linked to JDL; died 6 Sep
11 Oct 1985	Santa Ana, California	1	0	Alex Odah, officer of American-Arab Anti-Discrimination Committee, killed by bombing possibly linked to JDL. In February 1986, the FBI classified the bombing that killed Alex Odeh as a terrorist act.
15 Nov 1985	Ann Arbor, Michigan	0	2	Bombing injures two
11 Dec 1985	Sacramento, California	1	0	Unabomber bomb kills Hugh Scrutton, a computer store owner, with bomb in paper bag behind store
16 May 1986	Cokeville, Wyoming	2	79	two Aryan Nation members take 150 students and teachers hostage at an elementary school; bomb accidentally explodes, killing one terrorist and injuring many children; second terrorist commits suicide
5 Aug 1986	Chicago, Illinois	0	0	(Thwarted Terrorist Attack) members of Libyan-linked street gang El Rukn arrested attempting to obtain SAM to attack an aircraft at O'Hare IAP
20 Aug 1986	Edmond, Oklahoma	15	6	shooting attack by postal employee at post office
5 Sep 1986	New York City, New York	0	30	tear gas bomb set off 5 minutes before end of Russian dance troupe performance at New York City's Metropolitan Opera House by Jewish extremists
29 Sep 1986	Coeur d'Alene, Idaho	0	0	four bombs explode in Coeur d'Alene, at department store, restaurant, federal building, and armed forces recruiting station, set by Bruder Scheigen Strike Force II

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
28 Oct 1986	Fort Buchanan, Puerto Rico	0	1	Macheteros bombings at military facilities
1 Dec 1986	Arizona	0	0	(Thwarted Terrorist Attack) 6 members of Arizona Patriots indicted for planned bombings of the Phoenix ADL regional office, a Phoenix synagogue, the Simon Wiesenthal Center in Los Angeles, and the Ogden Utah IRS facility
14 Dec 1986	New York City, New York	0	0	(Thwarted Terrorist Attack) Dennis Malvasi sets bomb in Planned Parenthood building in Manhattan, leaving rental agent handcuffed nearby; bomb fizzles
31 Dec 1986	San Juan, Puerto Rico	97	140	three employees set fire in Dupont Plaza Hotel; most fatalities were in the hotel casino; the employees were in a labor dispute with the hotel's management
20 Feb 1987	Salt Lake City, Utah	0	1	bombing injures computer store owner
1 Apr 1987	Atlantic City, New Jersey	0	0	(Thwarted Terrorist Attack) apparent Islamic terrorist plot to bomb Atlantic City casinos called off due to alerted authorities
23 Oct 1987	Vermont	0	0	(Thwarted Terrorist Attack) Lebanese national and two others, all members of Syrian Socialist National Party, arrested attempting to enter Vermont from Canada with bomb components
29 Nov 1987	Livermore, California	0	0	(Thwarted Terrorist Attack) bomb exploded in parking lot of Sandia National Laboratories
12 Apr 1988	New Jersey	0	0	(Thwarted Terrorist Attack) Yu Kikumura, member of Japanese Red Army, arrested in New Jersey with bombs to be detonated in Manhattan 3 days later
10 Nov 1988	Norwalk, Connecticut	0	0	Animal rights activist arrested leaving pipe bomb at U.S. Surgical Corporation
10 Mar 1989	San Diego, California	0	0	Pipe-bomb exploded in van of Sharon Lee Rogers, wife of U.S.S. Vincennes captain, planted by pro-Iranian terrorists
1 Mar 1989	Bronx New York City	0	0	The paper was bombed one week after the newspaper published a critical editorial that chastised major bookstore chains for removing from their shelves copies of ''The Satanic Verses,'' the novel by Salman Rushdie that has so offended the Ayatollah Ruhollah Khomeini's to call for his death and anyone responsible for publishing the book.
13 Mar 1989	Philadelphia, Pennsylvania	0	0	(Thwarted Terrorist Attack) US FDA inspectors in Philadelphia discover two grapes laced with minimal amounts of cyanide in shipment from Chile following warning telephoned to U.S. embassy in Santiago
18 Apr 1989	Indianapolis, Indiana	0	1	child maimed by bomb in toothpaste tube in K-Mart store; apparent teenage perpetrator commits suicide 20 April
19 Apr 1989	Atlantic Ocean, Puerto Rico	47	0	explosion in gun turret of battleship U.S.S. Iowa off Puerto Rico kills 47; Navy cites some evidence of sabotage
21 Aug 1989	Atlanta, Georgia	0	15	gas canister in parcel explodes at NAACP regional office
17 Dec 1989	Mountain Brook, Alabama	1	1	Judge Robert Vance killed by mail bomb, wife injured
18 Dec 1989	Savannah, Georgia	1	0	black civil rights lawyer Robert Robinson killed by mail bomb

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
31 Jan 1990	Tucson, Arizona	1	0	Rashad Khalifa assassinated
25 Mar 1990	New York City, New York	87	0	arson fire in social club
24 May 1990	Oakland, California	0	2	two Earth First members injured in explosion while transporting bomb in car
18 Jun 1990	Jacksonville, Florida	10	4	shooting attack at GMAC office
5 Nov 1990	New York City, New York	1	1	Rabbi Meir Kahane assassinated by Al-Sayyid Abdulazziz Nossair
25 Feb 1991	Brooklyn, New York	1	0	Mustafa Shalabi killed in Brooklyn by Islamic group members
16 Oct 1991	Killeen, Texas	24	20	shooting attack at Luby's restaurant
1 Mar 1992	Minnesota	0	0	(Thwarted Terrorist Attack) Minnesota Patriots Council plots to assassinate law enforcement officials using ricin
26 Mar 1992	Franklin Lakes, New Jersey	1	0	Parivash Rafizadeh, wife of former senior officer in Iranian Shah's SAVAK, shot near her home
19 Apr 1992	Ruby Ridge, Idaho	2	0	federal marshals in shootout with white supremacist Randy Weaver in Idaho kill his wife and son
27 Apr-2 May 1992	Los Angeles, California	58	4000	black riots following not guilty verdict in trial of four policemen for beating black offender
1 May 1992	Olivehurt, California	4	10	Shooting attack at high school
25 Jan 1993	Langley, Virginia	2	3	Mir Amail Kansi, an Afghan Islamist, shot several CIA employees in cars in front of CIA headquarters
26 Feb 1993	New York City, New York	6	1040	A truck bomb driven by a member of Al-Qaeda exploded in the basement of the North Tower of the World Trade Center, shattering six underground floors, injuring more than one thousand, and killing six.
28 Feb 1993	Waco, Texas	86	25	Branch Davidian cult members kill 4 ATF agents, injure 16, when agents raided their compound in Waco, TX; 10 cult members killed; compound was sieged until 19 Apr when another raid was attempted and the compound burned down
10 Mar 1993	Pensacola, Florida	1	0	abortionist David Gunn shot and killed by abortion opponent
22 Jun 1993	Tiburon, California	0	1	bomb injures scientist from University of California
24 Jun 1993	New Haven, Connecticut	0	1	bomb injures professor at Yale University
24 Jun 1993	New York City, New York	0	0	(Thwarted Terrorist Attack) Sheikh Omar Abdel Rahman and others arrested for role in World Trade Center bombing, thwarting plans to bomb United Nation Headquarters, the Lincoln Tunnel, the Holland Tunnel, the George Washington Bridge, and FBI offices in New York City
1 Jul 1993	Los Angeles, California	0	0	(Thwarted Terrorist Attack) FBI arrests skinheads planning to machine gun worshippers at First African Methodist Episcopal Church in Los Angeles in hopes of starting a race war
19 Aug 1993	Wichita, Kansas	0	1	abortionist George Tiller shot and injured at an abortion clinic
14 Dec 1993	Garden City, New York	6	19	Colin Ferguson shot and killed 6, injured 17 on Long Island train, professing hatred of whites
1 Mar 1994	New York City, New York	1	3	gunman fires at van of Orthodox Jewish students at the Brooklyn Bridge
26 Apr 1994	Colorado Springs, CO	1	1	mail bomb kills man and injures his wife.

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
20 Jun 1994	Fairchild AFB, Washington	4	22	shooting attack at base hospital
29 Jul 1994	Pensacola, Florida	2	1	abortion opponent shot and killed abortionist and his bodyguard and injured abortionist's wife
12 Sep 1994	Washington, DC	1	0	Frank Corder flew Cessna from MD into White House, striking tree near President's bedroom, killing himself and causing damage to White House
29 Oct 1994	Washington, DC	0	0	(Thwarted Terrorist Attack) lone gunman with semi-automatic weapon fires shots at White House from sidewalk in front on Pennsylvania Avenue
10 Dec 1994	North Caldwell, New Jersey	1	0	Unabomber mail bomb kills New York advertising executive Thomas Mosser
30 Dec 1994	Brookline, Massachusetts	2	5	gunman kills 2 abortion clinic workers in MA, then drives to Norfolk, VA, and fires on clinic before arrest
19 Apr 1995	Oklahoma City, Oklahoma	169	680	A truck bomb placed in front of the Alfred P. Murrah Federal Building in Oklahoma City was detonated by Timothy McVeigh and Terry Nichols. The blast destroyed or damaged 324 buildings within a 16-block radius, destroyed or burned 86 cars, and shattered glass in 258 nearby buildings causing at least an estimated $652 million worth of damage.[cdvi] The attack killed 168 people, including 19 children under the age of six, and injured another 680.
24 Apr 1995	Sacramento, California	1	0	Unabomber mail bomb kills Gilbert Murray, president of California Forestry Assn., at office Theodore John "Ted" Kaczynski, also known as the "Unabomber", is an American mathematician and serial murderer. He is known for his wide-ranging social critiques, which opposed industrialization and modern technology while advancing a nature-centered form of anarchism. Between 1978 and 1995, Kaczynski engaged in a nationwide bombing campaign by sending 16 bombs against people involved with modern technology, planting or mailing numerous homemade bombs, ultimately killing a total of three people and injuring 23 others. Kaczynski sent a letter to The New York Times on April 24, 1995 and promised "to desist from terrorism" if the Times or the Washington Post published his manifesto, Industrial Society and Its Future (also called the "Unabomber Manifesto"), in which he argued that his bombings were extreme but necessary to attract attention to the erosion of human freedom necessitated by modern technologies requiring large-scale organization.
1 May 1995	Washington, DC	0	2	(Thwarted Terrorist Attack) man with unloaded gun scales White House fence; jumper and Secret Service agent shot and injured by another guard.
12 Sep 1995	Essex, Maryland	5	0	car bombing at shopping mall, apparent murder plot
10 Oct 1995	Hyder, Arizona	1	100	Amtrak train derailed near Hyder, AZ, by sabotage to tracks with nearby note claiming responsibility by Sons of Gestapo, later attributed to railroad employee
23 Dec 1995	Arkansas	1	0	(Thwarted Terrorist Attack) Thomas Lewis Lavy arrested in Arkansas for possession of ricin, a biotoxin; Lavy commits suicide the next day

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
27 Feb 1996	Houston, Texas	0	1	radioactive source theft
1 Jun 1996	New York	0	0	(Thwarted Terrorist Attack) several individuals arrested in plot to kill Republican officials; seized weapons included radioactive materials
1 Jun 1996	New York	0	0	(Thwarted Terrorist Attack) several individuals arrested in New York planning to kill Republican officials; seized weapons included radioactive materials
17 Jul 1996	East Moriches, New York	230	0	mid-air explosion of TWA 800, attribution to accidental explosion has been disputed; victims included 20 children and 38 French citizens
27 Jul 1996	Atlanta, Georgia	2	111	Pipe bomb explodes in park at night concert at Summer Olympic Games; 1 killed, 1 died nearby of heart attack and injuring 111. Eric Rudolph planted a duffel bag containing three pipe bombs, Rubbermaid containers full of nails, and a steel plate to direct the explosion under a bench in the Centennial Olympic Park. The blast, meant to protest the global socialist Olympic movement,.
2 Jan 1997	multiple	0	0	letter bombs received at Egyptian newspaper offices in Washington, DC, New York City, and a prison in Leavenworth Kansas; similar device exploded at Egyptian newspaper office in London, UK, injuring 2 guards
22 Feb 1997	Atlanta, Georgia	0	4	bomb explodes in Atlanta, GA, nightclub frequented by homosexuals; 4 injured
24 Feb 1997	New York City, New York	2	6	lone Palestinian gunman fired on tourists on observation deck of Empire State Building; Danish national was killed and other tourists injured before gunman killed himself
16 May 1997	Clark County, Washington	0	0	(Thwarted Terrorist Attack) James Dalton Bell allegedly investigates toxins for use in assassinating government officials
31 Jul 1997	New York City, New York	0	2	(Thwarted Terrorist Attack) would-be Palestinian suicide bombers are arrested at their apartment while planning to bomb New York subways
29 Jan 1998	Birmingham, Alabama	1	1	bombing at abortion clinic kills one guard and injures a nurse; Eric Rudolph suspected in case
24 Mar 1998	Jonesboro, Arkansas	5	11	shooting attack at middle school by two students; 4 students and 1 teacher killed, 9 students and 2 adults injured
21 May 1998	Springfield, Oregon	4	25	shooting attacks at residence and high school
24 Jul 1998	Washington, DC	2	2	gunman enters U.S. Capitol building and kills two guards; one tourist and gunman are injured
19 Oct 1998	Vail, Colorado	0	0	arson attacks by the Earth Liberation Front at Vail ski resort cause $12 million in damages
23 Oct 1998	Amherst, New York	1	0	abortionist shot and killed at his home
20 Apr 1999	Littleton, Colorado	15	27	mass shooting at Columbine High School by two students; 12 students and 1 teacher killed, 21 students and 2 teachers killed; both gunmen killed themselves
10 Aug 1999	Los Angeles, California	1	5	shooting attack at Jewish daycare by white supremacist
15 Sep 1999	Fort Worth, Texas	8	8	shooting attack at church service
31 Oct 1999	Atlantic Ocean, MA	217	0	intentional crash of Egypt Air flight off Nantucket Island by copilot
14 Dec 1999	Port Angeles, Washington	0	0	(Thwarted Terrorist Attack) terrorist arrested crossing from Canada with material to bomb Los Angeles International Airport

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
7 Feb 2001	Washington, DC	0	1	(Thwarted Terrorist Attack) gunman fires on the White House from outside the perimeter fence; gunman is shot and injured by a guard
11 Sep 2001	New York City, New York	2759	8700	Al-Qaeda's Crashing of two hijacked planes into World Trade Center towers, causing fires and collapse
11 Sep 2001	Alexandria, Virginia	189	200	Al-Qaeda's Crashing of hijacked plane into Pentagon
11 Sep 2001	Somerset County, Pennsylvania	45	0	Al-Qaeda's Crashing of hijacked plane into rural area of Pennsylvania, following attempt by passengers to regain control of aircraft
18 Sep 2001	West Palm Beach, Florida	1	10	anthrax-laced letters mailed to West Palm Beach, Florida, USA, and New York City, New York, USA
9 Oct 2001	Washington, DC	4	7	anthrax-laced letters mailed to Washington, DC
22 Dec 2001	Atlantic Ocean, Florida	0	1	(Thwarted Terrorist Attack) British citizen prevented from igniting shoe bomb on flight from Paris to Miami
3 May 2002	NE, CO, TX, IL, IA	0	6	Pipe bombs accompanied by threatening anti-government notes exploded in or near rural mailboxes in Nebraska, Colorado, Texas, Illinois and Iowa. A University of Wisconsin student Lucas John Holder admitted to planting the bombs in an attempt to draw a "smiley face" across the Midwest by way of exploding homemade pipe bombs in mailboxes. He injured six people and in 2004 was sentenced to a federal prison for inmates requiring mental care in Minnesota.
8 May 2002	Chicago, Illinois	0	0	(Thwarted Terrorist Attack) US citizen arrested for seeking to use dirty bomb in US
4 Jul 2002	Los Angeles, California	2	4	Egyptian gunman kills two Israelis, injures four at the El Al ticket counter at the Los Angeles International Airport
5 Sep 2002	Clinton, Maryland	0	1	owner of Italian restaurant shot in robbery by Beltway snipers - October 2nd through October 24th 2002 A series of coordinated shootings that took place over three weeks in October 2002 in Maryland, Virginia, and Washington, D.C. when ten people were killed and three other victims were critically injured in several locations throughout the Washington, D.C. metropolitan area and along Interstate 95 in Virginia. The rampage was perpetrated by John Allen Muhammad and Lee Boyd Malvo, Their crime spree began in February 2002 with murders and robberies in Alabama, Arizona, Florida, Georgia, Louisiana, Texas, and Washington State, which resulted in seven deaths and seven injuries, bringing the total victim count to 17 deaths and 10 injuries. After they were caught a series of trial exhibits suggested Malvo and Muhammad were motivated by an affinity for Islamist Jihad.[cdvii]
10 Sep 2002	Lackawanna, New York	0	0	(Thwarted Terrorist Attack) 6 U.S. citizens arrested for terrorist connections
21 Sep 2002	Montgomery, Alabama	1	1	liquor store employees shot in robbery by Beltway snipers
2 Oct 2002	Glenmont, Maryland	1	0	1 killed at grocery store by Beltway snipers
3 Oct 2002	Aspen Hill, Maryland	5	0	5 killed in separate shootings by Beltway snipers
4 Oct 2002	Spotsylvania County, Virginia	1	0	1 killed at shopping mall by Beltway snipers

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
7 Oct 2002	Bowie, Maryland	0	1	1 child injured at a middle school by Beltway snipers
9 Oct 2002	Manassas, Virginia	1	0	1 killed at gas station by Beltway snipers
11 Oct 2002	Fredericksburg, Virginia	1	0	1 killed at gas station by Beltway snipers
14 Oct 2002	Falls Church, Virginia	1	0	1 killed at shopping mall by Beltway snipers
19 Oct 2002	Ashland, Virginia	1	0	1 killed at restaurant by Beltway snipers
22 Oct 2002	Aspen Hill, Maryland	1	0	1 bus driver killed by Beltway snipers
19 Mar 2003	New York City, New York	0	0	(Thwarted Terrorist Attack) US citizen arrested for planning to sabotage Brooklyn Bridge
1 Jun 2003	Alexandria, Virginia	0	0	(Thwarted Terrorist Attack) 11 arrested for planning attacks on U.S. servicemen
8 Jul 2003	Meridian, Mississippi	7	8	shooting attack at factory
28 Nov 2003	Columbus, Ohio	0	0	(Thwarted Terrorist Attack) arrest of terrorist plotting to bomb shopping mall in Columbus
1 Aug 2004	Albany, New York	0	0	(Thwarted Terrorist Attack) 2 arrested plotting assassination of Pakistani diplomat
1 Aug 2004	New York City, New York	0	0	(Thwarted Terrorist Attack) 2 arrested planning to bomb Penn Station during Republican National Convention
3 Aug 2004	New York City, New York	0	0	(Thwarted Terrorist Attack) terror cell leader arrested in London for planning attacks on financial centers in the US
21 Mar 2005	Red Lake, Minnesota	10	7	shooting at Red Lake Indian Reservation school
1 Aug 2005	Los Angeles, California	0	0	(Thwarted Terrorist Attack) 4 arrested plotting attacks on Los Angeles targets
29 Nov 2005	Santa Cruz, California	0	4	4 injured, including several children, by incendiary attacks by suspected animal rights activists
5 Dec 2005	Wilkes-Barre, Pennsylvania	0	0	(Thwarted Terrorist Attack) 1 arrested plotting attacks on refineries in Wyoming and New Jersey and on the transcontinental pipeline
Feb 2006	Toledo, Ohio	0	0	(Thwarted Terrorist Attack) 3 arrested plotting attacks on U.S. military abroad and on domestic targets
5 Mar 2006	Chapel Hill, North Carolina	0	9	man drives vehicle into pedestrians at the University of North Carolina
Apr 2006	Atlanta, Georgia	0	0	(Thwarted Terrorist Attack) 2 arrested plotting attacks on U.S. Capitol and World Bank headquarters
22 Jun 2006	Chicago, Illinois	0	0	(Thwarted Terrorist Attack) 7 arrested planning to bomb the Sears Tower
1 Jul 2006	New York City, New York	0	0	(Thwarted Terrorist Attack) 1 arrested planning to bomb train tunnels
28 Jul 2006	Seattle, Washington	1	5	gunman fires on women at the Jewish Federation of Greater Seattle
9 Aug 2006	?	0	0	(Thwarted Terrorist Attack) British authorities arrest 24 terrorists planning to use liquid explosives on airlines to attack US targets
27 Sep 2006	Bailey, Colorado	2	5	hostage taking and shooting attack at high school
2 Oct 2006	Nickel Mines, PA	6	5	hostage taking and shooting attack at Amish schoolhouse
Dec 2006	Chicago, Illinois	0	0	(Thwarted Terrorist Attack) 1 arrested plotting grenade attack on Chicago area shopping mall
16 Apr 2007	Blacksburg, Virginia	33	17	shooting attack at Virginia Polytechnic Institute

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
9 May 2007	Cherry Hill, New Jersey	0	0	(Thwarted Terrorist Attack) 6 arrested plotting armed attack on Fort Dix
3 Jun 2007	New York City, New York	0	0	(Thwarted Terrorist Attack) 4 arrested in Trinidad plotting to bomb fuel pipelines near JFK airport
1 Aug 2007	Clinton, Michigan	0	1	radioactive source theft
24 Feb 2008	Los Angeles, California	0	1	animal rights activists attempt home invasion of biomedical researcher, injuring the researcher's husband.
6 Mar 2008	New York City, New York	0	0	Early in the morning a bomb exploded in New York's Times Square at the Armed Forces Recruiting Station. The explosive device was built using an ammunition can commonly found on the battlefields in Iraq and Afghanistan. It was filled halfway with black powder and detonated using a time fuse. Although no one was wounded, the device could have caused significant casualties if people had been close to the blast. Although several persons of interest were identified not one has been convicted of the bombing. The FBI is considering the bombing may be connected to two other unsolved bombings in New York City—one at the British Consulate in 2005 and the other at the Mexican Consulate in 2007. On April 15th 2015 the Federal Bureau of Investigation and the New York City Police Department announced a reward of up to $115,000 for information leading to the identification, arrest, and conviction of the person or persons involved in this unsolved bombing.
04 May 2008	San Diego, California	0	0	Two pounds of explosive powder was placed near the doors of the courthouse at 1:40 a.m. The explosion blew out the doors and sent shrapnel and nails flying in all directions. No one was hurt. Donny Love Sr. was convicted of the bombing which was orchestrated in hopes of obtaining reward money by providing information leading to the arrest of the three others, including a former girlfriend.
Jun 2008	Columbus, Ohio	0	0	(Thwarted Terrorist Attack) 1 arrested plotting attacks on U.S. and European targets
27 Jul 2008	Knoxville, Tennessee	2	7	gunman fires on congregation at a church
10 Mar 2009	Alabama	11	6	multiple shootings at residences and businesses in Samson and Geneva, AL
3 Apr 2009	Binghamton, New York	14	4	shooting attack at immigrant center
20 May 2009	New York City, New York	0	0	(Thwarted Terrorist Attack) 4 arrested plotting bombing attacks on New York Jewish centers and attacks against Air National Guard aircraft.
25 May 2009	Manhattan, New York City	0	0	When a homemade bomb constructed from fireworks explosives, a plastic bottle and electrical tape was set off outside a Starbucks coffee shop on the Upper East Side, the police initially thought the explosion might be linked to three others with similar profiles. But after the arrest of Kyle Shaw, a Chelsea teenager in the Starbucks attack, the police said there was no connection between that attack and the three others. Instead, the Starbucks bomber had his own agenda, the police said: to emulate the assaults on corporate America planned by a character in the movie "Fight Club."
31 May 2009	Wichita, Kansas	1	0	1 doctor killed (George Tiller) in shooting attack at Reformation Lutheran Church

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
1 Jun 2009	Little Rock, Arkansas	1	1	1 Army private killed (William Long), second injured in shooting attack at Army Navy Career Center
10 Jun 2009	Washington, DC	1	1	1 guard killed (Stephen Johns) in shooting attack at the Holocaust Museum
11 Sep 2009	Owosso, Michigan	2	0	abortion protester shot and killed outside a school; the gunman also killed an area businessman
23 Sep 2009	Springfield, Illinois	0	0	(Thwarted Terrorist Attack) US citizen arrested plotting to detonate car bomb at the federal building in Springfield, IL
24 Sep 2009	Dallas, Texas	0	0	(Thwarted Terrorist Attack) terrorist arrested planning to bomb Dallas Fountain Place
21 Oct 2009	Sudbury, Massachusetts	0	0	(Thwarted Terrorist Attack) 1 arrested plotting attacks on shopping malls and assassinations of two politicians
5 Nov 2009	Foot Hood, Texas	13	44	shooting attack at Soldier Readiness Center at Foot Hood
25 Dec 2009	Michigan	0	3	Yemeni terrorist attempts to detonate bomb on flight from Amsterdam to Detroit; bomb only ignites, and passengers and crew subdue the terrorist
18 Feb 2010	Austin, Texas	2	13	Suicide crash of small plane into federal office building
4 Mar 2010	Alexandria, Virginia	1	2	shooting at gate outside Pentagon; gunman killed
1 May 2010	New York City, New York	0	0	(Thwarted Terrorist Attack) A planned terrorist attack was foiled when two street vendors discovered a car bomb and alerted a New York City Police Department (NYPD) patrolman to the threat after they spotted smoke coming from a vehicle. The bomb had been ignited, but failed to explode, and was disarmed before it caused any casualties. Faisal Shahzad, a 30-year-old Pakistan-born resident of Bridgeport, Connecticut, who had become a U.S. citizen in April 2009 admitted attempting the car bombing and said that he had trained at a Pakistani terrorist training camp, according to U.S. officials.
20 May 2010	West Memphis, Arkansas	2	0	Two police officers in West Memphis, Arkansas were shot and killed during a traffic stop by Jerry R. Kane, Jr., and his son Joseph T. Kane. The two were later identified as members of the Sovereign citizen movement. Kane and his son, by all accounts, didn't trust the U.S. Government. They didn't respect it, didn't think the laws that apply to the citizens in this country applied to them. They had particular beliefs and habits, like thinking they didn't need driver's licenses etc.
Jul 2010	Anchorage, Alaska	0	0	(Thwarted Terrorist Attack) 2 people arrested plotting mail bomb assassinations
1 Sep 2010	Silver Spring, Maryland	1	0	(Thwarted Terrorist Attack) 3 hostages held by gunman at Discovery Communications headquarters; gunman killed by police
17 Sep 2010	Washington, DC	0	1	(Thwarted Terrorist Attack) attempted shooting at Capitol Hill; gunman shot and injured by guards
Oct 2010	Washington, DC	0	0	(Thwarted Terrorist Attack) Pakistani-American arrested plotting bombing attack on Washington subway
29 Oct 2010	?	0	0	(Thwarted Terrorist Attack) thwarted attempt to bomb multiple US-bound airliners with parcel bombs sent from Yemen
Nov 2010	Portland, Oregon	0	0	(Thwarted Terrorist Attack) 1 arrested plotting bombing at Christmas tree lighting ceremony in Portland

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
Dec 2010	Maryland	0	0	(Thwarted Terrorist Attack) 1 arrested plotting bombing of military recruiting center
8 Jan 2011	Tucson, Arizona	6	13	shooting attack at political event at a supermarket; U.S. District Judge John Roll killed, U.S. Representative Gabrielle Giffords injured
Feb 2011	Lubbock, Texas	0	0	(Thwarted Terrorist Attack) 1 arrested plotting bombings of domestic targets
May 2011	New York City, New York	0	0	(Thwarted Terrorist Attack) 2 arrested plotting attacks on a Manhattan synagogue
Jun 2011	Seattle, Washington	0	0	(Thwarted Terrorist Attack) 2 arrested plotting attack on Seattle military recruiting station
27 Jul 2011	Killeen, Texas	0	0	(Thwarted Terrorist Attack) thwarted attempt to attack restaurant near Fort Hood with bombing and shooting attack; Naser Abdo arrested
6 Sep 2011	Carson City, Nevada	5	7	shooting attack at restaurant, killing 4 (2 died immediately, 2 died later of injuries) and injuring 7 others; casualties included 3 Nevada National Guard soldiers killed and 2 injured; gunman also died of self-inflicted wounds
11 Oct 2011	Washington D.C	0	0	(Thwarted Terrorist Attack) Manssor Arbabsiar, an Iranian-born U.S. citizen, was arrested for plotting to assassinate the Saudi Arabian ambassador to the U.S., as well as bomb the Saudi and Israeli embassies in Washington, D.C. He claims he was working for the Iranian Quds Forces, a special unit of the Iranian Revolutionary Guard. This is the first publicly known post-9/11 Islamist-inspired terror plot aimed at the United States specifically linked to state-sponsored terrorism. In October 2012, Arbabsiar pleaded guilty to one count of murder-for-hire, one count of conspiracy to commit murder-for-hire, and one count of conspiracy to commit an act of terrorism transcending national boundaries.
11 Nov 2011	Washington D.C.	0	0	Oscar Ortega-Hernandez fired shots into the White House, at least seven of which entered the Obamas' living quarters. Hernandez managed to escape all the way to Indiana, Pennsylvania before being arrested. The attack was motivated by Ortega-Hernandez's hatred for the President and the desire to start a revolution against the federal government. He also made two short videos in which he praised Osama bin Laden for having the courage to stand up to the United States, and called for a revolution against the federal government. He described himself as a "cold-hearted warrior of God" and declared, "It's time for Armageddon."
20 Nov 2011	New York City, New York	0	0	(Thwarted Terrorist Attack) A Muslim convert Jose Pimentel was arrested for allegedly making bombs in New York City. He was inspired by radical cleric Anwar Awlaki and was allegedly plotting to use the bombs to assassinate law enforcement personnel and U.S. servicemen and women returning from active duty in Iraq and Afghanistan." Officials say Pimentel is apparently a "lone wolf" with no known connection to any foreign terrorists or local radicalized individuals.

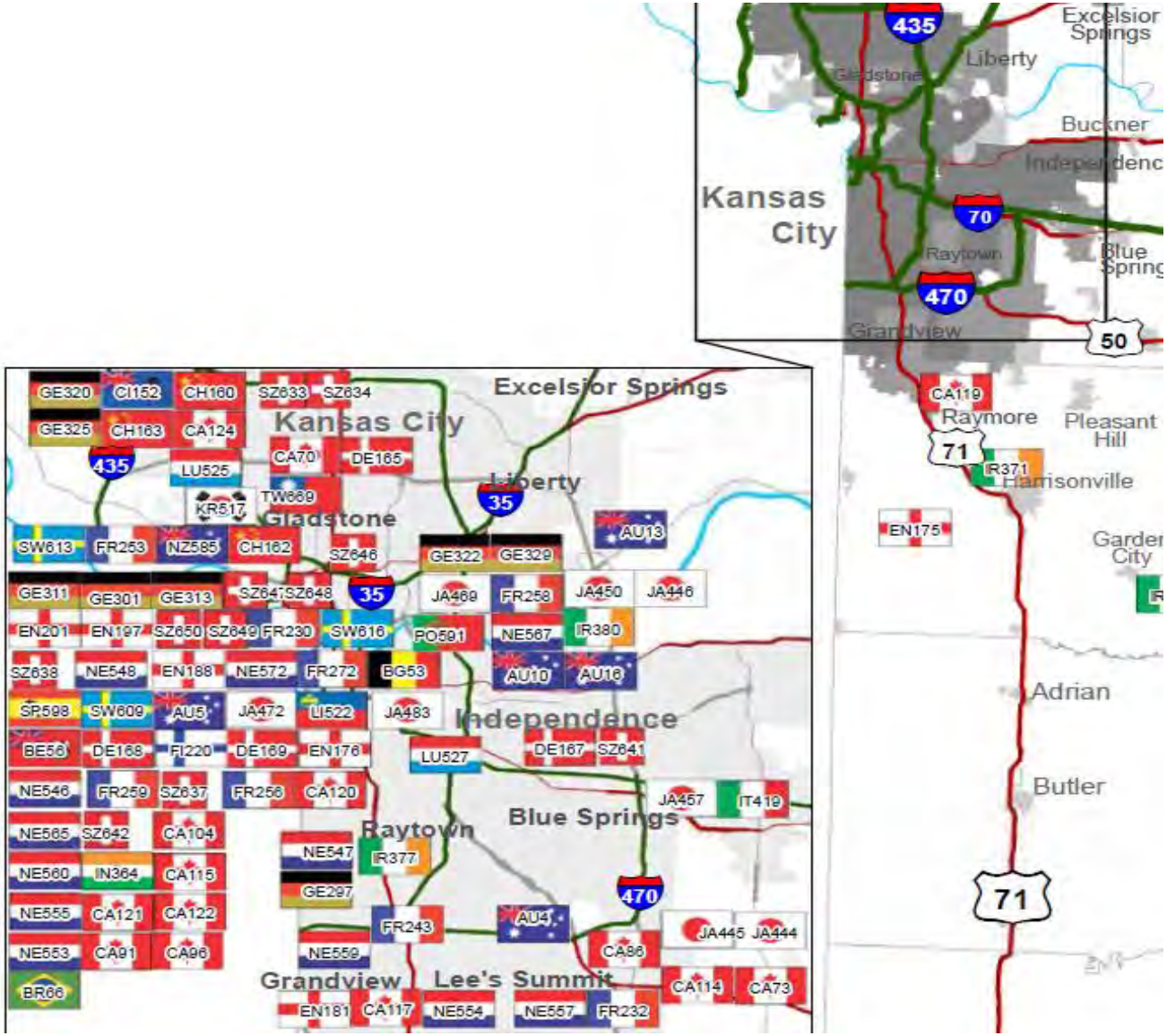
Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
21 Feb 2012	Washington D.C.	0	0	(Thwarted Terrorist Attack) Amine El-Khalifi was plotting to detonate a suicide bomb at the U.S Capitol. He was arrested in a parking garage near the U.S. Capitol, wearing what he thought was an explosive-laden suicide vest. In an undercover FBI sting, agents posing as al-Qaida operatives had supplied him with an inert explosive vest and an inoperable gun. "His motivation was simply to do what he thought God called him to do"
20 Jul 2012	Aurora, Colorado	12	58	shooting attack at movie theater; suspect was arrested afterwards; suspect had booby-trapped his nearby apartment with explosives which were successfully disarmed by police
5 Aug 2012	Oak Creek, Wisconsin	7	4	6 killed, 4 injured in shooting attack at a Sikh temple shortly before worship service on Sunday morning; one of those injured was a police officer, another was president of the temple; the gunman was shot and killed at the scene by police
14 Aug 2012	LaPlace, Louisiana	2	4	2 police officers killed, 1 injured while investigating attack that injured another officer; 7 arrested, 2 of whom were injured in the shootout; several of those arrested had ties to the sovereign citizen movement
15 Aug 2012	Washington, DC	0	1	1 guard shot and injured while subduing gunman at Family Research Council offices
15 Sep 2012	Chicago, Ill	0	0	(Thwarted Terrorist Attack) On the evening of Sept. 15, Adel Daoud parked a Jeep Cherokee loaded with a large explosive device outside a bar in downtown Chicago. As he walked down the street away from the vehicle, he activated a trigger to detonate the bomb. The bomb, however, was inert, and FBI agents positioned nearby immediately took Daoud, an 18-year-old from the Chicago suburbs, into custody. Daoud had been the subject of a four-month FBI investigation and sting operation. His intent for the bombing was to kill Americans in retaliation for the wars in Afghanistan and Iraq.
29 Nov 2012	Oakland Park, Florida	0	0	(Thwarted Terrorist Attack) Brothers Raees Alam Qazi and Sheheryar Alam Qazi were arrested and charged with conspiring to detonate a weapon of mass destruction and providing material support to terrorists. Both brothers are naturalized U.S. citizens who were born in Pakistan and are residents of Oakland Park, Florida. While Raees Qazi intended to carry out the bombing attack himself, his brother was aware of his plans and provided funding and support for the operation. In a detention hearing on December 18, 2012, it was revealed that the men sought to avenge the deaths of those killed in U.S. military drone strikes in Afghanistan.
14 Dec 2012	Newtown, Connecticut	28	3	shooting attack at elementary school kills 20 children and 6 adults; shooter killed himself and had killed his mother earlier that day

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
15 Apr 2013	Boston, Massachusetts	3	264	two bombings at Boston Marathon kill 3 (including 1 child) and injure 183 (including 8 children) The Boston Marathon bombings and subsequent related shootings were a series of attacks and incidents which began on April 15, 2013, when two pressure cooker bombs exploded during the Boston Marathon at 2:49 pm EDT, killing 3 people and injuring an estimated 264 others. The bombs exploded about 12 seconds and 210 yards (190 m) apart, near the finish line on Boylston Street. The perpetrators were Chechen brothers Dzhokhar Tsarnaev and Tamerlan Tsarnaev. The bombings were motivated by extremist Islamist beliefs and revenge against the wars in Iraq and Afghanistan. The brothers were self-radicalized and unconnected to any outside terrorist groups.
17 Apr 2013	Washington, DC	0	0	(Thwarted Terrorist Attack) two letters testing positive for ricin mailed to Mississippi Senator Roger Wicker and President Obama are found at mail screening facilities; a third letter to an official in Mississippi was awaiting testing; an individual in Mississippi is arrested and charged in the case.
18-19 Apr 2013	Watertown, Massachusetts	2	2	1 police officer killed, one injured during manhunt for the Boston Marathon bombers; one terrorist killed and one injured and captured
22 Apr 2013	New York	0	0	(Thwarted Terrorist Attack) Chiheb Esseghaier, a Tunisian citizen and Raed Jaser, a Palestinian citizen, were arrested on an alleged conspiracy to commit terrorist acts in and against Canada in the form of disruption, destruction or derailment of trains operated by Canada's national passenger railway service, Via Rail Canada. The alleged targeted train route runs between Toronto and New York City.
12 May 2013	New Orleans, Louisiana	0	19	two gunmen fired on crowds at Mother's Day parade; 19 injured, including 2 children
16 Sep 2013	Washington, DC	13	3	shooting attack at Washington Navy Yard
1 Nov 2013	Los Angeles, CA	1	7	shooting attack at Los Angeles International Airport; 1 TSA officer killed, 2 TSA officers and several civilians injured
2 Apr 2014	Fort Hood, Texas	4	16	Shooting attack on Fort Hood; 3 killed, 16 injured; in addition the gunman killed himself
13 Apr 2014	Overland Park, Kansas	3	0	Shooting attack at a Jewish community center and Jewish retirement home; 3 killed, including one teenager A pair of shootings committed by a lone gunman occurred at the Jewish Community Center of Greater Kansas City and Village Shalom, a Jewish retirement community, both located in Overland Park, Kansas. A total of three people were killed in both shootings by an avowed white supremacist F. Glenn Miller Jr., also known as Frazier Glenn Cross Jr. who was taken into custody at a nearby school shortly after the rampage, shouting “Heil Hitler” as he was loaded into a police car. Miller is a neo-Nazi self-proclaimed neo-Pagan and former aspiring politician who founded and formerly led the Carolina Knights, a paramilitary organization with ties to the Ku Klux Klan in the 1980s.
27 Apr 2014	Skyway, Washington	1	0	shooting attack killed 1
1 Jun 2014	Seattle, Washington	2	0	shooting attack near night club killed 2

Attachment 4.23.2: History of Terrorist Events in the United States as of January 4th 2015*				
Date	**Location**	**Killed**	**Injured**	**Description**
8 Jun 2014	Las Vegas, Nevada	5	0	shooting attack at restaurant and store; 3 killed, including 2 police officers; both shooters killed themselves.
25 Jun 2014	East Orange, New Jersey	1	0	shooting attack killed 1 teenager
12 Sep 2014	Blooming Grove, Pennsylvania	1	1	shooting attack on police officers; shooter evaded a manhunt in nearby woods until 30 Oct.
25 Sep 2014	Oklahoma City, Oklahoma	1	2	knife attack at food processing plant killed 1, injured 1; attacker was shot and injured
23 Oct 2014	New York City, New York	1	3	axe attack on police officers injured 2, one severely; police shot and killed the attacker and injured one bystander.
28 Nov 2014	Austin, Texas	1	0	shots fired at Mexican consulate, US courthouse, and police station during early morning hours; failed attempt at arson at consulate; attacker was shot at by police
21 Dec 2014	New York City, New York	3	0	shooting attack killed two police officers, gunman shot and killed himself
10 Apr 2014	Fort Riley, Kansas	0	0	(Thwarted Terrorist Attack) A 20-year-old Topeka area man was arrested as he made the final preparations to blow up a truck bomb at Fort Riley. John T. Booker Jr., who goes by the name Muhammed Abdullah Hassan, was charged with attempting to use a weapon of mass destruction, attempting to destroy via a bomb a federal building and attempting to provide "material support" to the Islamic State of Iraq.

* complied by Wm. Robert Johnston (http://www.johnstonsarchive.net/terrorism/wrjp255a.html)

Attachment 4.23.3: Foreign Companies in the Planning Region



Foreign Companies in the Planning Region					
Country	**Cass**	**Clay**	**Jackson**	**Platte**	**Ray**
Australia		1	13		
Belgium			1		
Bermuda			1		
Brazil			2		
Canada	2	2	17		
Cayman Islands			1		
China			3		
Denmark			6		
England		1	8	1	
Finland			1		
France		1	8	4	
Germany			16		1
India			1		
Ireland	1		6		
Italy			1		
Japan			12		
Republic of Korea			2		
Liechtenstein			1		
Luxembourg			2		
Mexico			6		
Netherlands			12		
New Zealand			2		
Portugal			1		
Saudi Arabia			1		
Spain			3		
Sweden			6		
Switzerland		1	14		
Taiwan			1		
Totals	**3**	**6**	**148**	**5**	**1**

This page intentionally left blank.

Section 5: Mitigation Strategy

Requirement §201.6(c)(3)(i)): *[The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

5.1 Updates to the 2010 Plan Mitigation Goals and Actions

This section of the plan focuses on the mitigation strategies developed by each participating jurisdiction to reduce or avoid long-term vulnerabilities to the 18 identified hazards. For continuing participants from the 2010 Plan, each of the jurisdictions' mitigation goals and actions identified in the 2010 Plan were reviewed for relevance and updated with current status. Continuing and new participants are noted within the mitigation strategies section (Attachment 5.2).

These mitigation actions were activities that stakeholders in the hazard mitigation process, especially local governments, could implement over a five-year period. Many of the actions were intended to be implemented in a relatively short period of time, generally less than two years, using existing organizations and resources in each county or across the region. Other actions required a longer implementation timeframe, perhaps two to five years or longer, as well as additional resources, particularly funding.

For the 2010 Plan, an online database was created to allow jurisdictions to evaluate hazards and corresponding mitigation goals and actions for their community. School districts/colleges/universities were not required to complete the online database, see *Section 5.1.2* below. These goals and actions were derived from a comprehensive list of goals and actions developed in the original 2004 Plan and continued for the 2010 Plan (see **Attachment 5.1: 2010 Goals and Actions**). Jurisdictions needed only to complete information on goals and actions for hazards that were identified threats to their community. For each mitigation action, jurisdictions were asked to designate a project's status as completed, deleted, deferred or ongoing. If the action was completed, jurisdictions were asked to provide a date of completion. For those deleted or deferred, jurisdictions were asked to provide a narrative explanation. If a project was marked as ongoing, further information was requested including:

1) Priority
2) If the action applies to new or existing community assets
3) Existing local planning mechanism through which the action was/will be implemented
4) Primary agency responsible for implementation/administration
5) Date for completion
6) Estimated cost
7) Funding source

In 2010, the planning team determined that "priority" should be ranked on a qualitative scale of high, medium and low, and jurisdictions were instructed to consider a generic cost/benefit analysis when ranking mitigation actions.

High-priority actions were those for which resources, manpower, political capital, etc., are readily available to accomplish the actions and should generally be accomplished within two years. Medium-priority actions were those that are desirable, but due to various planning limitations, weren't expected to be implemented for two to five years. Low-priority actions were those that weren't scheduled to be implemented in the near future (greater than five years). Actions deleted or deferred were either no longer applicable or regarded as "failing" the cost/benefit analysis.

5.1.1 Changes to 2010 Mitigation Goals and Actions Database for 2015 Plan Update

For this 2015 Plan update, continuing participants (excluding school districts/colleges/universities – see *Section 5.1.2* below for additional discussion) again used the database created in 2010 to update their goals and actions. The database was modified slightly to collect additional information within three fields to give greater detail to mitigation actions. Two of the added fields were optional and one was required. The new fields were:

- Type of Mitigation Activity – *optional* field to describe if the action related to Natural Systems protection, Structure and Infrastructure Projects, Local Plans and Regulations or Education and Awareness Programs
- Cost / Benefit Review **–** *required* field to discuss a benefit-cost review of each action as part of the evaluation and prioritization process to determine if costs are reasonable compared to probable benefits. Jurisdictions could use cost estimates based on experience and judgment and discuss benefits as losses avoided (such as the number and value of structures and infrastructure protected by the action and the population protected from injury and loss of life). Qualitative benefits, such as quality of life and natural and beneficial functions of ecosystems could also be used for the review.
- Target Capacity **–** *optional* field to project the extent of population or infrastructure the action is intended to serve/protect/mitigate.

5.1.1a. Prioritization of Mitigation Actions

The chronological ranking method[cdviii] of prioritizing mitigation goals and actions (based on implementation timeframes) used for the 2010 Plan was again used for this update and defined as:

- Low-Priority Actions **--** those not scheduled to be implemented in the near future (greater than five years).
- Medium-Priority Actions **–** those that are desirable but due to various planning limitations, are not expected to be implemented for two to five years.
- High-Priority Actions: **--** those for which resources, manpower, political, capital etc. are readily available to accomplish the action within the next one to two years.

Jurisdictions considered the results of the cost/benefit review when prioritizing mitigation actions.

5.1.1b Cost Estimates for Mitigation Actions

A frequent difficulty for jurisdictions during the 2010 Plan update mitigation strategy process was estimating the cost of mitigation actions. This lead to several action costs being identified as "Unknown" or "To be determined (TBD)". To improve the cost estimation process where specific costs weren't known, jurisdictions were encouraged to use a cost estimation range qualifier in accordance with the scale below:

- Low – the action is estimated to cost between $0 and $10,000

- Medium – the action is estimated to cost between $10,001 and $100,000
- High -- the action is estimated to cost more than $100,000

5.1.1c Status of Jurisdictional 2010 Goals and Actions

As noted above, continuing jurisdictions were required to update the status of their goals and actions and make changes as appropriate. Attachment 2 is the consolidated listing of all participating jurisdictions' mitigation goals and actions and reflects the most current status of their goals and actions. Where a jurisdiction marked an action as "completed" or "deleted" in the 2010 Plan, these actions have been removed from the listing. To avoid confusion and for ease of reference to the 2010 Plan and **Attachment 5.1**, remaining goals and actions were not re-numbered or re-lettered.

5.1.2 Updates to School District/College/University 2010 Mitigation Goals and Actions

Since school districts/colleges/universities were not participants in the 2004 Plan, they were not required to complete the mitigation goals and actions database. Rather, they developed individual narratives for their goals and actions. For this 2015 Plan update, all continuing school districts reviewed and updated their strategies from 2010. These have been consolidated in Attachment 2 in a table format and include the same information elements discussed above that cities and counties were required to complete.

5.2 New Mitigation Goals and Actions for 2015 Plan

Several new participating jurisdictions have been added to this Plan update. These new jurisdictions were not required to complete the mitigation goals and actions database, but could do so if they chose to use it to develop their mitigation strategy. As an alternative, new jurisdictions could develop their own, unique goals and actions. To gather this information, MARC staff developed an Excel worksheet that contained all required fields, mirroring those in the online database. This worksheet was the same for both schools and cities/counties.

Continuing participants were likewise encouraged to develop new goals and actions using the worksheet, especially for hazards that weren't previously addressed. Some jurisdictions chose to add new goals and actions, others elected to continue focusing on previously identified strategies. Both the old (2010) and new (2015) mitigation goals and actions were consolidated into Attachment 5.2. The column labeled "Plan year" indicates if the goal or action is from the 2010 plan or newly added as part of the 2015 update. New (2015) goals are continued to be numbered from the list of 2010 goals and actions (see **Attachment 5.1**), but new actions are unnumbered, both to avoid confusion and denote them as new actions.

Figure 5.1 is an excerpt from Attachment 5.2 as an illustrative example of a jurisdiction incorporating both 2010 and 2015 goals and actions into their mitigation strategy.

Jackson County 2015 Mitigation Strategy

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing	Implemented through the Counties preparedness educational and outreach program with emphasis on existing shelter facilities located throughout the county		High	Existing	Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/County	Ongoing	Low/no cost mechanism to increase public safety.		Low	County General Funds
6. Increase capabilities to provide mass notifications to the public													
Adding "Outdoor Warning Sirens" to increase warning notification coverage for County lake properties / Jacomo/Blue Springs/Longview	2015			Structure and Infrastructure Projects	Medium	new	Office of Emergency Preparedness function within approved County ordnances and codes	Department of Emergency Preparedness/County and Public Works Department	On going	Would give residents enhanced warnings and improved response coordination but would have a high implementation and maintenance cost.		Medium	County General Funds

Figure 5.1: Jurisdiction Sample, Incorporation of 2010 and 2015 Goals and Actions

5.3 Implementation of the National Flood Insurance Program (NFIP)

Requirement §201.6(c)(3)(ii): *[The hazard mitigation strategy] must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirement, as appropriate.*

In accordance with regulatory requirements, all hazard mitigation plans must describe each jurisdiction's participation in the NFIP by identifying, analyzing and prioritizing actions related to continued compliance with the NFIP. These three basic components include:

1) Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs);
2) Floodplain identification and mapping, including any local requests for map updates; or
3) Description of community assistance and monitoring activities

Three sections of this 2015 updated plan were developed to show compliance with the above requirements: 1) and 3) the Capabilities Assessment *Section 3* (table 3.7) show which jurisdictions have floodplain management plans or ordinances in effect, and describe community assistance and monitoring activities where applicable; 2) Floodplains were identified and mapped for all participating jurisdictions as part of the Flood risk assessment (*Section 4.9.4*).

Additionally, several goals and actions were identified in the 2010 Plan that jurisdictions could adopt in order to meet the deliverables of NFIP compliance and are listed below. These have been grouped below according to NFIP component and are notated by a double asterisks (**) within each jurisdiction's mitigation strategy (Attachment 5.2). New strategies developed for the 2015 Plan which fall into these categories are likewise identified by a double asterisk:

5.3.1 Floodplain Management (from 2010 Plan):

4. Discourage new development in floodplains and flood-prone areas.

    a.) Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.

    b.) Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.

    c.) Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.

7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.

    a.) Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).

b.) Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.

5.3.2 Floodplain Identification and Mapping (from 2010 Plan):

5. Improve flood hazard assessments and flood mapping.

a.) Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.

b.) Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.

c.) Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.

d.) Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.

e.) Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.

5.3.3 Community Assistance and Monitoring Activities (from 2010 Plan):

1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.

a.) Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.

b.) Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.

c.) As funding allows, repetitive flood loss properties and structures will be targeted for buyout.

d.) With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses

3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.

f.) Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.

5.4 Attachments

Attachment 5.1: 2010 Goals and Actions

Section 4.1.1 Mitigation Goals and Actions, 2010 Hazard Mitigation Plan

The next several pages list the hazard mitigation goals and actions developed for the 2004 Plan and implemented for the 2010 Plan, divided by hazard. Mitigation goals for the hazard are underlined and numbered (1, 2, 3, etc.) Mitigation actions are lettered (a, b, c, etc.).

Tornadoes (mitigation goals #'d, mitigation actions lettered)

1. Increase public awareness and understanding of the benefits of "safe rooms."

    a.) Develop and distribute informational materials on safe rooms.

    b.) Partner with trade organizations to conduct safe room workshops.

2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ natural hazards.

    a.) Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.

    b.) Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.

    c.) Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.

3. Encourage construction of community tornado shelters in office complexes, factories, apartment complexes, schools mobile home parks, stadiums, and other large population congregation centers.

    a.) Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.

    b.) Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.

    c.) Consider adopting ordinances or regulations requiring the construction of tornado shelters in new buildings where people live, work or congregate.

4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.

    a.) Work with trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.

b.) Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.

c.) Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.
d.) Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.

5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.

a.) Anchor or strengthen above-ground transmission lines, poles and similar structures.

b.) Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.

c.) Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.

Flooding (mitigation goals #'d, mitigation actions lettered)

1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.

a.) Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.

b.) Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.

c.) As funding allows, repetitive flood loss properties and structures will be targeted for buyout.

d.) With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses

2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.

a.) Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.

b.) In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.

c.) Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.

d.) Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.

e.) Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats

f.) Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.

3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.

a.) Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).

b.) Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.

c.) Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.

d.) As funding allows, repetitive flood loss properties and structures will be targeted for buyout.

e.) Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.

f.) Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.

4. Discourage new development in floodplains and flood-prone areas.

a.) Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.

b.) Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction’s vulnerability to flooding.

c.) Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.

5. Improve flood hazard assessments and flood mapping.

   a.) Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.

   b.) Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.

   c.) Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.

   d.) Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.

   e.) Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.

6. Enhance public awareness and education efforts related to flooding.

   a.) Encourage home owners and businesses to purchase flood insurance.

   b.) Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.

   c.) Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.

7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.

   a.) Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).

   b.) Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.

8. Implement or improve flood warning systems.

   a.) Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.

   b.) Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.

   c.) Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.

Severe Winter Weather (mitigation goals #'d, mitigation actions lettered)

1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.

    a.) Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.

    b.) Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.

    c.) Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.

2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.

    a.) Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.

    b.) Retrofit otherwise suitable existing facilities with generators for emergency power.

    c.) Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.

3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.

    a.) Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.

    b.) Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.

4. Since traffic accidents account for 70 percent of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather.

    a.) Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.

    b.) Work with area local governments and MARC to develop a regional “pool” of sand, salt and other materials necessary to reduce or eliminate ice on roadways.

    c.) Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).

d.) In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to do the same.

5. Enhance public awareness of severe winter weather mitigation and preparedness activities.

a.) Develop and conduct a public education and awareness campaign on properly winterizing homes.

b.) Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.

c.) Provide vulnerable populations with winter weather safety, preparedness and mitigation information.

d.) Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.

Drought (mitigation goals #'d, mitigation actions lettered)

1. Assess the vulnerability of water systems.

a.) Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.

b.) Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.

2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.

a.) Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.

b.) Develop local procedures implementing the provisions of the Missouri Drought Plan.

c.) Working with MARC, develop drought plans and water conservation programs.

3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.

a.) Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.

b.) Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.

4. Encourage water conservation efforts by commercial, industrial and private water users.

   a.) Develop and implement a program to encourage voluntary water conservation.

   b.) Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.

   c.) Develop and implement water conservation ordinances.

5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.

   a.) Budget for infrastructure improvements to municipal water systems.

   b.) Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.

   c.) Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.

Heat Wave (mitigation goals #'d, mitigation actions lettered)

1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.

   a.) Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters” in the event of a heat wave.
   b.) Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.

2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.

   a.) Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.

   b.) Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.

   c.) Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.

3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.

    a.) Develop local heat emergency plans or heat wave annexes to local emergency operations plans.

    b.) Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.

    c.) Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.

    d.) Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).

    e.) Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.

4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.

    a.) Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.
    b.) Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.

    c.) Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.

    d.) Develop and conduct a public education and awareness campaign on properly weather stripping homes.

Earthquake (mitigation goals #'d, mitigation actions lettered)

1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.

    a.) Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.

    b.) Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.

    c.) Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in

prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.

2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.

   a.) Determine the levels of seismic forces that structures must be designed to withstand.

   b.) Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.

   c.) Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.

   d.) Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.

3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.

   a.) Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.

   b.) Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.

4. Encourage the purchase of earthquake hazard insurance.

   a.) Provide earthquake insurance information to Kansas City metropolitan area residents.

   b.) Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.

5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.

   a.) Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.
   b.) Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.

   c.) Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.

6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.

    a.) Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.

    b.) Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".

    c.) Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection measures.

    d.) Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.

    e.) Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.

7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.

    a.) Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.

    b.) Retrofit otherwise suitable existing facilities with generators for emergency power.

    c.) Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.

Dam Failures (mitigation goals #'d, mitigation actions lettered)

1. Improve hazard assessment information for dams across the Kansas City metropolitan area.

    a.) Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.

    b.) Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.

c.) Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.

d.) Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.

2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.

a.) Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.

b.) Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.

c.) Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.

d.) Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.

3. Reduce the potential for dam failures by enhancing inspection efforts.

a.) For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.

b.) Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.

c.) Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.

d.) Adopt local ordinances and/or state laws requiring all dam owners to develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.

4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.

a.) Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.

b.) Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.

5. Improve the structural integrity of dams to reduce the threat of dam failures.

a.) Identify and pursue grants and/or low interest loans to repair or improve dams.

b.) Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.

c.) Budget for regular repairs and improvements to dams, particularly those that are publicly owned.

d.) Develop and implement codes and ordinances requiring minimum site and construction standards for dams.

6. Improve warning and evacuation systems and procedures in the event of dam failure.

a.) Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.

b.) Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.

c.) Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.

Wildland Fires (mitigation goals #'d, mitigation actions lettered)

1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.

a.) Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.

b.) Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.

c.) Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.

2. Enhance public awareness of wildland fire mitigation and preparedness activities.

a.) Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.

b.) Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.

c.) Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.

d.) Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.

3. Encourage building practices and the use of materials that reduce the damaging effects of fire.

a.) Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.

b.) Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.

c.) Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.

d.) Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.

e.) Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.

4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.

a.) Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.

b.) To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.

c.) Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.

5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.

a.) Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.

b.) Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).

c.) Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.

d.) Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.

6. Reduce the wildland fire threat by regulating outdoor burning.

a.) Adopt ordinances prohibiting the burning of brush and yard debris without a permit.

b.) Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).

c.) Adopt ordinances prohibiting or regulating the use of fireworks.

Attachment 5.2: Jurisdiction Mitigation Strategies

Cass County 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Public awareness events, brochures, media, severe weather training	Emergency Management	On going	Low/no cost mechanism to increase public safety.		0	Federal , state and local grants
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	Existing	Public education via MARC/MEMC	Emergency Management	On going	Low/no cost mechanism to increase public safety.		0	NA
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Deferred	Funding not available for public marking at this time										
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	No funding sources available. Will manage on a case by case basis										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	Interest not there at this time										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	No interest in local government in doing so at this time										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	Existing	Public education via MARC/MEMC and local government	Emergency Management	On going	Low/no cost mechanism to increase public safety.		$1000.00	Local government and any grants available
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deleted	County uses national building codes at this time										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Complete							12/15/14				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	Should be incorporated in new building code standards										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	Should be incorporated in new building code standards										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Low	New	Local building codes	Building Codes Office	On going	Would reduce recovery costs, but would have high intial implementation.		Unknown	NA
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	Should be incorporated in new building code standards										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No interest in local government in doing so at this time										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Medium	Existing	Zoning dept. working with homeowners and SEMA/FEMA to resolve issues	Zoning Dept.	12/1/2018	Requires cooperation of landowners to implement, but ultimately beneficial.		Low	Federal , state and local grants
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			High	Existing	Zoning, County Commissioners and Emergency Management will have to make a decisions as to what	Zoning Dept.	12/1/2018	No/ or low cost to implement and require little staff support.		0	Federal , state and local grants
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	Zoning dept. working with homeowners and SEMA/FEMA to resolve issues	Zoning Dept.	12/15/18	No/ or low cost to implement and require little staff support.		Low	Federal, State and local grants when available
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	Zoning, County Commissioners and Emergency Management will have to make a decisions as to what ordinances need to be implemented	Zoning Dept.	12/1/18	Will prevent flooding for moderate costs		Medium	Federal , state and local grants
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	County does not have the money for the match or maintenance										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	County does not have the money for the match or maintenance										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Deferred	County does not have the money for the match or maintenance										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	County does not have the money for the match or maintenance										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	Existing	Floodplain management	Emergency Management	12/1/18	No/ or low cost to implement and require little staff support.		Low	Federal, State and local grants when available
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			Medium	Existing	Zoning and emergency management through handouts and public education	Zoning Dept.	12/1/18	No/ or low cost to implement and require little staff support.		Low	Federal, State and local grants when available
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	None controlled by County. we will advise and assist when requested										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	None controlled by County. we will advise and assist when requested										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	County does not have the money for the match or maintenance										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			High	New	Zoning office, through the NFIP regulates new structures	Zoning Dept.	12/1/18	Decreases potential damage and reduces out of pocket insurance costs		Low	Federal, State and local grants when available
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			High	Existing	Zoning dept. working with homeowners and SEMA/FEMA to resolve issues	Zoning Dept.	12/1/18	Requires cooperation of landowners to implement, but ultimately beneficial.		Low	Federal, State and local grants when available
4. Discourage new development in floodplains and flood-prone areas.													
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Not something the Commission is comfortable doing at this time										
5. Improve flood hazard assessments and flood mapping.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Medium	Existing	Zoning dept., Assessors office and GIS dept. are developing this	Zoning Dept.	12/1/18	Data has multiple uses and can benefit across multiple programs.		Low	Federal, State and local grants when available
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	Waiting for more complete data										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			High	Existing	Public awareness events, brochures, media, severe weather training	Emergency Management	12/1/18	No/ or low cost to implement and require little staff support.		Low	Federal, State and local grants when available
8. Implement or improve flood warning systems.													
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	Rely on the National Weather service warnings and weather alert monitors										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	No interest in the part of participating parties in doing so at this time										
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No interest in the part of participating parties in doing so at this time										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	No interest in the part of participating parties in doing so at this time										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	No interest in local government in doing so at this time										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	No manpower to oversee the project at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	Each party determines the need for such										
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	New	Would have to work with several water districts that have responsibility for this	Emergency Management	12/1/18	Relatively low cost mechanism to inform mitigation strategies		Low	Local government and any grants available
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	No reservoirs in jurisdiction										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	The County controls no water districts, which are required to have their own plans. Will get with them to review their plans										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Low	Existing	Zoning, County Commissioners and Emergency Management will have to make a decisions as to what	County Commission	12/1/18	Low cost mechanism to support drought response.		Low	Local government and any grants available
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Low	Existing	Regional planning concepts via Emergency Management and Public Works	Emergency Management	12/1/18	Regional planning allows for local benefits at low cost		Low	Local government and any grants available
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing		/Public Works/MARC	12/1/18	Low/no cost mechanism to increase support water conservation measures.		Low	Local government and any grants available

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	Existing	Utilize MARCs public info unit, public awareness events, public info units	Emergency Management	12/1/18	Low/no cost mechanism to increase support water conservation measures.		Low	Local government and any grants available
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	Utilize MARCs water conservation program										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	The county has no control over rate structures of County /water districts										
c. Develop and implement water conservation ordinances.	2010	Deferred	The county has no control over rate structures of County /water districts										
Heat Wave													
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Medium	Existing	GIS and DHSS and Emergency Management working to collect current data	Emergency Management	12/1/18	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Federal, State and local grants when available
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	No interest in the part of participating parties in doing so at this time										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	MARC should coordinate										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Not able to meet with appropriate agencies yet										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	Haven't got to it yet										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	Manpower issues										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing			Low	Existing	Emergency management for the LEOP	Emergency Management	12/1/18	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Federal, State and local grants when available
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	Rely on SEMA information at this time										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	Rely on SEMA information at this time										
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	They should be using the new codes										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	No manpower to oversee the project at this time										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	Rely on insurance companies for this										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	No manpower to oversee the project at this time										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	No manpower to oversee the project at this time										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	No manpower to oversee the project at this time										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	Rely on their own safety officers for this										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	No manpower to oversee the project at this time										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	No manpower to oversee the project at this time. we do distribute some of the info at our public awareness events										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	No manpower to oversee the project at this time										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	No interest in local government in doing so at this time										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	Manpower issues										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	Manpower issues										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	Manpower issues										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	completed to a limited degree										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	No manpower to oversee the project at this time										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	No manpower to oversee the project at this time										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	No manpower to oversee the project at this time										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	No manpower to oversee the project at this time										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	No manpower to oversee the project at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	No interest in local government in doing so at this time										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	No interest in local government in doing so at this time										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	No interest in local government in doing so at this time										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	No interest in local government in doing so at this time										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	None owned/operated by County										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Manpower issues										
Wildland Fires													
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	Left to the individual fire district to implement										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	No interest in local government in doing so at this time										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	No manpower to oversee the project at this time										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	No interest in local government in doing so at this time										
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	No manpower to oversee the project at this time										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	No manpower to oversee the project at this time. we do distribute some of the info at our public awareness events										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	Rely on individual fire districts for this										
6. Reduce the wildland fire threat by regulating outdoor burning.													
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deferred	No interest in local government in doing so at this time										

Belton 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	New	Flyers and presentations at community events. Articles in local news paper and our local government channel	Emergency Management	Ongoing, unknown	Low/no cost mechanism to increase public safety.		$0.00	City
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	New	City Planning Commission	Emergency Management	Ongoing, unknown	Low/no cost mechanism to increase public safety.		$0.00	City
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			High	Existing	Through Fire Dept. inspections and codes.	Fire Department	Ongoing, unknown	Low/no cost mechanism to increase public safety.		$0.00	City
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			High	Existing	Fire Department inspections	Fire Department	Ongoing, unknown	Increases safety of existing infrastructure for moderate cost		Medium	City
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			High	Existing	Planning Commission	Planning Commission	Ongoing, unknown	Low/no cost mechanism to increase public safety.		$0.00	city
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			High	Existing	Planning Commission	Planning Commission	On going, unknown	could defray otherwise high costs for developing safe rooms and will likely lead to greater		Medium	city
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			High	Existing	School Dist. Planning Commission	Planning Commission	On going, unknown	Low/no cost mechanism to increase public safety.		$0.00	School Dist.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			High	Existing	Planning Commission, Emergency Management	Planning Commission	On going, unknown	Low/no cost mechanism to increase public safety.		$0.00	city
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			High	Existing	P:lanning Commission	Planning Commission	On going, unknown	Low/no cost mechanism to increase public safety.		$0.00	city
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Medium	New	Building Codes Dept.	Codes/Fire Dept.	On going, unknown	While may increase building costs, will lead to greater occupant safety		$0.00	city
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			Medium	New	Planning Commission, Emergency Management	Planning Commission	On going, unknown	While may increase building costs, will lead to greater occupant safety		Medium	city
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Medium	Existing	Planning Commission, Local Utility Board	Planning Commission	On going, unknown	Initial high costs offset by potential savings in recovery costs.		High	city
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Local utility companies making this call.										
6. Improve Citizen Tornado Preparedness and Warning													
Encourage use of map your neighbors program "Block Captains"	2015	Ongoing		Education and Awareness Programs	Medium	NEW	N/A	Emergency Management	Ongoing	Free mechanism to assist in damage assessment and community preparedness	Community	0	0

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Encourage residents to be prepared with "ready in 3 Kits"	2015	Ongoing		Education and Awareness Programs	Medium	NEW	N/A	emergency management	Ongoing	Low/no cost mechanism to increase public safety.	community	0	0
Promote participation of community for "Code Red" alerting	2015	Ongoing		Education and Awareness Programs	High	NEW	N/A	Emergency Management	Ongoing	Free mechanism to alert public of disasters.	Community	o	0
Keep update of city expansion annexes for new siren coverage	2015	Ongoing		Local Plans and Regulations	Medium	new	Mayor, planning commission ,city council and residents	Emergency Management	Ongoing	Ensures siren coverage areas are up to date at little cost.	Community	0	0
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			High	Existing	Mayor, Planning Commission, Board of Alderman, Citizens groups.	City	On going, unknown	No/ or low cost to implement and require little staff support.		$0.00	city
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			High	Existing	FEMA, DNR, and other grants	City Engineering Dept.	On going, unknown	No/ or low cost to implement and require little staff support.		$0.00	City, via grants
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Planning Commission, Emergency Management	Planning Commission	On going, unknown	Will eliminate or greatly reduce repetitive loss properties.		High	Grants
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	City Council, Planning Commission	Planning Commission	On going, unknown	No/ or low cost to implement and require little staff support.		$0.00	city
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	City Engineering Dept.	City Engineering Dept.	On going, unknown	Will prevent flooding for moderate costs		$0.00	Grants

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			High	Existing	Planning Commission, City Engineering	City Engineering Dept.	On going, unknown	Will reduce floodplain vulnerability and increase city greenspace.		Medium	Grants
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			High	Existing	Community Development Dept., City Engineering	City Engineering Dept.	On going, unknown	No/ or low cost to implement and require little staff support.		$0.00	Grants
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			Medium	New	City Council, Engineering, DNR	City Engineering Dept.	On going, unknown	Will reduce floodplain vulnerability and increase city greenspace.		Medium	Grants
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Complete							Unsure				
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Medium	Existing	City Engineering- Codes	City Engineering	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce		$0.00	Grants
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			High	Existing	City Engineering and codes dept.	City Engineering	Ongoing	Will provide legal mechanism to enforce floodplain management.		$0.00	City

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			High	Existing	City Engineering, Codes, Emergency Management	City Engineering	Ongoing	Will provide comprehensive approach to floodplain management.		Low	City
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Ongoing			High	Existing	City Engineering	City Engineering	Ongoing	Will discourage development in floodplain while generating funds for floodplain management activities.		Low	City
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	Existing	County assessors office, City engineering	City engineering	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Not sure if this software has been purchased or if in use by our mapping department within public works.										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Complete							2015				
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Complete							unsure				
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage home owners and businesses to purchase flood insurance.	2010	Complete							2011				
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Complete							2011				
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Complete							2011				
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	County assessors office, City engineering	City engineering	Ongoing	Will ensure homeowners and businesses are protected.		Low	City
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	County assessors office, City engineering	City engineering	Ongoing	Will ensure latest copies of flood maps are on hand to guide development and mitigation strategies.		Low	City
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Medium	Existing	Public Works, City Engineering, Emergency Management	City Engineering	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Medium	City
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Complete							Ongoing				
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Complete							Ongoing				
9. Exam repetitive flood loss properties in the city and determine feasible and practical mitigation options													
Work with owners of repetitive flood lost properties to identify feasible and practical mitigation options	2015	Complete		Local Plans and Regulations	Low	EXISTING	Mayor, planning commission, city council and residents	City	COMPLETE	0	Lacy Estates	0	0
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							unsure				
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing			Medium	Existing	City Engineering	City Engineering	Ongoing	Would reduce recovery costs, but would have high intial implementation.		High	City
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Utility companies handle this										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Complete							Ongoing				
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Low	Existing	Emergency Management	Emergency Management	Ongoing	Would ensure emergency shelters are ADA compliant.		High	Grants
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Complete							Ongoing				
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Complete							Ongoing				
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Complete							Ongoing thru MARC programs				
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Complete							Ongoing thru public works				
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	No special events for this group however public awareness is ongoing										
Drought													
1. Assess the vulnerability of water systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Complete							unsure, Ongoing through city water dept.				
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Complete							Ongoing thru city water dept.				
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Complete							Ongoing				
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Complete							Ongoing				
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Medium	Existing	City Water Dept.	City Water Dept.	Ongoing	Regional planning allows for local benefits at low cost		$0.00	City
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Complete							Ongoing				
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Complete							Ongoing				
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Complete							Ongoing				
c. Develop and implement water conservation ordinances.	2010	Ongoing			Medium	New	City Water Dept.	City Water Dept.	Ongoing	Low cost mechanism to preserve water supplies.		Low	City
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Complete							Ongoing				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Complete							Ongoing				
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Complete							Ongoing				
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Complete							Ongoing				
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Complete							Ongoing				
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	At risk groups are encouraged to contact one of the social service agencies for assistance.										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Complete							Ongoing				
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Complete							Thru MARC				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Complete							Thru social service agencies and City Emergency Management				
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Complete							Ongoing				
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Complete							Ongoing thru parks dept.				
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Complete							during community events				
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Complete							Ongoing thru community events				
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Complete							Ongoing				
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Complete							Ongoing thru local media				
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Not sure what software the city uses.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing			Low	Existing	City Engineering	City Engineering	Ongoing	Data has multiple uses and can benefit across multiple programs.		Low	City
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Complete							Ongoing thru FEMA, SEMA and local Emergency Management				
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Ongoing			Medium	New	City engineering and codes	City engineering	Ongoing	Will provide baseline data for mitigation measures.		Medium	City
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			Medium	New	Codes dept. and City Engineering	City Codes Dept.	Ongoing	While may increase building costs, will lead to greater occupant safety		High	City
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete							2009				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Complete							2009, thru building cades				
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Complete							Ongoing				
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Complete							Ongoing				
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Complete							Ongoing thru MARC				
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Complete							Ongoing				
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Ongoing			Medium	Existing	City Engineering	City engineering and Emergency Management	Ongoing	Will identify critical infrastructure that could be vulnerable to earthquakes.		Low	City

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Complete							Ongoing, updated codes				
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	only small farm dams in the local area										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Complete							Ongoing				
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Complete							Ongoing				
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Complete							Ongoing				
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Complete							Ongoing				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Complete							Ongoing				
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Complete							Ongoing				
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Complete							Ongoing				
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			Medium	New	city engineering and codes	City engineering	Ongoing	While may increase building costs, will lead to greater occupant safety		Medium	City
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Complete							Ongoing				
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Complete							Ongoing				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Complete							Ongoing				
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Complete							Ongoing, included in eop				
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Complete							Ongoing				
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Complete							Ongoing				
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Complete							Ongoing				
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Complete							Ongoing				
3. Reduce the potential for dam failures by enhancing inspection efforts.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Complete							Ongoing				
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							Ongoing				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Complete							thru MARC				
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Complete							Ongoing				
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Complete							Ongoing				
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Complete							Ongoing				
5. Improve the structural integrity of dams to reduce the threat of dam failures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Complete							Ongoing				
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Complete							Ongoing				
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Complete							Ongoing				
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Complete							Ongoing				
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Complete							10-2008				
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Complete							Ongoing				
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Complete							Ongoing				
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Complete							Ongoing				
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Complete							Ongoing				
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Complete							Ongoing				
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Complete							Ongoing				
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Complete							Ongoing				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Complete							Ongoing				
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Complete							Ongoing, twice yearly				
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Complete							Ongoing thru building codes				
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Complete							Ongoing thru building codes				
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Complete							Ongoing thru building codes				
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete							newest NFPA codes				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Complete							Ongoing				
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Complete							thru mdnr				
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Complete							thru mdnr				
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Complete							Ongoing education				
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Complete							Ongoing				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Complete							Ongoing				
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Complete							Ongoing thru fire dept.				
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Complete							Ongoing thru fire dept.				
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							Ongoing, city codes				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							Ongoing thru current codes				
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							Ongoing				
Severe Thunder Storms													
1. Increase storm warning and forecasting collaboration between city agencies.													
Work with PW on comparing information on incoming weather events	2015			Structure and Infrastructure Projects	High	new	N/A	Emergency Management	Ongoing	Potential damage areas requiring public works support will be known before disasters, reducing response times and speeding recovery.	Community	0	0

Harrisonville 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Continued education of the community regarding the use of safe rooms	Emergency Services, Public Information	Ongoing	Low/no cost mechanism to increase public safety.		1000	operating funds
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	Existing	Contact local trades to educate them on the importance of safe rooms	Emergency Services / Public Information	ongoing	increase in safe rooms in community		1000	operating funds
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	Continue to educate the public of shelters and locations throughout the community	City of Harrisonville	Ongoing	Low/no cost mechanism to increase public safety.		1000	operating funds
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	An assessment concerning this mitigation action has not been completed.										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			Medium	New	Continue proactive approach of ordinances and building codes to incorporate safe rooms in construction	Codes Administration	Ongoing	Low/no cost mechanism to increase public safety.		1000	operating funds
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	Will introduce conversation with Board of Alderman for consideration.										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deferred	Will initiate discussions with local chamber, school district representatives, and local businesses concerning the benefits of safe rooms.										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	Existing City zoning regulations requires on site tornado shelters for manufactured home parks, and staff will introduce an ordinance for other buildings for Board of Alderman consideration.										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	Will consider ordinance amendment to the 2006 I-Codes requiring tempered glass in all buildings.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Will consider discussion with Board of Alderman to consider incentives.										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administrator planning use of general funds and Hazard Mitigation Grant Program as applicable	City Engineer/Floodplain Administrator and SEMA	Ongoing	Will eliminate or greatly reduce repetitive loss properties.		$460,000	City of Harrisonville - 25%; SEMA HMGP - 75%
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administration City of Harrisonville, MO	City Engineering/Floodplain Admin & SEMA	Ongoing	Will eliminate or greatly reduce repetitive loss properties.		$460,000	City of Harrisonville - 25%; HMGP - 75%
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administration; City of Harrisonville, MO	Engineering/Floodplain Admin & SEMA	Ongoing	Will eliminate or greatly reduce repetitive loss properties.		$460,000	City of Harrisonville - 25%; HMGP - 75%
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Admin and Community Development; City of Harrisonville, MO	City Engineering/Floodplain Admin; Codes and Community Development	Ongoing	No/ or low cost to implement and require little staff support.		NA	Private and City of Harrisonville, MO
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administrator, City of Harrisonville, MO		On going	Will prevent flooding for moderate costs		Varies	General Funds, City of Harrisonville, MO

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administrator, City of Harrisonville, MO	City Engineer/Floodplain Admin & SEMA	On going	Will reduce floodplain vulnerability and increase city greenspace.		NA	City Funds and HMGP
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Admin, City of Harrisonville, MO	City Engineer/Floodplain Admin & SEMA	On going	No/ or low cost to implement and require little staff support.		NA	City of Harrisonville - 25%; HMGP - 75%
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Admin, City of Harrisonville, MO	City Engineer/Floodplain Admin & SEMA	On going	Will reduce floodplain vulnerability and increase city greenspace.		NA	City of Harrisonville - 25%; HMGP - 75%
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	Concept has not been utilized; stakeholder meetings have been with local residents adjacent to sites and involved education of watershed ecology										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Deferred	Partnership has not been used										
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administration and Codes Department, City of Harrisonville, MO	City Engineering and Codes	On going	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		NA	Private
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administration, City of Harrisonville, MO	City Engineer/Floodplain Admin & SEMA	On going	Will eliminate or greatly reduce repetitive loss properties.		NA	City of Harrisonville - 25%; HMGP - 75%
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Medium	New	Link is on city web-site	Codes Administration	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		NA	Completed
4. Discourage new development in floodplains and flood-prone areas.													
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2002				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	City has not explored this issue										
5. Improve flood hazard assessments and flood mapping.													
a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Deferred	City has not explored this issue										
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	City has not explored this issue										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	City is not aware of this item										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Medium	Existing	Community Development, City of Harrisonville, MO	Community Development	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		NA	City of Harrisonville general funds
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	City has not explored this issue										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administration, Community Development, Codes City of Harrisonville, MO	City Departments, SEMA, FEMA	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		NA	Private

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administration; City of Harrisonville, MO		Ongoing	No/low cost mechanism to encourage flood preparedness.		NA	None
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	City has not explored this issue										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administration; City of Harrisonville, MO	City Engineer/Floodplain Administration	On going	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		NA	NA
b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							2006				
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	City has not explored this issue										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	City has not explored this issue										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	New	Adopted in City Ordinances	Codes Administration	2016	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		NA	NA
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Will consider discussion with Board of Alderman concerning incentives.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Will consider budget amendments for review by Electric Division Superintendent and Board of Alderman.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Medium	New	Will evaluate and inventory those properties with existing generators and the likelihood of potential use for shelter.	City of Harrisonville	2016	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		TBD	TBD
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	The proposed City hall/Police Building will be equipped with a generator										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Will consider ordinance proposal for Board of Alderman consideration.										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Will investigate community service organizations that may assist in this endeavor.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing			Medium	Existing	City's Street Department	Street Department	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		TBD	General Fund
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			Medium	Existing	Street Department	Street Department	Ongoing	Will ensure roadways are able to be maintained during winter storms.		TBD	TBD
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	Will verify with MARC concerning this program.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	Will investigate possibility of establishing mutual aid system for this program.										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	Will consider discussion with private sector concerning this program.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	Will work with local retailers in developing an awareness campaign.										
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	Will gather and disseminate this information accordingly.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	Will gather and disseminate this information accordingly.										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	Will develop and conduct this public education to assist residents.										
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deferred	The Missouri Drought Plan will need to be consulted prior to putting a plan in place for this objective.										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	The plan will need to be reviewed prior to putting this effort into effect.										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	The drought plan will need to be reviewed prior to establishing a local plan.										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	The drought plane will need to be reviewed prior to putting a local plan into place.										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	The drought plan will need to be reviewed prior to getting with MARC concerning water conservation programs.										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deferred	The drought plan will need to be reviewed prior to responding to educational programs and conducting them.										
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deferred	Will investigate public education materials available prior to disseminating.										
4. Encourage water conservation efforts by commercial, industrial and private water users.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	Will develop plan to conserve water and educate public.										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	Will consider an amendment for the Board of Alderman to review.										
c. Develop and implement water conservation ordinances.	2010	Deferred	Will investigate water conservation ordinances for review.										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Low	Existing	Local yearly capital improvements program addresses improvements.	City of Harrisonville	TBD	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	CWSS Budget
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Will defer to Board of Alderman for review.										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Will investigate available grants and apply as deemed necessary.										
d. Develop local procedures implementing Missouri Drought Plan	2015			Local Plans and Regulations	Medium	Existing	Community Development	Codes and CD	Ongoing	Low cost mechanism to preserve water supplies.		NA	NA
e. Develop drought plans and water conservation plans	2015			Local Plans and Regulations	Low	Existing	Community Development	Codes and CD	Ongoing	Low cost mechanism to preserve water supplies.	Explain		NA
f. Collect and disseminate public education materials for water conservation	2015			Education and Awareness Programs	Low	Existing	Community Development	Codes and CD	Ongoing	Low cost mechanism to preserve water supplies.			UNK

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
g. Develop and implement water conservation ordinances	2015			Local Plans and Regulations	Low	Existing	Community Development	Codes and CD	Ongoing	Low cost mechanism to preserve water supplies.			unk
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			Low	Existing	City of Harrisonville	City of Harrisonville	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		High	TBD
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	Will take many man-hours and will consider.										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing			Low	Existing	Harrisonville Emergency Services	Harrisonville Emergency Services	Ongoing	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		TBD	TBD
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	Will discuss with utility services for such a policy.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Will identify at risk citizens										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	Will consider a program to help identify at risk citizens.										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	Will discuss with Parks & Recreation Director for policy development.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	Will work with local vendors to develop education program.										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Complete			Medium	New	HAZUS Software ordered 6-4-10	City of Harrisonville	7-1-11				
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	Will begin upon receipt of HAZUS Software										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	Will begin upon receipt of HAZUS Software										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	Will consider amendment to building code requiring tempered glass										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Deferred	Adoption of the 2012 I-Codes expected in 2012.										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	May consider ordinance revision for retrofit for consideration by the Board of Alderman.										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	When funds become available will consider providing information.										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	Will investigate information available for dissemination.										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	Will evaluate steps to work with these organizations towards producing and distributing information.										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	Will need to investigate potential structures not currently meeting standards.										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	Will need to evaluate with Water Department this program.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	Will require evaluation by City Engineer.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	Will need to evaluate those occupancies with these critical issues and provide instructional information to them to consider.										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	Will have to order publication for evaluation prior to encouraging residents.										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	Will need to order these two publications in order to evaluate the information.										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	Will have to meet with local trades people and retailers to develop a program for this objective.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	Will require investigation to determine those areas that may be unstable.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	Will require time to work with these organizations to identify those properties that have emergency power.										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	Will identify those agencies with such facilities throughout the Kansas City area to advise local government.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Will consider ordinance for review by the Board of Alderman.										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing			Medium	Existing	City Engineer/Floodplain Administrator; City of Harrisonville, MO; Community Development	City Engineer/Floodplain Administration, Codes, Community Development	Ongoing	Low cost mechanism to assess risk.		NA	NA
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administration; City of Harrisonville, MO		Ongoing	Low cost mechanism to assess risk.		NA	NA
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing			Medium	Existing	Emergency Services - Fire Chief	Emergency Services - Fire Chief	Ongoing	No/low cost mechanism to increase public safety.		NA	NA
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	None prepared										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	Emergency Services - Fire Chief; Community Development	Emergency Services - Fire Chief	Ongoing	No/low cost mechanism to increase public safety.		NA	NA
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Public education campaign has not been done for private structures										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Ongoing			Medium	Existing	City Engineering/Floodplain Administrator; City of Harrisonville, MO	City Engineer	Ongoing	No/low cost mechanism to increase public safety.		NA	NA
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			Medium	Existing	Public Works Director; City of Harrisonville, MO	Public Works Director	Ongoing	Will ensure dams are properly maintained and prevent large-scale damage and recovery costs.		$25,000 + per year	City of Harrisonville general funds
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Ongoing			Medium	Existing	Emergency Services - Fire Chief	Emergency services	Ongoing	No/low cost mechanism to increase public safety.		NA	NA
d. Conduct annual Inspection of non-regulated dams and provide report to MoDNR	2015	Ongoing		Local Plans and Regulations	Medium	Existing	Emergency Services	Emergency Services	Ongoing	No/low cost mechanism to increase public safety.		Low	NA
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	No interface										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Complete							No interface				
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	No interface										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	Not in our district. Dept. of Conservation does this										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	No interface - Education component is provided by the Missouri Department of Conservation	Harrisonville Emergency Services	N/A	No/low cost mechanism to increase public safety.		Low	TBD
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	No interface										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	No interface - Missouri Department of Conservation provides training to first responders										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	May consider ordinance amendment concerning wood shake roofs for Board of Alderman review.										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	Will consider discussion with existing subdivisions concerning the use of wood shakes.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	Will consider discussion with the Board of Alderman about incentives.										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	No interface										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	Will discuss plan with Parks & Recreation Department for policy.										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	Will gather educational information to distribute.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	Will investigate possible funding sources to enhance effectiveness.										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	Will advise Fire Chief of potential grant availability.										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	Will advise Fire Chief of training opportunities and exercises.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	Open burning in the City is not permitted!										

Lake Winnebago 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Emergency Management	Emergency Management	1/1/2016	Low/no cost mechanism to increase public safety.		$300.00	City Caufers
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	will work on this after leop is complete										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			High	Existing	Emergency Management	Emergency Management	1/1/2016	Low/no cost mechanism to increase public safety.		200.00	City
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deleted	There are no plans for any new facilities in the city.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deleted	Same as previous										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deleted	Our kids attend Lees Summit School District. and no other construction is foreseen										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deleted	Not Applicable										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			High	New	through building code system	hoa and city code enforcement	Ongoing	Low/no cost mechanism to increase public safety.		Low	fees for building permits
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			High	New	city and hoa codes	city code enforcement	Ongoing	While may increase building costs, will lead to greater occupant safety		Medium	building permits

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			High	New	architectural committee	hoa and city	Ongoing	While may increase building costs, will lead to greater occupant safety		Low	building permits
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			High	New	architectural committee	hoa and city	Ongoing	While may increase building costs, will lead to greater occupant safety		Medium	building permits
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	these utilities are under ground										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deleted	utilities are under ground										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	these utilities are under ground										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Complete							Jan 1 2010				
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Complete							Jan. 1 2010				
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Complete							Jan 1 2010				
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			Medium	New	City code	building inspector	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		unknown	property owner
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Deferred	There are no areas zoned for building which are in a floodplain.										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Medium	Existing	Floodplain Management	Emergency management	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Complete							unknown				
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	N/A										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deleted	N/A										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deleted	N/A										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	Floodplain Management	Emergency management	Ongoing	Will ensure homeowners and businesses are protected.		Low	City
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	Floodplain Management	Emergency management	Ongoing	Will ensure latest copies of flood maps are on hand to guide development and mitigation strategies.		Low	City
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							1-1-2012				
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing					public works	public works	unknown	Will ensure roadways are able to be maintained during winter storms.		varies	general fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			Low	Existing	league of cities	public works	unknown	Low cost mechanism to cost share and increase availability of sand stockpiles.		varies	general fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Complete							annually				
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			Low	Existing	phone tree calls	city hall	unknown	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		varies	general fund
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Complete							annually				
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Complete							annually				
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Complete							annually				
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deleted	this process is done by tri-county water										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	we do not have reservoirs										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Medium	Existing	water department meetings with supplier	tri county water board	unknown	Pre-planning is a low cost mechanism to ensure response actions are known and able to be implemented.		unknown	proprietary fund
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	planned at a later date										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Medium	Existing	water department news releases	public works	annually	Regional planning allows for local benefits at low cost		unknown	proprietary fund
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Medium	Existing	public works notifications	water department	annually	Low/no cost mechanism to increase public safety.		unknown	proprietary fund
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Medium	Existing	city hall staff	city hall staff	annually	Low/no cost mechanism to increase public safety.		unknown	general fund
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			High	Existing	city hall staff	public works	annually	Low cost mechanism to preserve water supplies.		minimal	proprietary fund
Heat Wave													
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Low	Existing	city hall staff	emergency mgmt.	annually	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		minimal	general fund
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Ongoing			High	Existing	Kansas city power and light	Kansas city power and light	annually	Low-cost mechanism to implement mitigation activities for vulnerable populations.		unknown	Kansas city power and light
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	future plans										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	future plans										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing			High	Existing	codes admin	building official	annually	Low cost mechanism to increase building durability.		unknown	permit fees
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	not in current short term plans, do not have low income housing										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Ongoing			Low	Existing	city hall staff	staff	Ongoing	Low cost mechanism to increaes public safety.		unknown	general fund
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			High	Existing	committee	lakes and dams committee	Ongoing	No/low cost mechanism to increase public safety.		unknown	dues
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	army corp of engineers										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing					mdnr information line	Army corp of engineers	Ongoing	No/low cost mechanism to increase public safety.		unknown	taxes
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	city hall staff	staff	Ongoing	No/low cost mechanism to increase public safety.		minimal	general fund
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	local political reoccurring issue										
Wildland Fires													
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Ongoing			High	Existing	public broadcasts	south metro fire district	Ongoing	No/low cost mechanism to increase public safety.		unknown	taxes
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing			High	Existing	city publications	city hall staff	annually	No/low cost mechanism to increase public safety.		unknown	general fund

Peculiar 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	New	Required by ordinance	Inspections	2/32016	No/low cost mechanism to increase public safety.		0	na
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	Only required by ordinance/notice has been mabde for community safe sheltering										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	No funding available										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	No funding available										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	Not under discusson at this time										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			High	Existing	Sheltering available at no city cost for schools, some churches and City Hall building.	EM	16-Jun	No/low cost mechanism to increase public safety.		0	na
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			High	Existing	Required by ordinance	Inspections	2/3/2016	No/low cost mechanism to increase public safety.		0	na
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			High	Existing	Required by ordinance	Inspections	2/3/2016	No/low cost mechanism to increase public safety.		0	na

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	Not priority at this time due to funding										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	No funding available										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	Not under discusson at this time										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deferred	Not a discussion item at this time										
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	An grant opportunity by SEMA to purchase a home on S. Kendall Rd. in Peculiar that had been flooded in the past was offered to the City. City staff, the Mayor and the Board of Aldermen were all "on board" to participate in the grant; yet when investigated, the home had no flood insurance and the grant opportunity was denied.										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	Not a discussion item at this time										
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deferred	Not being discussed at this time										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	New	City ordinances in effect in regards to new "green field" development.	Codes/Engineering	no sunset	Flooded homes, and new downstream conditions are better than existing conditions.		Hundreds of thousands of dollars	Providied by develpment
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	To be addressed in future land use ordinances, and as a part of the existing comprehensive and land use plan currently being updated (2015).										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	No funding available at this time for this type of project										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Deferred	No funding available										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	Will be addressed by city engineer in the future with area environmental groups a.k.a. the South Grand River Water Alliance.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	Existing	Looking for funding for improvements	City Engineer	unknown	No/low cost mechanism to increase public safety.		Low	unknown
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	No funding currently available for this type of expenditure. However, as grants are offered, funding may be available as the required match.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	For future consideration possible										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	For future consideration possible										
4. Discourage new development in floodplains and flood-prone areas.													
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Complete							12/3/2012				
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Complete							12/3/2012				
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deleted	To be considered in future										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	No funding available										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Medium	Existing	Working with a local engineering consultant for integrating the above into our GIS.	Public Works/Engineering	September 2016	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		$100,000	Public Works, Capital, Water and Wastewate Utilty Funds
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	Future consideration with proposed GIS										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			High	Existing	Channel 7 notification and city web site	Emergency management	ongoing	Will reduce recovery costs and ensure compliance with NFIP.		free	na
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	Will conduct this project item in near future as part of the MDNR MS4 permit.										
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	Future item										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	New	Handled by city personnel	Engineering	Unknown.	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	Unknown
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							1/13				
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	City utilizes gates for closing low water crossings.										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	Looking into possibilty										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	Investigating funding possibilities										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							11/18/2008				
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	No funding available										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High		City and EM have equipment avaiable. Additional resources being investigated.	em	open	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	unk.
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Not required by odiance at this time										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Not required by ordinance at this time, but city staff believe that this would be a good idea.										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Does not appear to be an issue at this time										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	Two (2) Public Works crews of four trucks with plows and spreaders are prepared for road openings.	Public Works	open	Will ensure roadways are able to be maintained during winter storms.		Unknonw and varies from year to year.	Public Works.
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	Has not been considered by Public Works. However, it should be noted that we (Public Works) do not lift our plows or stop our slat/sand spreaders when we are on MoDOT ROW.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	Not considered at this time.										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	To be considered on a case (winter storm by case occurance.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	Designing a program for public awareness by Emergency Management.										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	All done in house at this time.										

Pleasant Hill 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	Pleasant Hill Facilities Department	City of Pleasant Hill	No set date	Low cost mechanism to increase public safety.		$500	General Fund
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Complete							2014				
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	City has put recent efforts into providing public shelters and requiring residential safe rooms. Additional regulations have been deferred.										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Low	Existing	Community Development Department	City of Pleasant Hill	No date set	No/ or low cost to implement and require little staff support.		$100	General Fund
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Low	Existing	Pleasant Hill Community Development Department	City of Pleasant Hill	No date set	No/ or low cost to implement and require little staff support.		$100	General Fund
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Low	Existing	Community Development Department	City of Pleasant Hill	Ongoing	Will eliminate or greatly reduce repetitive loss properties.		$10,000 per year	General Fund
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Low	Existing	Community Development Department	City of Pleasant Hill	No date set	No/ or low cost to implement and require little staff support.		$100	General Fund
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	This will be deferred until financial resources are obtained.										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Complete							2009				
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Medium	Existing	City Hall	City of Pleasant Hill	Ongoing	Will eliminate or greatly reduce repetitive loss properties.		Varies	General Fund
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			Medium	Existing	City Community Development Department	City of Pleasant Hill	Ongoing for new construction	Will eliminate or greatly reduce flood losses.		High	various
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	Limited resources										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Medium	Existing	Community Development Department	City of Pleasant Hill	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		no estimate available	General Fund
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	City has limited resources and has not established this as a priority at this time										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Deferred	Lack of resources							Lives and property losses avoided			

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Medium	Existing	Community Development Department	City of Pleasant Hill	on going	No/low cost mechanism to encourage flood preparedness.		Under $100	General Fund
8. Implement or improve flood warning systems.													
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	As this involves regional cooperation, we would defer pending completion of Regional Hazard Mitigation Plan.										
Winter Weather													
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	City Administration and Facilities Departments	City Facilities Department	No date set	Prevent business Down Time and loss of access to vital functions		$10,000	City General Fund
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	City of Pleasant Hill Public Works Department	City of Pleasant Hill	No completion date, as this is an annual appropriation	Will ensure roadways are able to be maintained during winter storms.		$50,000 per year	Street Fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	Local governements partner to get better pricing on some materials, but each is left to stockpile their own needs.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	While this idea has merit, it is not on our agenda at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	This has not been established as a priority.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	City Hall distributes information obtained from other sources.	City of Pleasant Hill	Ongoing	Low cost mechanism to increase public safety.		Under $100	General Fund
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Medium	Existing	City Hall distributes information obtained from other sources.	City of Pleasant Hill	Ongoing	Low cost mechanism to increase public safety.		Under $100	General Fund
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	This idea has merit, but has not been made a priory for our limited resources.										
Drought													
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	Deferred pending update of local emergency plan										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			High	Existing	City Public Works Department	Ctiy of Pleasant Hill	no date set	Low cost mechanism to increase water preservation.		under $1000	Water Fund
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			High	Existing	City Public Works Department	City of Pleasant Hill	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		Varies	Water Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	City Public Works Department	City of Pleasant Hill	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		Varies	Water Fund
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	City Public Works Department	City of Pleasant Hill	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		Varies	Water Fund
Heat Wave													
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	Limited resources dictate that this idea be deferred.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deferred	Pending update of plan										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Complete								2007			
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Deferred pending development of community partnerships										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	Deferred pending formation of a community partnership										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	City Hall distributes information obtained from othe sources.	City of Pleasant Hill	Ongoing	Low cost mechanism to increase public safety.		Under $100	General Fund
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	City Hall distributes information obtained from other sources.	City of Pleasant Hill	Ongoing	Low cost mechanism to increase public safety.		Under $100	General Fund
Earthquake													
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	This is not seen as a priority due to low risk										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	Pending update										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	Deferred pending update										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	Deferred pending plan update										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	Deferred pending plan update										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Deferred pending plan update										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	Deferred pending plan update										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							2012				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	Not considered a local priority										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	Deferred pending plan update										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	Not considered a high local priority										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	Not considered applicable for locality										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	No sources available at this time, but may be in future										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Complete							Latest update 2012				
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Deferred pending plan update										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	This is substantially done through current development review practices, but additional codes may be found to be necessary in future										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	City has elected not to use this methodology										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review (2015)	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deleted	Fire District has assumed this responsibility										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	This is now responsibility of Fire District										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	Fire District has assumed this responsibility										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Medium	Existing	City Parks Department	City of Pleasant Hill	Ongoing	Will reduce a major cause of wildfire at little cost.		Low	Park Fund
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	Responsibility has shifted to Fire District										

Raymore 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Public Awareness Events/Website/Severe Weather Training/Brochures/Media publications/Facebook/Twitter	Emergency Management/City of Raymore	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deleted	Not applicable or will not be underway during this plan										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	American Red Cross aiding in identification and inspection of all shelters not owned by the City of Raymore. Parks and Recreation and Public Works assisting in city-owned identification and marking of current shelters.	Emergency Management	December 2017	Low/no cost mechanism to increase public safety.		Low	Unknown
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	Currently no funds available and some buildings may need redesigned to allow for the capabilities.										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deleted	Will not be undertaken during this plan.										
Construction of a tornado safe room adjacent to Recreation Park and less than a 1/2 mile from Memorial Park	2015	Ongoing		Structure and Infrastructure Projects	High	New	Comprehensive Plan/EOP	Emergency Management/City of Raymore	TBD as funding available	Would provide protection for the several activities that occur at Recreation Park.	Greater than 200	High	HGMP or PDM along with local and/or state funds
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	This would be a requirement of the local government to provide during the designing of the building and therefore tax incentives should not be needed.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	Existing	Public education campaigns	Emergency Management/ Community Development	ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deleted	Currently no regulations or ordinances that require safe rooms and this will not be undertaken during this plan										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Complete							January 2014				
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deleted	Will not be undertaken during this planning period										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deleted	This is not applicable as current ordinances are not set to make these requirements.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	Not applicable for this planning period										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	New	Codes and Public Works	City of Raymore	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Medium	Unknown
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	This would be addressed within subdivision regulations and ordinances or would be addressed within the scope of a project.										
Flooding													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deleted	Currently there are no properties within the floodplain or that would be considered repetitive flood loss properties.										
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deleted	Currently there are no repetitive flood loss properties in Raymore.										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deleted	Not applicable or will not be underway during this planning period										
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	Not applicable to the City of Raymore										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Medium	Existing	Local Planning	Public Works / Emergency Management	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deleted	Not applicable during this planning process										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deleted	Not applicable to Raymore or will not be undertaken this planning period										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Low		Planning and Zoning	Parks and Recreation and Public Works	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Unknown	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deleted	Not applicable to the City of Raymore										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Deleted	Not applicable or will not be underway during this planning process										
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Deleted	Not applicable to the City of Raymore										
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deleted	Not applicable to the City of Raymore										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deleted	Not applicable to the City of Raymore										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deleted	No properties currently within a floodplain in the City of Raymore										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deleted	No properties are currently within the floodplain										
4. Discourage new development in floodplains and flood-prone areas.													
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deleted	No building is allow in floodplain.										
5. Improve flood hazard assessments and flood mapping.													
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deleted	The City of Raymore currently does not participate in the CTP program										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Medium	Existing	Floodplain Management	Emergency management	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deleted	Not applicable to the City of Raymore or will not be undertaken during this planning process.										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Medium	Existing	Public education/ awareness program and awareness of the NFIP	Emergency management/ public works	Ongoing (as new homes and businesses continue)	Will reduce recovery costs and ensure compliance with NFIP.		Low	unknown
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deleted	Due to no properties in the floodplain this will not be undertaken during this planning period.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deleted	Not applicable to the City of Raymore										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	Existing	Planning & Zoning/ Subdivision Regulations and Public Works	P&Z/ Engineering / Public Works	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Unknown	Unknown
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	No plan to offer incentives during this planning process										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Medium	Existing	Coordinating with the Red Cross to identify all suitable shelters within the City of Raymore. Those will be inspected and certified.	Emergency Management	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		unknown	unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deleted	Existing facilities suitable for shelters already have generators.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	Not applicable to the City of Raymore										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deleted	Not applicable or will not be undertaken during this planning period										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deleted	Not applicable or will be covered by local non profit organizations, faith-based groups, or 211.										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			Medium	Existing	Local Planning	Public Works / Finance	Ongoing	Will ensure roadways are able to be maintained during winter storms.		Unknown	Unknown
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			Medium	Existing	Local and Regional Planning/MARC	Public Works/ Finance	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	unknown
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			Medium	Existing	MEMC / MARC	Public Works / Emergency Management	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	Unknown
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deleted	Not applicable										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Medium		Public Education Information	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Low	unknown
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	Public outreach, social media, and local publications	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Medium	Existing	Public Outreach	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deleted	Not applicable to the City of Raymore										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	Not applicable to the City of Raymore										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Low	New	Public Works/ Water Division	Public Works/ Emergency Management	December 2020	Low cost mechanism to support drought response.		Low	unknown
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Low	New	Public Works and Local Planning	Public Works / Emergency Management	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deleted	Currently not underway during this planning period.										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing	Public Works/ Water Division program	Public Works/ Water Division/ Emergency Management	Ongoing	Low cost mechanism to preserve water supplies.		Low	unknown
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deleted	Not applicable to the City of Raymore										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Low	Existing	Regional planning committee, local water division, regional and local public education	Public Works/ Water Division - Emergency Management	Ongoing	Low cost mechanism to preserve water supplies.		Low	unknown
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	Not applicable to the City of Raymore										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Low	Existing	Engineering studies, Subdivision regulations and master plan for the City of Raymore	Public Works/ Engineering Div.	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	unknown
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deleted	Not applicable to the City of Raymore										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deleted	Not applicable to the City of Raymore										
Heat Wave													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Medium	New	City of Raymore will partner will local churches and the Raymore-Peculiar school district to open cooling centers.	Emergency Management	December 2015	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	current facilities have air conditioning										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deleted	Not applicable to the City of Raymore or not underway during this planning process										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing			Medium	Existing	MEMC, LEPC and Local emergency management, and 2-1-1	Emergency Management	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	Local utility companies have a programs in place.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			Medium		MEMC, LEPC and our local LEOP	Emergency Management/ Fire Dept.	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deleted	Not applicable to the City of Raymore										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deleted	Not applicable or not underway during this planning period										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Low	Existing	Local CERT	Emergency Management	ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deleted	Currently the city does not have a community pool.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	MEMC, LEPC and Local Emergency Managers	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deleted	Not applicable or not underway during this planning process										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			Medium	Existing	MEMC, LEPC & public education	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deleted	Not applicable at this time										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deleted	Not applicable at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deleted	Not applicable										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deleted	Not applicable to Raymore at this time										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deleted	Not applicable at this time within the City of Raymore										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete							January 2014				
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deleted	Not applicable to the City of Raymore at this time										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deleted	Not applicable at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deleted	Not applicable to the City of Raymore										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deleted	Will not be underway during this planning period										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	Not applicable at this time										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deleted	Not applicable at this time										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	Deferring to DNR and Corp of Engineers as they have the author and jurisdiction.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deleted	Not applicable at this time										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deleted	Not applicable at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deleted	Not applicable at this time										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deleted	Not applicable at this time.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	Not applicable to Raymore or will not be underway during this planning period.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deleted	Will continue to inspect shelters but will not have the seismic studies complete										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deleted	Current identified shelters already have generators in place.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			Medium	New	Planning & Zoning / Building Codes / Emergency Management	Planning & Zoning / Building Codes / Emergency Management	Ongoing	While may increase building costs, will lead to greater occupant safety		Medium	unknown
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deleted	Not applicable to the City of Raymore										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deleted	Not applicable to the City of Raymore										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deleted	Not applicable to the City of Raymore or will not be underway during this planning process										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deleted	Not applicable to the City of Raymore										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deleted	Not applicable to the City of Raymore										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deleted	Since both dams in Raymore are private this is not applicable to Raymore.										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deleted	Not applicable to the City of Raymore										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deleted	Not applicable to the City of Raymore										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deleted	Will not be undertaken during this planning process										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deleted	Not applicable to the City of Raymore										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	Not applicable to the City of Raymore										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	Will not be undertaken during this planning process										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	Deferring to MEMC and MARC										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	Deferred to MEMC and MARC										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	Not applicable to the City of Raymore										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	Not applicable to the City of Raymore										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	Not applicable to the City of Raymore										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	Not applicable to the City of Raymore										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	At this time, current sirens cover these areas.										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	This was attempted but homeowners association rejected the idea.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deleted	Not applicable to the City of Raymore										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deleted	Not applicable to the City of Raymore										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deleted	Not applicable to the City of Raymore										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	Not applicable to the City of Raymore										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	Not applicable to the City of Raymore										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deleted	Not applicable to the City of Raymore										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	will defer this to rural fire protection districts										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deleted	Not applicable to the City of Raymore										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deleted	Currently will not be undertaken during this planning process										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deleted	Not applicable to the City of Raymore										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	Will defer this to fire district for any incentive.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing			Medium	Existing	Building Codes, and Fire District Life Safety Code	Building Codes, Fire District	ongoing	While may increase building costs, will produce savings in potential damage and recovery costs.		Unknown	unknown
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deleted	Not applicable to City of Raymore										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Ongoing			Low	Existing	Local Planning and Regulations	Public Works / Fire Protection District	Ongoing	Will greatly reduce prevelance of wildfires at relatively low costs.		Unknown	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deleted	Not applicable to the City of Raymore										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	Not applicable to the City of Raymore										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deleted	Not applicable to the City of Raymore										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deleted	Not applicable to the City of Raymore										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deleted	Not applicable to the City of Raymore										
6. Reduce the wildland fire threat by regulating outdoor burning.													
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deleted	This is a Fire District issue, but currently they issue burn bans when conditions exist.										
Civil Disorder													
1. Increase public cooperation with local law enforcement and other relevant agencies during a major civil disorder event													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Consider an advisory board or public awareness committee to allow interaction between the community and local law enforcement	2015			Education and Awareness Programs	Medium	Existing	Local Planning	Local Police/EM	Ongoing	Low cost mechanism to increase public safety.	Whole Community	0	N/A
Cyber Disruption													
1. Increase awareness of possible breaches in cyber security by all personnel using city-wide systems													
Launch a training initiative designed to educate employees on security risks in everyday technology use.	2015			Education and Awareness Programs	Medium	Existing	IT department/Finance	Emergency Management/IT	Ongoing	Low cost initiative that will prevent cybercrimes, potentially saving thousands of dollars and data.	City-Employees	0	N/A
Severe Thunderstorms													
1. Ensure local alert systems are in place and operational during severe weather.													
Maintain the city's siren system in good working order and continue to assess the coverage those sirens provide	2015			Structure and Infrastructure Projects	Medium	Existing	Emergency Management	Emergency Management/IT	Ongoing	Will sustain primary warning capability of the city.	Whole Community	0	N/A
Continue to promote the Code Red alert notification system within the City of Raymore and the county	2015			Education and Awareness Programs	Medium	Existing	Public Education	Emergency Management/IT	Ongoing	Low cost mechanism for mass alerting of citizens to danger.	Whole Community	0	N/A
2. Increase the public's awareness of the dangers of severe thunderstorms and the need to shelter immediately													
Promote storm spotter training for the entire region	2015			Education and Awareness Programs	Low	Existing	Public Education	Emergency Management/IT	Ongoing	Free program that benefits public awareness and city alerting procedures.	Whole Community	0	N/A
Distribute severe storms safety literature at public events and launch announcements through social media and the city website	2015			Education and Awareness Programs	Medium	Existing	Public Education	Emergency Management/IT	Ongoing	Low cost mechanism to increase public safety.	Whole Community	0	N/A
3. Promote the advantages of identifying, creating, or building a safe room to be used during severe weather													
Continue to register storm shelters as they are installed in homes and businesses throughout the community	2015			Local Plans and Regulations	Low	Existing	Local Planning	South Metro Fire and Emergency Management	Ongoing	Low cost mechanism to increase public safety.	Whole Community	0	N/A

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Work with residents and business partners by providing information on safe rooms and shelters when requested	2015			Education and Awareness Programs	Low	Existing	Public Education	SMFD/EM	Ongoing	Low cost mechanism to increase public safety.	Whole Community	0	N/A
4. Establish a current database of Red Cross certified shelters that could be used during severe weather and make that list available to the public.													
Identify all establishments that could be used as shelters. If consented to be a shelter, have Red Cross inspect and certify establishment as a shelter	2015			Structure and Infrastructure Projects	Medium	Existing	Local Planning/Codes	Emergency Management/IT	Ongoing	Low cost mechanism to increase public safety.	Whole Community	0	N/A
Work with neighboring communities, MEMC, and MARC on creating an updated shelter database for the entire region	2015			Local Plans and Regulations	Medium	Existing	Local Planning	Emergency Management/IT	Ongoing	Low cost mechanism to increase public safety.	Region-Wide	0	N/A
Emerging Infectious Diseases													
1. Create a line of communication between the City of Raymore's Emergency Management department and the County Health Department to receive important updates and information regarding any outbreaks.													
Set up a monthly conference with Cass County Public Health (aside from county EM meeting) to discuss any health concerns, health notifications, or polices that need to be addressed	2015			Education and Awareness Programs	Medium	Existing	Public Education	Cass County Health/EM	Ongoing	Low cost mechanism to increase public safety.	County-Wide	0	N/A

Clay County 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Deleted	Funding not available for development of material.										
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deleted	Not feasible at this time.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			High	Existing	planning and zoning/contractors Storm shelter completed at Smithville Lake Parks and Rec, and at Midwest National Air Center.	planning and zoning, contractors, emergency management	Ongoing	Low/no cost mechanism to increase public safety.		Low	unk
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Complete							May 2014	None to report			
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			High	Existing	county commission As of February 2015 still in progress	county commission	Ongoing	Low/no cost mechanism to increase public safety.		Low	unk
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			High	Existing	Emergency Management promotes sheltering via public education events and social media.	Emergency Management	Ongoing	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		Medium	unk

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			High	Existing	Emergency management will promote via public education and social media. Safe rooms are becoming more inclusive in remodel and new construction for schools and apartment complexes.	emergency management.	Ongoing	Low/no cost mechanism to increase public safety.		Low	unk
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			High	Existing	Emergency Management supports and encourages shelters, however, developing ordinances for such is not reasonable at this time.	planning and zoning, county attorney, county commission.	Ongoing	Low/no cost mechanism to increase public safety.		Low	unk
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	Emergency management will certainly "encourage."										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Complete							2012				
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Complete							2014				
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deleted	Not a function of emergency management to "require" building features. We can encourage, recommend and educate.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	Not a function of emergency management to work with infrastructure such as this.										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deleted	Not a function of emergency management to develop ordinances such as this. We can encourage industry best practices.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	Emergency Management and Clay County are not in a position to offer incentives such as this.										
6. Ensure Alert, Warning and Mass Notification systems are in place and operationa..													
Continue outdoor siren routine maintenance program	2015			Structure and Infrastructure Projects	High	Yes	Ongoing maintenance program	EM	Ongoing	Low cost preventative maintenance ensures operational reliability.		1000	EM budget
Conduct monthly test of outdoor siren warning system.	2015			Local Plans and Regulations	High	Yes	Monthly test	EM	Ongoing	Low cost preventative maintenance ensures operational reliability.		0	Explain
Encourage use of mass notification systems such as Nixle	2015			Education and Awareness Programs	High	Yes	Notification systems	EM	Ongoing	No cost mechanism to increase public alert and warning.		0	Explain
7. Provide education and awareness													
Post educational info to media and social media sources	2015			Education and Awareness Programs	High	yes	Media and social media	EM	Ongoing	No cost mechanism to increase public awareness and education.		0	Explain
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deferred	Municipalities work on their own flood issues.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	Municipalities work on their own flood issues.										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deleted	Not a Clay County strategy.										
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Low	Existing	There are local efforts to encourage property owners to take preventive action.	municipal government	Ongoing	No/ or low cost to implement and require little staff support.		Low	municipal funds
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Deferred	This is a function of local municipalities.										
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	Deferred to municipalities with flood prone properties.										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	Deferred to municipalities with flood prone properties.										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Deferred	Deferred to local municipalities.										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	Deferred to municipalities with flood prone properties.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			High	New	Emergency management, Planning and zoning, municipal government and county commissioners	city and county government	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	government source
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Deferred	The county encourages such efforts, however, will not drive them.										
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	Although the county supports this effort, it will not drive it.										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	The County encourages, however will not be driving utilities as to their practices.										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	This practice is encourage, but not driven by Clay County.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	This practice is encouraged by Clay County but mostly up to municipalities.										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	Encouraged by Clay County but primarily a function of local municipalities.										
4. Discourage new development in floodplains and flood-prone areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			High	New	County and municipalities planning and zoning function.	Planning and zoning	Ongoing	Will provide legal mechanism to enforce floodplain management.		Unknown	county and municipal funds
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Deferred	Planning and zoning										
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Planning and zoning										
5. Improve flood hazard assessments and flood mapping.													
a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Deferred	Function of planning and zoning.										
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	Planning and zoning function.										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	Clay County will not purchase.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	For Clay County this is a function of planning and zoning.										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	Planning and zoning function.										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Deferred	This is not a function of the county.										
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deleted	Not a function of the county.										
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			High	Existing	Emergency Management will include in all-hazards outreach events.	emergency management.	Ongoing	Low cost mechanism to increase public awareness for floodplain management.		Low	county and city government
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	Planning and zoning participates	Planning and zoning		Will ensure reduced insurance rates for homeowners and businesses while controlling recovery			

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	county and municipal government with planning and zoning.	county and municipal government	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	county and municipal funds
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			High	Existing	county and municipal government with planning and zoning.	county and municipal government	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Medium	county and municipal funds
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	GIS mapping planning and zoning										
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			High	Existing	emergency management planning and zoning municipal government county commissioners	emergency management.	Ongoing	Will ensure that citizens are prepared real time for flood events.		Low	county and city government
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	clay county commission										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	utility board										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	utility board										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	county and city government
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	facilities management										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	contractors and planning and zoning										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	contractors and c.e.r.t members										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	utility board										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Deferred	dot and highway department										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	clay county highway dept. and DOT.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	COUNTY AND CITY GOVERMENT										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	COUNTY AND CITY GOVERMENT WOULD HAVE TO DEVISE A PLAN FOR NON ESENTIAL PERSONEL.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	CONTRACTORS AND UTILITY COMPANYS										
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	No/low cost mechanism to increase public safety.		Low	county and city government
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			High	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	No/low cost mechanism to increase public safety.		Low	county and city government
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			High	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	No/low cost mechanism to increase public safety.		Low	county and city government
Drought													
1. Assess the vulnerability of water systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deferred	water district boards										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	water district boards										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	water district boards and emergency management to look at plan										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	emergency management to look at drought plan for there area.										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	emergency management will work with marc on long term water plan										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Medium		emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low/no cost mechanism to increase public safety.		Low	county and city government
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low/no cost mechanism to increase public safety.		Low	county and municipal funds
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to preserve water supplies.		Low	county and municipal funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	water district boards										
c. Develop and implement water conservation ordinances.	2010	Deferred	clay county commission & city government										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Deferred	COUNTY AND CITY GOVERMENT										
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	COUNTY AND CITY GOVERMENT										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	COUNTY AND CITY GOVERMENT										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Medium	Existing	emergency management municipal government red cross salvation army set up heated and cooled facilities when needed in our jurisdiction.	county and municipal government	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	county and city government
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			Medium	Existing	county and municipal government with help from red cross and salvation army.	county and municipal government	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Medium	county and city government
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Medium	Existing	clay county community action unit keeps a list of all at-risk residences in our unincorporated area of the county	county and municipal government	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	county and city government
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	our unmet need organization works very well with our at-risk population.										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	utility board works with the at-risk population on cost issues.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deferred	the unmet needs committee works with emergency managers and local vendors we have a heat wave or drought procedure.										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Complete					Cay county emergency management has a plan. our plan will also work for the region.	clay county emergency management	2007				
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	clay county community action unit										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	community action unit school resource cert helps us with getting the word out to citizens										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	municipal government would work on this issue										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	clay county keeps education materials for the public at all times we also use our school resource unit to help get the material out to homes in the region	clay county emergency management	Ongoing	Low cost mechanism to increase public safety.		Low	county and city government
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	clay county community action unit keeps a list of all at-risk residences in our unincorporated area of the county	clay county emergency management	Ongoing	Low cost mechanism to increase public safety.		Low	county and city government
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deferred	nationa weather service does a good job at keeping the public aware of heat waves and what to do.										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	we use our home improvement vendors on helping with this issue lowes home depot at etc.										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	state of Missouri has plan for kc metro area we use.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	we use state of Missouri program										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing			Medium	Existing	emergency management planning and zoning municipal government	planning and zoning	Ongoing	Will allow for targeted mitigation efforts.		Medium	county and city government

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	planning and zoning contractors and engineers										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	planning and zoning and contractors										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Deferred	planning and zoning contractors and engineers and county commission.										
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	planning and zoning contractors and engineers										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	planning and zoning insurance board housing authority.										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	this would be the small business loan companies										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	insurance board would have this information.										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to increase public awareness about earthquakes.		Low	county and city government

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	planning and zoning contractors and engineers and county commission.										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	water district boards										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	this would be the Missouri dam and reservoir board.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to reduce injury from earthquakes		Low	county and city government
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to reduce injury from earthquakes		Low	county and city government
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing			Medium	Existing	emergency management, planning and zoning, school resource deputies.	emergency management.	Ongoing	Low cost mechanism to reduce and property damage injury from earthquakes		Low	county and city government

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	contractors and planning and zoning										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	planning and zoning contractors and engineers and county commission.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	red cross and marc offices										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	emergency management municipal government red cross salvation army set up heated and cooled facilities when needed in our jurisdiction.	emergency management.	Ongoing	Potential high cost, but would meet ADA compliance and ensure life safety of emergency shelters.		High	county and city government
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	planning and zoning contractors and engineers and county commission.										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	Missouri dam and reservoir corp of engineers										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	Missouri dam and reservoir corp of engineers										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	assessor office planning and zoning corp of engineers										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	planning and zoning and gis mapping.										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	COUNTY AND CITY GOVERMENT										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	COUNTY AND CITY GOVERMENT CORP OF ENGINEERS										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	COUNTY AND CITY GOVERMENT										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	COUNTY AND CITY GOVERMENT CORP OF ENGINEERS.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing			Medium	Existing	emergency management and planning and zoning	emergency management.	Ongoing	Low cost mechanism to increase public safety.		Low	county and city government
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	COUNTY AND CITY GOVERMENT PLANNING AND ZONNING.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	ELECTED OFFICALS										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	STATE REPRESENTATIVES COUNTY AND CITY OFFICALS										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	planning and zoning, county commission corp of engineers.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	Missouri dam and reservoirs corp of engineers planning and zoning										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	small business loan assoc.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	clay county commission.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deferred	COUNTY AND CITY GOVERMENT										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deferred	planning and zoning and county commission.										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Ongoing			Medium	Existing	emergency management and planning and zoning	emergency management.	Ongoing	Medium cost, but increases ability to warn public and potentially reduce or eliminate injuries or deaths.		$45.000	county and city government
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	emergency management										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	planning and zoning county commission and city government.										
7. Ensure plans are in place and up to date													
Review plans and update as needed	2015			Local Plans and Regulations	High	Yes	Plans and exercises	EM	Ongoing	Low cost mechanism to ensure response plans are in place and feasible.		200	Fuel for meetings
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	regional fire departments county and city government emergency management.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	regional fire departments county and city government emergency management.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	gis mapping planning and zoning emergency management.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	local fire protection districts										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	emergency management local fire protection districts										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	fire protection districts										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	emergency management will assist on education.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	planning and zoning										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	home owners associations insurance companies.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	county and city government tax collectors offices.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deferred	planning and zoning and county commission.										
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	planning and zoning contractors and engineers										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	mdnr fire districts planning and zoning county commission.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	county commission and park boards										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	emergency management local fire protection districts										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	clay county commission & city government fire protection districts										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	emergency management local fire departments county and city government										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	mdnr and fire departments										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	GIS and mapping along with planning and zoning and water districts.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	COUNTY AND CITY GOVERMENT FIRE DEPARTMENTS.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	PARK BOARDS FIRE DEPARTMENTS										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deferred	CITY AND COUNTY GOVERNMENT FIRE DEPARTMENTS.										
Hazardous Materials													
1. Ensure responders are available and prepared													
Update local responder resources	2015			Local Plans and Regulations	High	Yes	Local responders	EM	Annual	Low cost mechanism to ensure response plans are in place and feasible.		0	Explain
Emerging Infectious Diseases													
1. Coordinate with Clay County Health Department													
Coordinate plans with Clay County Health Department	2015			Local Plans and Regulations	High	Yes	Planning meetings with health department	EM	Annual	Low cost mechanism to ensure response plans are in place and feasible.		200	Fuel for meetings
Levee Failure													
1. Ensure plans are in place and up to date													
Review plans and update as needed	2015			Local Plans and Regulations	High	Yes	Plans and exercises	EM	Annual	Low cost mechanism to ensure response plans are in place and feasible.		0	Explain
Terrorism													
1. Coordinate with local, state and federal terrorism response agencies													
Review plans and resources	2015			Local Plans and Regulations	High	Yes	KCTEW, MEMC	EM	Annual	Low cost mechanism to ensure response plans are in place and feasible.		200	Fuel for meetings

Excelsior Springs 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
6. Increase public Education/ Awareness and Readiness for Tornadoes and Severe Thunderstorms													
Host a public education event	2015			Education and Awareness Programs	Medium	N/a	Explain	NWS	2+ years	Low cost mechanism to increase public safety.	500	0	n/a
Host a mock drill with all city officials	2015			Education and Awareness Programs	High	N/a	LEOP	ESFD	Year	Low cost mechanism to increase public safety.	20+	0	n/a
Flooding													
1. Reduce flood risk to city.													
**Reevaluate Flood areas	2015			Natural Systems Protection	Low	Existing	Floodplain Management	Community Development	Ongoing	Will help identify mitigation efforts for flooding.	N/a	Low	n/a
Winter Weather													
1. Increase Winter Weather Response Readiness													
Develop Emergency Snow Routes				Local Plans and Regulations	High	Existing	Public Works	ESPW	Year	Low cost mechanism to increase public safety.	Citywide	0	n/a
Earthquake													
1. Increase Earthquake Response Readiness													
Develop Annex of LEOP for Earthquakes				Local Plans and Regulations	High	N/a	LEOP	ESFD	Year	Low cost mechanism to increase public safety.	N/a	0	n/a

Gladstone 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Complete							12-31-2014				
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deleted	Was not able to get buy ins										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	All buildings have areas of Refuge										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Medium	New	Building Codes	Building Codes	NA	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		NA	na
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Complete							12/30/2014				
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			Medium	Existing	Public outreach	Individuals	on going	Low/no cost mechanism to increase public safety.		unknown	budget
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	same as before										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Complete							2014				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
6. Provide more public information on preparing for a disaster													
Public Education and EOP updates	2015			Education and Awareness Programs	High	Existing	EMA	GEMA	year	Low/no cost mechanism to increase public safety.	$20,000	Explain	EMPG
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Complete							2013				
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Medium	Existing	Currently Public Works does this program	Public Works	ongoing	No/ or low cost to implement and require little staff support.		Low	Unknown
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	this is part of the board of zoning, Building code and city development.										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	This is part of the Board of Zoning, Building code and City development.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	This is part of the Board of Zoning, Building code and City development.										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	This is part of the Board of Zoning, Building code and City development.										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Complete							2014				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2013				
5. Improve flood hazard assessments and flood mapping.													
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deleted	We do not use the HAZUS-Flood software										
6. Enhance public awareness and education efforts related to flooding.													
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	County efforts										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Complete							2014				
b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Deferred	County efforts										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	Building codes										
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Building codes										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	Working with local properties	EMA	2018	Would ensure emergency shelters are ADA compliant.		Medium	Unknown
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			High	Existing	Northland Neighbors helping Neighbors	Codes	ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Do not provide this service										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	Public Works	Public Works	ongoing	Will ensure roadways are able to be maintained during winter storms.		Medium	Unknown
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	We use our own resources										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			High	Existing	Neighbors Helping Neighbors Non profit group	Codes	ongoing	Low cost mechanism to increase public safety.		Low	?
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	Codes and NHN	Codes	ongoing	Low cost mechanism to increase public safety.		Low	?
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			High	Existing	Codes and NHN	Codes	ongoing	Low cost mechanism to increase public safety.		Low	?

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			High	Existing	Town hall meetings	EMA	ongoing	Low cost mechanism to increase public safety.		Low	?
6. Provide more public information on preparing for a disaster													
Public Education and EOP updates	2015	Ongoing		Education and Awareness Programs	High	Existing	EMA	GEMA	year	Life and property loss	$20,000	Explain	EMPG
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Medium	Existing	Use local Water Department	Water Department	Ongoing	Low cost mechanism to preserve water supplies.		Low	Unknown
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	Water Department handles this issue										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Low	Existing	EOP	EMA	Ongoing	Low cost mechanism to preserve water supplies.		Low	Unknown
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	Existing	Water Department handles these issues	Water Dept	Ongoing	Low cost mechanism to preserve water supplies.		Low	Unknown
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			High	Existing	Water Department handles these issues	Water Depart	Ongoing	Low cost mechanism to preserve water supplies.		Low	Unknown
c. Develop and implement water conservation ordinances.	2010	Ongoing			Low	Existing	Codes	Codes	Ongoing	Low cost mechanism to preserve water supplies.		Low	Unknown
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			High	Existing	Replacement of existing pipes	Water Department	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	Water Department	Water and City Manager	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	We are always seeking other sources for funding	Water	Onboing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
Heat Wave													
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Medium	Existing	Heat Wave Response Plan	EMA	ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Complete							2007				
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Using area wide programs										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Medium	Existing	Program for Special needs	EMA	ongoing	Low cost mechanism to increase public safety.		Low	Unknown
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	This is done by the City manager on an as need basis.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			High	Existing	Local programs	PIO office	Ongoing	Low cost mechanism to increase public safety.		Low	EMPG
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			High	Existing	NHN	Codes	Ongoing	Low cost mechanism to increase public safety.		Low	EMPG
5. Maintain Shelters and cooling centers within the area.													
Public Education and EOP updates	2015	Ongoing		Education and Awareness Programs	High	Existing	EMA	GEMA	year	Life and property loss	$20,000	Low	EMPG
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing			Low	Existing	Codes	Building Codes	2019	Data has multiple uses and can benefit across multiple programs.		0	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing			Low	Existing	EMA	EMA	Ongoing	Data has multiple uses and can benefit across multiple programs.		Low	Unknown
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing			Low	Existing	EMA	EMA	Ongoing	Data has multiple uses and can benefit across multiple programs.		Low	Unknown
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	Codes handles this										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	Dont currently conduct this										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	Dont do										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	We have not seen a need to provide this withing our city.										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	N/A										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	With the age of our city and structures. These were built pre-seismic standards.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	The privates sector has done this within the own properties										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	EMA	EMA	Ongoing	Potential medium - high cost, but would meet ADA compliance and ensure life safety of emergency shelters.		Medium	Unknown
8. Evaluate the EOP on Earthquakes and make changes as needed													
Public Education and EOP updates	2015			Education and Awareness Programs	High	Existing	EMA	GEMA	year	Explain	$20,000	Low	EMPG
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	Our city has no registered dams.										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	Our city has no registered dams										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	Our city has no registered dams										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	Our city has no registered dams										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	Our city has no registered dams										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	Our city has no registered dams										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	Our city has no registered dams										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Our city has no registered dams										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	Our city has no registered dams										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	Our city has no registered dams										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	Our city has no registered dams										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	Our city has no registered dams										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	Our city has no registered dams										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	Our city has no registered dams										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	Our city has no registered dams										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	Our city has no registered dams										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deferred	Our city has no registered dams										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deferred	Our city has no registered dams										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	Our city has no registered dams										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Our city has no registered dams										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	NO dams in the City										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Complete							2014				
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Complete							2014				
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Complete							2014				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete							2014				
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Complete							2014				
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing			Medium	Existing	Apply	Fire	2015	Low cost mechanism to increase firefighting capacity.		0	0

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deferred	Our city currently has less than 2% undeveloped property. So the risk for a wildland fire is minimal.										
Severe Thunderstorms													
1. Increase public disaster preparedness.													
Provide Public Education materials and EOP updates	2015	Ongoing		Education and Awareness Programs	High	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Terrorism													
1. Increase Terrorism Preparedness.													
Attend additional; training on planning, preparing and responding to these threats	2015	Ongoing		Education and Awareness Programs	High	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Hazardous Material													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Increase Hazadous Materials incidents preparedness.													
1. Maintain a current listing of those business that store hazardous material and roadway incidents	2015	Ongoing		Local Plans and Regulations	Medium	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Emerging Infectious Diseases													
1. Increase Emerging Infectious Disease preparedness.													
1. Maintain the EOP for this and continue to work with local Public Health personnel.	2015	Ongoing		EMA	Medium	year	EMA	GEMA	2016	Low cost mechanism to increase public safety.		Low	Existing
Civil Disorder													
1. Increase Civil Disorder preparedness.													
1. Work with local Law enforcement on goals and needs.	2015	Ongoing		Local Plans and Regulations	Medium	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Mass Transportation Accidents													
1. Increase Mass Transportation Accident preparedness.													
1. Maintain POC for possibility of mass transit issues.	2015	Ongoing		Local Plans and Regulations	Medium	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Cyber Disruption													
1. Increase Cyber Disruption preparedness.													
1. Continue to work with IT and KCETW on possible protection and response to these issues	2015	Ongoing		Local Plans and Regulations	High	Existing	EMA	GEMA	2016	Low cost mechanism to increase public safety.	$20,000	Low	EMPG
Transboundary Animal Disease Outbreak													
1. Although threat is limited due to no major transit or farming within the city, update and maintain the EOP for TAD.	2015	Ongoing		Education and Awareness Programs	Low	Existing	EMA	GEMA	2019	Low cost mechanism to increase public safety.	$20,000	Low	EMPG

Kearney 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Complete							Jan-15				
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deleted	Due to our small community size, distribution of informational materials through posting of pamphlets and on the city website would have a better effect than holding a community workshop. The city's website includes information about safe rooms.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Low	Existing	Existing city staff function	community development department	2020+	Low/no cost mechanism to increase public safety.		$3,000	annual department budget
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Low	Existing	Capital improvement program planning	Community Development Department	2020+	Increases safety of existing infrastructure for moderate cost		Medium	not available at this time
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	No new construction of public buildings anticipated in the next five years.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Low	New	Ordinance approval by the Board of Aldermen	Community Development Department	2020+	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		Medium	not available at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Low	New	Building codes	Community Development Department	2020+	Low/no cost mechanism to increase public safety.		$5,000	not available at this time
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			Low	New	Building codes	Community Development Department	2020+	Low/no cost mechanism to increase public safety.		$3,000	annual department budget
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Low	New	Building codes	Community Development Department	2020+	Low/no cost mechanism to increase public safety.		$3,000	annual department budget
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Complete							08/2014				
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Low	New	Building codes	Community Development Department	2020+	While may increase building costs, will lead to greater occupant safety		$3,000	annual department budget
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			Low	Existing	Building codes	Community Development Department	2020+	While may increase building costs, will lead to greater occupant safety		$100,000	not available at this time
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No funding to provide private utilities for the movement of existing facilities.										
6. Ensure public facilities have shelters to accommodate employees and visitors during severe weather events.													
Inspect city hall and police station facilities for use as tornado/severe weather shelters and post visible signage.	2015			Education and Awareness Programs	High	existing	Departmental task	Community Development Dept.	2017	Low cost mechanism to increase public safety.		$2,000	departmental budget
7. Improve emergency response to large scale events													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Create a Community Emergency Response Team program	2015			Education and Awareness Programs	Low	new	Emergency Management Program	Kearney Fire & Rescue Protection District	2020	Increases community involvement and disaster preparedness at relatively low cost.		Low	fire district budget
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Complete							01/2011				
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Complete							02/2011				
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Complete							01/2011				
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	There do not appear to be any repetitive flood loss properties within the city limits.										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	The city currently has a parkland fee which is used to collect funds for property acquisition for parks and open space areas. Finding other funding sources would be a benefit to the program.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Low	New	existing city staff function. This action will be ongoing throughout the plan period.	Community Development Department	Ongoing through 2020	Low cost mechanism to improve floodplain management on local and regional levels.		Low	annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Complete							01/2011				
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			Low	Existing	Most wastewater and water facilities are located outside the floodplain, with the exception of some pump stations, which may be relocated upon replacement.	Water/Sewer Department	2019	While initial cost is high, will reduce recovery and replacement costs.		$100,000	water and sewer revenues, grants
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deleted	The City is not aware of any utility service provider facilities located within a floodplain.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	The city is not aware of any structures located within the floodplain in the city limits.										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Complete							1987 and 2003, per ordinance				
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2004 Comprehensive Plan				
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	City ordinances discourages residential and commercial development in the floodplain.										
5. Improve flood hazard assessments and flood mapping.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2016	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		$3,000	allocation in annual department budget
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	The city does not have available funding for such a program										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	The city does not have the capability to collect GIS data.										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	The City does not currently have a geographic information system (GIS) to take advantage of what the HAZUS software has to offer, nor the funds available for such a venture.										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Will reduce recovery costs and ensure compliance with NFIP.		$3,000	allocation in annual department budget
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	There do not appear to be any residential or commercial properties located within the floodplain in the city limits.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	No/low cost mechanism to encourage flood preparedness.		$5,000	seek grants for funding
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Complete							exact date unknown				
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							Updated Clay County Floodplain maps to go into effect in 2020				
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	The city does not have available funding for such a program										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	The city does not have available funding for such a program										
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Low	Existing	Existing city staff function utilizing the city website, community informational boards, and community TV channel	Community Development Department	2020	Low cost mechanism to increase public safety.		$3,000	allocation in annual department budget
9. Reduce the impact of floodwaters on residential properties													
**Pass a stream buffer ordinance	2015	Ongoing		Natural Systems Protection	High	new	Zoning ordinance	Community Development Department	2017	Low cost mechanism to enforce floodplain management.		$500	departmental budget
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	no available funding for such a program										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	no available funding for such a program.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		$2,000	annual department budget
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Complete							08-2014 - Backup power generators were installed at the City's water plant in 2014. generators at other public facilities will be installed as funding allows..				
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			Low	New	Building code revisions	Community Development Department	2020	Relatively low cost mechanism to ensure continuity of government operations.		$3,000	annual department budget
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			Low	Existing		Community Development Department or Senior Board	2020	Low cost mechanism to increase public safety.		$10,000	not available at this time, if public funding includes materials.
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Deferred	The city does not have available funding for such a program										
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	The city does not have available funding for such a program										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	The city does not have available funding for such a program										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	The city's Public Works Department still plows all city streets, to make them as safe as possible during winter weather events. There is no consensus at this time to implement snow day policies.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	No/low cost mechanism to increase public safety.		$5,000	allocation in annual department budget
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	existing city staff function utilizing the city website, community informational boards, and community TV channel	Community Development Department	2020	No/low cost mechanism to increase public safety.		$5,000	allocation in annual department budget
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Low	Existing	existing city staff function utilizing the city website, community informational boards, and community TV channel	Community Development Department	2020	No/low cost mechanism to increase public safety.		$5,000	allocation in annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	No/low cost mechanism to increase public safety.		$10,000	seek grants for funding
6. Ensure programs and procedures to prepare for and respond to heat waves													
Coordinate with the KADC, senior center, Meals on Wheels, and senior housing locations to check on the elderly, low-income, and at-risk people during severe winter weather.	2015			Choose	Medium	new	Explain	Community Development, Police, Fire, Senior Center	3 years	No/low cost mechanism to increase public safety.		Low	Explain
7. Ensure operability of public facilities during severe weather events													
Retrofit existing city facilities with backup power - city hall, water wells	2015			Structure and Infrastructure Projects	Medium	existing	Aldermen approval	Water Dept., City Hall	5 years	Would ensure continuity of government operations and public services.		$300,000	city budget
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	New	existing city staff function	Water/Sewer Department	2020	Relatively low cost mechanism to inform mitigation strategies		$10,000	need additional funding to be budgeted
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Low	New	public hearing and ordinance approval by the Board of Aldermen	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to support drought response.		$20,000	need additional funding to be budgeted; grants
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Low	New	public hearing and ordinance approval by the Board of Aldermen	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to support drought response.		$20,000	need additional funding to be budgeted; grants
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Low	New	public hearing and ordinance approval by the Board of Aldermen	Water/Sewer Department with assistance from Community Development	2020	Regional planning allows for local benefits at low cost		$10,000	need additional funding to be budgeted; grants
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	New	provide information on city website, information board, community TV channel and direct mailings	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to increase support water conservation measures.		$5,000	allocation in annual department budget
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	New	existing city staff function utilizing the city website and informational brochures on community boards	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to increase support water conservation measures.		$5,000	allocation in annual department budget
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Medium	Existing	Ordinance approval by the Board of Aldermen	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to increase support water conservation measures.		$10,000	need additional funding to be budgeted; grants
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Ongoing			Medium	Existing	Ordinance approval by the Board of Aldermen	Water/Sewer Department	2020	Low cost mechanism to increase support water conservation measures.		$5,000	allocation in annual department budget
c. Develop and implement water conservation ordinances.	2010	Ongoing			Medium	Existing	public hearings and ordinance approval by the Board of Aldermen	Water/Sewer Department with assistance from Community Development	2020	Low cost mechanism to increase support water conservation measures.		$5,000	allocation in annual department budget
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deleted	The city will seek funding as necessary. At the present time, the city's water system is sufficient for our needs.										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	Existing	Existing city staff function	Water/Sewer Department	2020	Low cost mechanism to increase support water conservation measures.		$3,000	annual department budget
6. Educate the public on water conservation													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Develop a water conservation public information packet for posting on the city website	2015			Education and Awareness Programs	Low	new	Departmental task	Kearney Water Department	3 years	Low cost mechanism to increase support water conservation measures.		$250	departmental budget
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Medium	Existing	existing city staff function	Community Development Department or Senior Board	2017	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		$1,000	allocation in annual department budget
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	The City does not currently have a geographic information system (GIS) to take advantage of what the HAZUS software has to offer, nor the funds available for such a venture.										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	The city does not have available funding for such a program.										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	The Platte Clay Electric Cooperative has existing programs to assist with reducing energy bills including free home energy audits, below cost sales of CFL bulbs, and Operation Round Up which helps customers pay bills they otherwise could not. Ameren also has bill reduction programs including making major contributions to the states weatherization fund, the Dollar More program, and the Clean Slate program.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			Low	Existing	public hearings and ordinance or resolution by the Board of Aldermen	Water/Sewer Department with assistance from Community Development and the Kearney Area Fire Protection District	2020	Low cost mechanism to increase public safety.		$10,000	allocation in annual department budget, seek grant funding
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	This appears to be a function of MARC										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			Low	Existing	The Meals on Wheels program is effective at regularly checking in on the elderly that participate in the program.	Police department, fire district, Senior Board	2020	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		$3,000	existing funding
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Low	Existing	provide information on city website, information board, and community TV channel	Community Development Department	2011	Low cost mechanism to support mitigation strategies for populations vulnerable to heat waves.		$1,000	allocation in annual department budget
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	existing city staff function utilizing the city website, and community boards	Community Development Department	2020	Low cost mechanism to increase public safety.		$3,000	allocation in annual department budget
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	provide information on city website, information board, community TV channel and direct mailings	Community Development Department	2020	Low cost mechanism to increase public safety.		$5,000	allocation in annual department budget
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			Low	Existing	existing city staff function utilizing the city website and community TV channel	Community Development Department	2020	Low cost mechanism to increase public safety.		$1,000	allocation in annual department budget
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			Low	Existing	existing city staff function utilizing the city website and informational brochures on community boards	Community Development Department	2020	Low cost mechanism to increase public safety.		$5,000	allocation in annual department budget
5. Ensure programs and procedures to prepare for and respond to heat waves													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Partner with local organizations and churches to sponsor cooling center locations	2015			Education and Awareness Programs	Medium	new	Explain	Community Development Dept., Kearney Fire & Rescue Protection district	3 years	Low cost mechanism to increase public safety.	Explain	$500	departmental budget
Coordinate with the KADC, senior center, Meals on Wheels, and senior housing locations to check on the elderly, low-income, and at-risk people during a heat wave	2015			Education and Awareness Programs	Medium	new	Explain	Community Development, Police, Fire, Senior Center	3 years	Low cost mechanism to increase public safety.	Explain	Explain	departmental budget
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	The City does not currently have a geographic information system (GIS) to take advantage of what the HAZUS software has to offer, nor the funds available for such a venture.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	The city does not currently have the financial ability to address this item.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	The city does not have the resources or funding to address this item.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Complete							08-2014 - The City updated to 2012 Building Codes, which identifies seismic zone requirements for construction.				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			Low	Existing	Ordinance approval by the Board of Aldermen	Community Development Department	2020	While may increase building costs, will lead to greater occupant safety		$500,000 to revise ordinances and to retrofit city facilities - Cost increases dramatically if private costs of retrofit are included	no funds currently available
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete							08/2014				
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing			Low	Existing	provide information on city website, information board, and/or building permit packet	Community Development Department	2020	Low cost mechanism to increase building durability.		$5,000	allocation in annual department budget
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	The city does not have available funding for such a program										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to increase building durability.		$5,000	allocation in annual department budget
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to increase public safety.		$5,000	allocation in annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to ensure reduced recovery costs for homeowners.		$3,000	allocation in annual department budget
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	The city does not have available funding for such a program										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	The City is not aware of any high hazard dams within the city limits.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to reduce injury from earthquakes		$5,000	allocation in annual department budget
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to reduce injury from earthquakes		$3,000	allocation in annual department budget
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to reduce and property damage injury from earthquakes		$3,000	allocation in annual department budget
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	The city does not have available funding for such a program										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Ongoing			Low	Existing	provide information on city website, information board, mailers	Community Development	2020	Low cost mechanism to reduce and property damage injury from earthquakes		$3,000	allocation in annual department budget
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		$5,000	allocation in annual department budget
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2012	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		$1,000	allocation in annual department budget
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	The City does not currently have a geographic information system (GIS) to take advantage of what the HAZUS software has to offer, nor the funds available for such a venture.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		$2,000	allocation in annual department budget
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	The city's Comprehensive Plan was last updated in 2004, and will not be updated for several years.										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	The city does not yet have information on inundation pathways for dams along drainage ways that flow through Kearney. It does not appear that any dams are close enough to affect Kearney.										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020+	Low cost mechanism to increase public safety.		$3,000	allocation in annual department budget
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to increase public safety.		$3,000	allocation in annual department budget
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Ongoing			Low	Existing	existing city staff function	Community Development Department	2020	Low cost mechanism to increase public safety.		$3,000	allocation in annual department budget
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	State law requires that dam owners perform routing maintenance of dams.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing			Low	Existing	Resolution approval by the Board of Aldermen	Community Development Department	2020	Low cost mechanism to increase public safety.		$1,000	allocation in annual department budget
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	The Board considers this a regional issue, not city.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	The Board considers this a regional issue, not city.										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	There are no dams currently within the city limits to allocate resources to.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	There are no dams currently within the city limits to allocate resources to.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deferred	There are no dams currently within the city limits to allocate resources to.										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Ongoing			Low	New	Ordinance approval by the Board of Aldermen	Community Development Department	2020	Low cost mechanism to increase public safety.		$5,000	allocation in annual department budget
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	There are no dams currently within the city limits to allocate resources to.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	There are no dams currently within the city limits to allocate resources to.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	There is no consensus to regulate private property development rights, other than those properties can lie within a regulated floodplain area. The city does have a floodplain ordinance										
7. Reduce the potential for dam failures by adding the number of dams regulated by the state													
Encourage state representatives to lower the height limit of regulated dams to 25 feet for dams holding 50 acres or more of water	2015			Local Plans and Regulations	Low	new	departmental task	Community Development	5 years	No benefit - there are no properties in the City anticipated to be within the inundation zone of a regulated dam.	Explain	$0	n/a
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	The City does not have the staff or funding available to address wildland fire mitigation. The risk of wildland fires in Kearney is very low, and resources are better allocated to other areas.										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Ongoing			Low	Existing	function of existing staff	Community Development Department	2016	Will identify areas for ongoing mitigation efforts at low cost.		$3,000	allocation in annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	The city's Comprehensive Plan was last updated in 2004, and will not be updated for several years.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	The city does not have available funding for such a program										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	The city will collect and disseminate public education materials if they become available. We are not aware of any such materials available through the regional planning organization or state emergency management office.										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	The city will collect and disseminate public education materials if they become available. We are not aware of any such materials available through the regional planning organization or state emergency management office.										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing			Low	New	existing city staff function	Community Development Department	2020	Low cost mechanism to increase fire safety.		$5,000	allocation in annual department budget
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			Low	New	Ordinance approval by the Board of Aldermen	Community Development Department	2020	Low cost mechanism to increase fire safety.		$3,000.00	allocation in annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	The city does not have available funding for such a program										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete							08-2014 - The City approved an update to the 2012 Building Code				
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Ongoing			Low	New	Ordinance approval by the Board of Aldermen	Community Development Department	2020	Low cost mechanism to increase fire safety.		$5,000	allocation in annual department budget
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	The City does not have the staff or funding available to address wildland fire mitigation. The risk of wildland fires in Kearney is very low, and resources are better allocated to other areas.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	The City does not have the staff or funding available to address wildland fire mitigation. The risk of wildland fires in Kearney is very low, and resources are better allocated to other areas.										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing			Low	Existing	Provide information on city website and/or information board	Community Development Department	2020	Low cost mechanism to increase fire safety.		$2,000	allocation in annual department budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
7. Implement changes to the fire district per the updated Fire Code													
Implementation and hiring of a fire marshal to address permitting and inspections for fire code compliance	2015	Ongoing		Local Plans and Regulations	High	Select	Fire code	Kearney Fire & Rescue Protection District	2 years	Will allow city to implement updated Fire Code.		$100,000	fire district budget, permit fees
Severe Thunderstorms													
1. Ensure operability of public facilities during severe weather events													
Retrofit existing city faculties with backup power - city hall, water wells	2015	Ongoing		Structure and Infrastructure Projects	Medium	existing	Infrastructure protection plans	Water Dept., City Hall	5 years	Would ensure continuity of government operations and public services.		$300,000	city budget
Terrorism													
1. Improve security at public facilities													
Improve security fencing and gated entry systems at the water and sewer plants	2015	Ongoing		Structure and Infrastructure Projects	Low	existing	Infrastructure protection plans	Water Dept., City Hall	5 years	Relatively low-cost target hardening measure.		$30,000	city budget
Install keyless entry system on the side door at City Hall.	2015	Ongoing		Structure and Infrastructure Projects	Low	existing	Infrastructure protection plans	City Hall	5 years	Relatively low-cost target hardening measure.		$10,000	city budget
Cyber Disruption													
1. Educate residents about how to protect themselves from cyber attacks													
Provide identity theft/cyber safety information on the city's website and disseminate information to the senior center and senior housing facilities	2015	Ongoing		Education and Awareness Programs	Low	new	Departmental task	Community Development	3 years	Low cost mechanism to increase cybersecurity.		$100	departmental budget
Hazardous Materials													
1. Implement changes to the fire district per the updated Fire Code													
Implementation and hiring of a fire marshal to address permitting and inspections for fire code compliance, which includes hazardous materials storage	2015	Ongoing		Local Plans and Regulations	High	Select	Fire code	Kearney Fire & Rescue Protection District	2 years	Will allow city to implement updated Fire Code.		$100,000	fire district budget, permit fees
Emerging Infectious Diseases													
1. Maintain communication with regional organizations that address hazards													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Maintain information exchange with MARC and the Clay County Health Department	2015	Ongoing		Education and Awareness Programs	Low	new	Departmental task	Kearney Fire & Rescue Protection District	5 years	Low cost mechanism to identify and prepare for emerging infectious diseases.		$500	fire district budget
Mass Transportation Accidents													
1. Maintain/improve participation in MARCs Regional Mass Fatality Plan													
Continue participation in MARCs Mass Casualty Incident and Regional Mass Fatality plans	2015	Ongoing		Education and Awareness Programs	Medium	existing	Departmental task	Kearney Fire & Rescue Protection District	3-4 years	Regional plans provide low cost mechanism to support local efforts.		$500	fire district budget
Increase participation in MARC's Mass Casualty Incident and Regional Mass Fatality plans	2015	Ongoing		Education and Awareness Programs	Medium	new	Departmental task	Kearney Police Department	3-4 years	Regional plans provide low cost mechanism to support local efforts.		$500	police department budget
2. Improve emergency response to large scale events													
Create a Community Emergency Response Team program	2015	Ongoing		Education and Awareness Programs	Low	new	Emergency management program	Kearney Fire & Rescue Protection District	5 years	Increases community involvement and disaster preparedness at relatively low cost.		Low	fire district budget
Civil Disorder													
1. Improve emergency response to large scale events													
Train and educate police officers in civil disturbance response procedures	2015	Ongoing		Education and Awareness Programs	Low	new	Departmental task	Kearney Police Department	5 years	Low cost mechanism to minimize impacts of civil disorder.		$500	police department budget
Transboundary Animal Disease Outbreak													
1. Increase community preparedness for TAD.													
Communicate with the USDA Animal Health Emergency Management group and Clay County Health Department in event of a local foreign animal disease outbreak	2015	Ongoing		Education and Awareness Programs	Low	new	Departmental task	Kearney Fire & Rescue Protection District, Kearney Police Department	ongoing	Will ensure appropriate preparedness activities are in place to support response.		$0	n/a

Liberty 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Low	Existing	Information distributed to all citizens at specific venues	Fire Department / Emergency manager	2018	Low/no cost mechanism to increase public safety.		Low	City general fund
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	We have not initiated information regarding safe rooms. Several builders have incorporated this concept into building plans.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	utilized existing facilities, Identified areas in each building to seek shelter										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			Low	New	Any new facilities built will entertain safe rooms being incorported		2019	Low/no cost mechanism to increase public safety.		Low	none at this time
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	not currently										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	New	School district included shelter in current high school construction		2017	Low/no cost mechanism to increase public safety.		Low	School district
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	Not at this time, would probably not recommend anything that would add additional cost to the builder.										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	Materials left up to suppliers and builders. There are certain building codes that we have adopted that would pertain to better construction in certain occupancies to prevent damage, injury, and death.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	as provided and installed by utlitiy companies										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	deferred to utilitiy companies										
6. Continue to educate the public about the importance of having a weather radio in their home													
Outreach at local events	2015	Ongoing		Education and Awareness Programs	High	Both	MEMC	Fire Dept.	Ongoing	Low cost mechanism to increase public safety and avoid loss of life.		Low	None
7. Improve storm warning capabilities.													
Continue to upgrade outdoor warning sirens as funding allows	2015	Ongoing		Structure and Infrastructure Projects	Low	existing	Emergency management	Fire Dept.	Ongoing	Avoid loss of life	city wide	Unknown	City budget
Continue to hold monthly siren tests	2015	Ongoing		Local Plans and Regulations	High	existing	Emergency management	Fire Dept.	March-Oct	No cost mechanism to ensure sirens operate effectively.	n/a	None	n/a
Continue to work with cable providers to ensure protocols and policies in place to allow for emergency interruption warnings and messages.	2015	Ongoing		Education and Awareness Programs	Medium	both	Emergency management	Fire Dept.	Ongoing	Low cost mechanism to increase public safety and avoid loss of life.	city wide	Low	unknown
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Low	New	Unified Development Ordinance	Development	Ongoing	No/ or low cost to implement and require little staff support.		Low	none at this time
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	We currently do not have any repetitive flood loss properties.										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Low	New	Unified Development Ordinance	Developmet	TBD as funding becomes available.	Will prevent flooding for moderate costs		Medium	None at this time
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	deferred to developers and UDO										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	deferred to developers and UDO										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Deferred	Deferred to developers and UDO										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	deferred to developers, DOC, and UDO										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Low	New	MEMC	Emergency Manager	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	none at this time
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Deferred	Those is flood prone areas are aware, but with current economic climate are not able to make the needed retrofits.										
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	Wells are elevated, the city is currently engineering and building a new waste treatment facility.										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	City is currently designing and building new waste treatment facility.										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	We do not have any repetitive flood loss properties and even if the city did, there would be no funding allotted for such a program.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	No structures will be built within a flood plane.										
4. Discourage new development in floodplains and flood-prone areas.													
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Will not happen in current economic climate.										
5. Improve flood hazard assessments and flood mapping.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	UDO, future and current land use, GIS	Development	Ongoing, updating as needed	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	General fund
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			Low	New	UDO,	Development, GIS, Planning	Ongoing	Free technical assistance to improve floodplain management		Low	General fund
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	no funding at this time, we receive data from FEMA on flood maps.										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Low	New	UDO, future and current land use, GIS	Development, GIS, Planning	Ongoing, updating as needed	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	General fund
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	funding										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Deferred	if property within flood plane has a loan, they must have flood insurance										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Low	New	brochures offered at city hall.	Development	Ongoing	Low cost mechanism to increase flood preparedness		Low	none at this time
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	City currently does not have any repetitive losses. Those who are in a flood plane know it already.										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New	We participate in the NFIP but not the CRS	Development	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	none at this time
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Low	New		Development	Ongoing, updating as needed	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	none at this time
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	Not needed at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	EM monitors water levels when appropriate.										
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	deferred to NWS										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No funding currently exists for such a program										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	not possible with current economic climate										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Low	New	LEOP includes shelter locations	Emergency Manager	2019	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	none at this time
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	no funding exists for such a program, we defer to and encourage any facility to have emergency power.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Will encourage as the need arises.										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	defer to volunteer programs already in place.										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	defer to utility provider										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			Low	New	Done through public works	Public works	ongoing	Will ensure roadways are able to be maintained during winter storms.		Medium	General fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	defer to MARC										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	defer to public works. The city if in a position to assist, would do so if the need arises.										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	This is done on a case by case basis at the behest of the city administrator as far as city employees are concerned. We defer to individual companies and their policies.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	defer to utility companies										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Low	New	Recurrent informational press releases and public relations plans.	Public relations	2020	No/low cost mechanism to increase public safety.		Low	General fund
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Low	New	Recurrent informational press releases and public relations plans.	Public relations	2020	No/low cost mechanism to increase public safety.		Low	General fund
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	defer to public health										
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	New	City monitors consumption daily and an assessment has already been performed.	Utilities	2020	Relatively low cost mechanism to inform mitigation strategies		$10,000	General fund
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	City does not have a resevoir										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	defer to DNR										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	defer to DNR										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	defer to MARC										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deleted	no plans to do so										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deleted	no plans to do so										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deleted	no plans to do so										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	no plans to do so										
c. Develop and implement water conservation ordinances.	2010	Deleted	no plans to do so										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Low	New	Infrastructure improvements is an ongoing process	Utilities	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	General fund
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	New	The city is always looking at funding alternatives for infrastructure improvements.	Utilities	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	General fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	New	City continually looks for funding alternatives for infrastructure improvements	Utilities	Onboing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	none at this time
Severe Thunderstorms													
1. Description Continue to monitor weather situation and provide warnings through Public relations department													
Provide warning through public relations	2015	Ongoing		Education and Awareness Programs	High	both	Emergency management	Fire Dept.	Ongoing	Avoid loss of life	city wide	Unknown	unknown
Cyber Disruption													
1. Increase protection for city infrastructure from cyber attacks.													
Provide information on cybersecurity measures that can be easily implemented.	2015	Ongoing		Education and Awareness Programs	High	Both	Emergency management	IT / FD	Ongoing	Avoid interruption of city services	city wide	Unknown	City budget
Continue to look for technological enhancements that would further protect government operations	2015	Ongoing		Structure and Infrastructure Projects	High	Both	Emergency management	IT / FD	Ongoing	Avoid interruption of city services	city wide	Unknown	unknown

Mosby 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Educational materials	Police Department	Ongoing	educating public about ways to protect themselves from hazards so they remain safe		0	na
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Low	Existing	Community partners	Police Department	Ongoing	public safety		0	na
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Complete							pre 2010 plan				
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	depends on funding										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	no funding mechanisms available										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	no political will										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	if funding and staff is available										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	if goals of city leaders change										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Medium	Existing	Floodplain management program	Floodplain manager	Ongoing	continually looking for ways to prevent damages to residential properties		$50 per month	City budget
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Medium	Existing	Flood buy out program when available	Floodplain Manager	Ongoing	Preventing future flooding of properties that have had history of flood damage		0	City
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Medium	Existing	Floodplain Management Plan and Committee	Floodplain Manager	Ongoing	Prevent future flooding of properties that have experienced past damage from floods		$36,000	FEMA Buy Out
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	there is "no rebuild" ordinance										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Deleted	no new corridors or major development expected										
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			Low	Existing	Comprehe/nsive Plan	Floodplain Manager	Ongoing	City would be able to remove problematic properties and gain a park or open space - need to find out what is allowable on property		unknown	City budget/FEMA grant

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deleted	no funding										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Low	Existing	Comprehensive Plan	Floodplain Manager	Ongoing	City would be able to take property that repeatedly floods and use it for recreational purposes		unknown	City/FEMA
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Complete							2013				
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Deleted	staff not available										
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Deferred	no funding available to do it										
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Complete							unknown				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Complete							March 2015				
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Flood Buyout Program	Floodplain Manager	Ongoing	Removing structures that repetitively get flooded.		depends on cost of property	FEMA buyout program
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Complete							2007				
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deleted	no funding and not goal of city										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Complete							2015				
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2014				
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deleted	not a capability of the city										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Complete							2013				
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Complete							2014				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	no funding or staff to work on										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deleted	no capacity										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deleted	do not have software										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Complete							2014				
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Medium	Existing	Floodplain Management/City Council	City Council	Ongoing	Low cost mechanism to educate residents.		0	na
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	when funding is available										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Medium	Existing	City Council	City Council	Ongoing	Provide financial protection for property owners		depends on cost of insurance	City budget
b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Deferred	finances not currently available										
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Complete							Prior to 2010				
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Medium	Existing	Emergency Management partners	Emergency Manager	Ongoing	Allows for coordination of emergency management services in case evacuations or other actions are necessary		less than $100	none
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	funding not available										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deleted	no funding available										
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	no funding										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deleted	no funding										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Deleted	not applicable										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deleted	funding not available										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	not goal of city - no funding										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	no current community organizations doing this										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deleted	not applicable										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Deleted	no funding										
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deleted	currently not part of this discussion										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	funding may not be available										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deleted	no funding or staff capabilities										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	funding currently not available										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	if funding is available										
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	if funding is available										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	need funding										
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deleted	not goal of city										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	drought is not a high priority of city										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deleted	not a goal for city resources										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deleted	not a goal for city resources										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deleted	nota goal for city resources										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deleted	not a goal for city resources										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deleted	not a goal for city resources										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deleted	not a high priority for city resources										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	water department would address this										
c. Develop and implement water conservation ordinances.	2010	Deleted	not a high priority for city resources										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Deleted	Water department would handle this										
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Medium	New	Utility planning	City Council	Ongoing	Create a cheaper way of providing water to residents		to be determined - cost of rerouting water line	City budget
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Complete							prior to 2010				
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Deleted	no heat emergency shelters in city - no plans for creating one										
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Complete							2012				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Complete							prior to 2010				
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deleted	capabilities not existing										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deleted	no capabilities in place										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deleted	capabilities not in place										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deleted	does not apply to city										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			Medium	Existing	Standard Operating Procedures	Police Department	Ongoing	Health and safety of vulnerable populations maintained		minimal - fuel costs	City budget
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deleted	no funding or capabilities										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deleted	no public swimming pool										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	funding needed										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	funding needed										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deleted	this is a regional effort- not city										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	funding needed										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	funding not available										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deleted	funding and staff not available										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deleted	resources not available										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deleted	not applicable										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deleted	no funding - cost not seen as necessary given the low risk										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Deleted	not applicable										
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deleted	resources not available to tackle this- low probability										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deleted	no resources available to address this										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deleted	not a high priority given the probability of hazard										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deleted	hazard not seen as highly probable										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	not applicable due to low probability										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deleted	not applicable										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deleted	funding and resources not available										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	no dams that immediately affect city										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deleted	no school facilities- no funding and staff.										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deleted	not applicable - no resources										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deleted	no resources for this										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deleted	not applicable - hazard not seen as probable.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	resources not available for this										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deleted	no resources for this										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deleted	no funding available for this										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	not a high priority goal for city resources										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deleted	resources not available - dams not in immediate vicinity										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deleted	resources not available										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deleted	resources not available										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deleted	not applicable -no resources										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deleted	resources not available										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deleted	resources not available										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deleted	resources not available - hazard not a high probability										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deleted	resources not available - hazard not seen as probable.										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deleted	not applicable										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deleted	not applicable - no new dams expected.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	resources not available - not a highly probable hazard										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	not applicable										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	not applicable										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	not applicable										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	not applicable										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	not applicable										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	not applicable										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	not applicable										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	not applicable and no available resources										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	not applicable										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deleted	not applicable - no dams in immediate area										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deleted	this would be up to Fire Protection District - Fishing River										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Complete							2015				
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	Fire Protection Districts responsibility										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	no funds available										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	funds are needed for this activity										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	funds needed										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	funds needed										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deleted	not goal of city										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deleted	not applicable - no homeowners association										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	no funding										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deleted	not current goal of city										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deleted	not goal of city										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	not applicable										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deleted	not applicable										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	additional funding needed										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deleted	Fire Protection Districts responsibility										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deleted	Fire Protection Districts responsibility										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deleted	Fire Protection Districts responsibility										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deleted	Fire Protection Districts responsibility										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							prior to 2010				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deleted	not applicable										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							prior to 2010				

North Kansas City 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a, Develop and distribute informational materials on safe rooms	2015			Structure and Infrastructure Projects	High	FD	FD/EMA has begun a project to install a "Tornado" shelter in a satellite fire station	FD	90 Days	The cost of installing a tornado shelter in the fire station will be $5600.00 . The benefit is that it provides a shelter from tornados independent of the existing structure and will serve as an example to be used when doing public education on tornado shelters.	Firefighters and Police officers whose duty assignments put them in this stations area.	5600	Budgeted
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			High	New	Working with the NKC Business council to communicate about safe rooms, and providing information to community groups.	Fire Department	10/01/2015	Lost cost mechanism to increase public safety.		minimal	budget
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Complete							1/2015				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high winds	2015			Structure and Infrastructure Projects	High	New	The FD/EMA has begun a project to install a tornado shelter in a satellite fire station	FD	90 Days	$5600.00 to install the shelter. Benefit is to the Fire and Police personnel whose duty assignment places them in this station and patrol area	Firefighters and Police officers whose duty locations are in this area	5600	Budgeted
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Complete							1/2015				
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	Lack of Funding										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deferred	Lack of Staffing										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	Lack of Staffing										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	Lack of Staffing										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	Lack of Funding										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deleted	Lack of Funding										
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	na										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Completed			Medium	New	Bio Swale detentions and underground runoff storage tanks were built to reduce storm water velocity .	Public Works	Completed	Cost to build Bio Swale detention structures and storage tanks was $220,000.00. The benefit was to reduce storm water velocity and reduce pollutants, thereby protecting the environment.	n/a	$200,000.00	
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Complete			Medium	Existing	The structure known as skate park was built to prevent discharge from increased stormwater runoff and doubles as a skting facility for skateboarding and roller blading.	Public Works	Completed	The cost of Skate Park was $250,000.00 The benefit is to the new development that was being constructed there.	n/a	$250,000.00	
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	Lack of staffing										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Complete	Incorporated into BioSwale and skate park projects.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Complete	Incorporated into BioSwale and skate park projects.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Complete	Incorporated into BioSwale and skate park projects.										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Complete							2008				
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Complete							2008				
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Complete							2015				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Complete							2015				
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Complete							2015				
9. Conduct special education events such as flood mitigation and preparedness													
**Conduct special public education events	2015			Education and Awareness Programs	High	Existing	Public education courses and events will be conducted using existing Fire Department and City personnel and possibly the North Kansas City CERT team.	FD/EMA	12 months	Since the training will be conducted by existing personnel and the media materials will come from FEMA there is no monetary outlay, the benefits will be to the at risk population and to the businesses located in flood prone areas.	1000 Business and 4300 Residents	n/a	Budgeted
10. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**Participate in NFIP and CRS	2015	Ongoing		Local Plans and Regulations	High	Public works department personnel	The Public works department has already planned and executed this goal	Public Works	Ongoing	There is no cost to become part of the NFIP or CRS systems. Benefits are to the Residents and Businesses who take advantage of the programs	1000 Business and 4319 Residents	No Cost	N/A
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Lack of Funding										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Lack of Funding										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Lack of Funding										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Lack of staffing										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Lack of staffing										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	Lack of staffing										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	Lack of staffing										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	Lack of Funding										
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	Lack of staffing										
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	Lack of staffing										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Complete							4/2015				
Drought													
4. Encourage water conservation efforts by commercial, industrial and private water users.													
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	Lack of Funding										
c. Develop and implement water conservation ordinances.	2010	Deferred	Lack of staffing										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Lack of staffing										
Heat Wave													
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	Lack of Funding										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deferred	Lack of staffing										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Lack of staffing										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Lack of staffing										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	Lack of staffing										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	Lack of staffing										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	Lack of staffing										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	Lack of staffing										
5. Provide vulnerable populations with public education materials													
Work with community groups to sponsor programs to think of those who require special assistance	2015	Ongoing		Education and Awareness Programs	High	FD/CERT	The Fire dept. will have the oversight of this project with assistance from CERT and resident organizations.	FD/EMA	12 months	No projected cost	4319 Residents	No Cost	N/A
6. Work with community groups to sponsor programs that encourage people to think of those who require special assistance.													
Provide vulnerable populations with public education materials that address heat waves	2015	Ongoing		Education and Awareness Programs	High	FD/EMA	The Fire dept. will provide the oversight of this project	FD/EMA	12 Months	Publications will be at no cost from FEMA, Benefit will be to at risk populations in North Kansas City	4319 Residents	No projected cost	Budgeted.
Dam Failure													
1. Assess threat of dam failure.													
Determine if dams in Clay county have innundation studies and EAP inplace	2015	Ongoing		Local Plans and Regulations	High	Existing	There are 3 regulated dams in Clay county that have completed EAP's accoding to the Misouri Department of Natural Resources.	FD	12 months	None due to No dams	Explain	None	Budgeted

Smithville 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Deferred	Looking for information to use										
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	need information on workshops										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Deferred	need assistance on identifying suitable shelters										
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	not enough information to make decisions on this issue										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	need information										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	DO not have the authority to make recommendation										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deferred	need information on process										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	need to work with code enforcement										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	do not have the authority										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	do not have the authority										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	need to work with Code enforcement										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	code enforcement										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	would need help from utilities										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	work with code										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	no authority to make offer										
6. Increase public safety alert and warning mechanisms.													
Continue social media use. Provide officers training on how to use social media to send info on weather incidents	2015	Ongoing		Education and Awareness Programs	High	Existing	Public information and warning programs.	Police	Ongoing	No cost mechanism to increase public safety.	City-wide	None	N/A
Use social media to provide community notice of upcoming weather related training and free weather radios.	2015	Ongoing		Education and Awareness Programs	Medium	Existing	Public information and warning programs.	Police	Ongoing	No cost mechanism to increase public safety.	City-wide	None	N/A
Provide officers on-going training in use of the tornado siren system.	2015	Ongoing		Education and Awareness Programs	High	Existing	EOP	Police	Ongoing	No cost mechanism to increase public safety.	City-wide	None	N/A
9. Increase emergency shelter capacity.													
Hold discussions with school district to obtain permission to use Performing Arts Center as a tornado shelter	2015	Ongoing		Education and Awareness Programs	Medium	Existing	EOP	Police	ASAP	No cost mechanism to increase public safety.	TBD	None	N/A

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Develop relationships with area churches, library and senior center for use of facilities if needed as a shelter.	2015	Ongoing		Education and Awareness Programs	Medium	Existing	EOP	Police	ASAP	No cost mechanism to increase public safety.	TBD	None	N/A
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deferred	with information this is something we can do										
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	N/A										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deleted	Not financially possible.										
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	Not financially possible in the next 5 years										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Complete							01/01/2011				
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deleted	Not financially possible in the next 5 years.										
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Deferred	something the CERT team can do with the information										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	N/A										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	N/A										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	N/A										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	public education and CERT provided we have the information										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	N/A										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Deferred	refer to community development dept.										
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			Medium	Existing	Floodplain Management	Community Development	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	N/A										
5. Improve flood hazard assessments and flood mapping.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Medium	Existing	Floodplain Management	Community Development	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	work with community development										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	work with city administration										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Medium	Existing	Floodplain Management	Community Development	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			Medium	Existing	Floodplain Management	Community Development	Ongoing	Low cost mechanism to evaluate flood risk		Low	Unknown
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Deferred	N/A										
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	something the CERT team can do										
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	something we can do										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Complete							current with program				
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							current				
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	N/A										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Deferred	N/A										
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	something the CERT team can do										
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							01/01/2010				
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	Not financial feasible.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deleted	Not possible due to funding constraints.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Medium	New	Working with the Clay County Emergency Management and our local CERT team to identify the resources.	Police Department	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deleted	Not able to due to budget constraints.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	Not feasible within the next 5 years.										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Not able to due to budget constraints.										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	willing to work with utilities to make this happen										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Complete							11/1/2013				
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	sounds like a good idea, would need to work with street dept. Feasibility is a concern. If our area is hit hard so will surrounding areas.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	good idea- getting help from other jurisdictions may be hard if the area is hit with a storm.										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Complete							11/01/2013				
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	good idea										
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	good idea, willing to work with CERT team to complete										
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	good idea										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	good idea										
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deferred	need information and help to complete										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	N/A										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	need information										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	need information										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	need information										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deferred	work with CERT team to get out information										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deferred	good idea										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	good idea										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	Not financially feasible in the next 5 years.										
c. Develop and implement water conservation ordinances.	2010	Deleted	Not feasible in the next 5 years.										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	talk to city administration										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	city administration										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Deferred	good idea										
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deleted	Not feasible in the next 5 years.										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	need to work with community groups, CERT etc..										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	good idea										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deleted	We have not leverage with the utility providers.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deferred	good idea										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	where is funding provided from?										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	something that the CERT team could possible do as well as church groups etc..										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	yes										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deleted	We have no public swimming pools.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	something the CERT team can do, if provided the material and space										
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	yes										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Complete							01/01/2012				
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	something the CERT team can do, scout groups, church groups provided they have the material										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	N/A										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	N/A										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	N/A										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	N/A										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	N/A										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Deferred	N/A										
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	N/A										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	N/A										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	N/A										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	N/A										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	N/A										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	N/A										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	N/A										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	N/A										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	N/A										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	N/A										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	N/A										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	N/A										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	N/A										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	N/A										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	N/A										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	N/A										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	N/A										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	N/A										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	Need help from the Army Corp of Engineers										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	Need help from the Army Corp of Engineers										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	N/A										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	N/A										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	N/A										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	N/A										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	N/A										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deleted	Not feasible in next 5 yrs.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	N/A										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	Not feasible in next 5 yrs.										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	N/A										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	N/A										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	Not feasible in next 5 yrs.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	Not feasible.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			Medium	Existing	Budgeted for as needed.	Water & Parks Dept.	12/31/2020	Relatively low cost preventative maintenance programs ensure continued structural integrity of dams.		$5,000.00 +	General budget
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	Not feasible in next 5 yrs.										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Complete							in place				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	N/A										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	Addressed through flood plan in some areas.										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	N/A										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	N/A										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	give to fire department										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	task for fire department										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	fire department										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	N/A										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	good idea										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	code enforcement										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	code enforcement										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	Not financially possible.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deleted	Handled by Fire District										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	N/A										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	Not feasible.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	fire department issue										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	working with fire department and CERT team, good idea										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	fire department										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	fire department										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	N/A										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	fire department										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	Fire Department										
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	N/A										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							Current city ordinance				

Fishing River Fire Protection District 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
Work with schools within jurisdiction to provide students, staff and families educational materials about tornadoes and keeping safe.	2015	Ongoing		Education and Awareness Programs	High	New	Public information programs	Fishing River F ire District	Annually	Low cost way of increasing safety for students, staff, families etc associated with school	100	Low	Fire District Budget
Work with housing subdivisions to provide residents with educational materials about tornadoes and keeping safe.	2015	Ongoing		Education and Awareness Programs	Medium	New	Public information programs	Fishing River F ire District	by end of 2017	Low cost way of increasing safety for homeowners	800	Low	Fire District Budget
Work with the Liberty Hill Country Club to increase awareness and determine options for safe shelter at that location.	2015	Ongoing		Education and Awareness Programs	Medium	New	EOP	Fishing River F ire District	by end of 2017	Low cost way of increasing safety for those that work and recreate at the Country Club	unknown - members of Country Club	Low	Fire District Budget
Flooding													
1. Enhance public awareness and education efforts related to flooding.													
Provide information to residents in Mosby and Missouri City about flooding, steps they can take to prevent property damage, and evacuation procedures.	2015	Ongoing		Education and Awareness Programs	Medium	New	Explain	Fishing River F ire District	by end of 2017	Low cost way of increasing safety and preventing property damage	400	Low	Fire District Budget
2. Implement comprehensive flood warning notifications.													
Plan to coordinate door to door flood notification with use of existing siren system.	2015	Ongoing		Education and Awareness Programs	Medium	New	Explain	Fishing River F ire District	by end of 2017	Low cost and effective way to make sure that residents are aware of and understand the danger of a likely flood	400	Low	Fire District Budget
Severe Thunderstorms													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
Work with schools within jurisdiction to provide students, staff and families educational materials about ways to keep safe during a thunderstorm.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Fishing River F ire District	Annually	low cost way of increasing safety for students, staff, families etc associated with school	100	Low	Fire District Budget
Work with housing subdivisions to provide residents with educational materials about keeping safe and ways to avoid damage during severe thunderstorms.	2015	Ongoing		Education and Awareness Programs	Medium	New	Explain	Fishing River F ire District	by end of 2017	low cost way of increasing safety for homeowners	800	Low	Fire District Budget
Work with the Liberty Hill Country Club to increase awareness about keeping safe during severe thunderstorms.	2015	Ongoing		Education and Awareness Programs	Medium	New	Explain	Fishing River F ire District	by end of 2017	low cost way of increasing safety for those that work and recreate at the Country Club	unknown - members of Country Club	Low	Fire District Budget
Wildland Fires													
1. Enhance public awareness of wildland fire mitigation and preparedness activitiesmetropolitan area.													
Work with individual property owners to increase awareness about the dangers of wildland fires and the property damage that can result	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Fishing River F ire District	Ongoing	low cost way of addressing specific wildland fire issues in the more rural areas of jurisdiction	unknown - members of Country Club	Low	Fire District Budget
2. Implement wildland fire mitigation practices.													
Assist property owners in prescribed burning efforts to reduce the build-up of vegetation and debris.	2015	Ongoing		Natural Systems Protection	High	New	Explain	Fishing River F ire District	Ongoing	low cost way of ensuring that prescribed burning efforts take place safely and in ways that prevent wildland fires	unknown - members of Country Club	Low	Fire District Budget
Hazardous Materials Release													
1. Implement outreach activities to property owners and others to maintain communications and updated informaiton about the hazardous materials that are being used, produced or transported													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Contact property owners to review and update their plans and procedures related to hazardous materials.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Fishing River F ire District	Ongoing	Low cost way of ensuring that local fire protection capabilties are aware of the possible hazards within jurisdiction	100	No cost	Fire District Budget
Levee Failures													
1. Encourage and assist with the implementation of levee maintenance practices to prevent levee failure and flooding.													
Work with levee districts to coordinate prescribed burn efforts that help maintain the amount of vegetation and debris on the levees.	2015	Ongoing		Natural Systems Protection	Medium	Existing	Explain	Fishing River F ire District	Ongoing	Low cost way of ensuring that prescribed burning efforts take place safely and in ways that ensure the protection of the levees.	200	Low	Fire District Budget

Jackson County 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing	Implemented through the Counties preparedness educational and outreach program with emphasis on existing shelter facilities located throughout the county		High	Existing	Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/County	Ongoing	Low/no cost mechanism to increase public safety.		Low	County General Funds
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Complete	Have added 2 FEMA storm shelters and have trained over 600 shelter workers. Received NOAA County Storm Ready designation.						10-01-13				
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing	The County has designated safety locations in governmental facilities for staff and visitors to shelter in during severe weather events. As a "Storm Ready" Community each facility has an "All-Hazard" weather radio and a method of being contacted by the EOC		High	Existing	Eastern Jackson County has designated shelter /safety locations as part of the Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/ County	On going	Low/no cost mechanism to increase public safety.		Low	County Department general funds and grants
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing	The county continues to try and develop storm shelters in existing public facilities as funding and opportunities become available.		High	Existing	Eastern Jackson County has designated shelter /safety locations as part of the Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/ County	Ongoing	High cost to retrofit existing buildings but can also prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Unknown
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	Continued work with local jurisdictions within the County to implement such regulations.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	The County does not have tax incentives for residential/construction code requirements										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing	The Jackson County Department of Emergency preparedness continues to promote the benefits of safe rooms through citizens training in Severe Weather classes at no cost. Also addressed schools districts in Eastern Jackson County and many corporate facilities		High		Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/County	On going	Low/no cost mechanism to increase public safety.		Low	County General Funds
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	The County currently does not have regs requiring compliance										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing	The County continues to work with contractors in regards to utilizing construction techniques and materials that may minimize tornado/ high wind damage		High	New and Existing	Office of Emergency Preparedness function within County ordnances and codes	Department of Emergency Preparedness/County	On going	Low/no cost mechanism to increase public safety.		Low	County General Funds
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing	The County Continues to review and adopt local building codes to improve the structural and architectural safety of structures		High	New	County Building regulations and Code compliance	Public Works Department	On going	High cost to design and build stronger facilities but can prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		Medium	County general funds
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing	The County continues to encourage developers in non-incorporated County areas and local jurisdictional review of building codes / regulations /architectural designs		High	New	County Building regulations and Code compliance	Department of Emergency Preparedness/County and Public Works Department	On going	Low/no cost mechanism to increase public safety.		Low	County general funds
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	Not a County function										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	Not a County function										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Not a County function										
6. Increase capabilities to provide mass notifications to the public													
Adding "Outdoor Warning Sirens" to increase warning notification coverage for County lake properties / Jacomo/Blue Springs/Longview	2015	Ongoing		Structure and Infrastructure Projects	Medium	new	Office of Emergency Preparedness function within approved County ordnances and codes	Department of Emergency Preparedness/County and Public Works Department	On going	Would give residents enhanced warnings and improved response coordination but would have a high implementation and maintenance cost.		Medium	County General Funds
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing	County continues to work with local jurisdictions, Public Works and Parks and Rec to assess needs and mitigation options		Medium	New	Public Works and Emergency Preparedness function within approved County ordnances and codes	Public Works and Emergency Preparedness	Ongoing	Low/no cost mechanism to increase public safety and help prevent the high cost of flood damages		Low	County General Funds along with grant funding such as HMPG, PDM, FMA and RFC

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing	The County continually tries to identify potential funding sources to mitigate flood losses to repetitive properties. This sources include private, local, state and federal grants.		High	Existing	Public Works and Emergency Preparedness function within approved County ordnances and codes	Jackson County Public Works	ongoing	Low/no cost mechanism to increase public safety and help prevent the high cost of flood damages		Low	Mitigation grants
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	Repetitive Loss properties in the unincorporated portions of the County in Flood Plain Hazard areas are reviewed for buyout potential.		High	Existing	Public Works and Emergency Preparedness function within approved County ordnances and codes	Public Works / emergency Preparedness	Ongoing	High Initial cost of purchasing property but also high returns by preventing future flooding of properties that have had history of major flood damages		High	Hazard Mitigation Grants
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing	County has identified repetitive loss areas and residences and continues to work with them in ways to prevent or reduce future flood losses		High	Existing	Public Works and Emergency Preparedness function within approved County ordnances and codes	Flood Plain Management/ Public Works/Emergency Preparedness	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	County General funds and EMPG funding/
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.										**Based on building codes for various jurisdictions and have addressed re**			
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	The County continues to reduce flooding hazards in the unincorporated portions of the county through ongoing efforts to channel and catch storm water as funding allows		High	Existing	Public Works and Emergency Preparedness function within approved County ordnances and codes	Parks & Rec/Public works/Corps of Engineers	Ongoing	Will prevent flooding for moderate costs		Medium	Mitigation grant funding
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing	The County will continue to look for funding opportunities to remove targeted repetitive loss properties for use a open space land.		High	New and Existing	Public Works and Emergency Preparedness function within approved County ordnances and codes	Department of Emergency Preparedness/County and Public Works Department	Open	High Initial cost of purchasing property but also high returns by preventing future flooding of properties that have had history of major flood damages		High	Local Jurisdictional funding sources and government incentives
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing	The County consistently continue to apply for State and Federal grants to support and enhance flood mitigation and prevention programs. Recently walking and bicycle trails have been developed in flood prone area. The county encourages local jurisdictions within the county to do the same. This includes identifying funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.		High	Existing	Local Public Works and Water Pollution Control districts	Public Works	Ongoing	Medium initial cost to preventing future flooding of properties that have had history of flood damage		Medium	County general funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing	The county continues to work with DNR and Conservation groups to implement "Green Plans" and other alternative uses of flood prone areas.		High	Existing	Public Works, Parks & Rec and Emergency Preparedness Department functions within approved County ordnances and codes	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Medium initial cost to preventing future flooding of properties that have had history of flood damage		Medium	County general funds and grants resources
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing	The County's Public Works and Emergency Preparedness Departments works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of fish and wildlife habits		High	Existing	Public Works and Emergency Preparedness Department functions within approved County ordnances and codes	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Medium initial cost to preventing future flooding of properties that have had history of flood damage		Medium	County general funds and grant applications
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing	The County has ongoing programs to educate the public about flooding and its associated hazards. These programs include standardized educational materials coordinated with local and regional partners. County Department also participate in local, regional, State and national public educational events put on by the local jurisdictions throughout the County each year.		High	New & Existing	Numerous County Department functions within approved County ordnances and codes	Department of Emergency Preparedness/County	Ongoing	Low/no cost mechanism to increase public safety.		Low	County general funds
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing	The County works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of these items		High	Existing	Emergency Preparedness, Flood Plan management and Public Works implementing FEMA codes and requirements for flood planes	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Low/no cost mechanism to increase public safety.		Low	County general funds and EMPG
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing	All County departments work to reduce flood damages to infrastructure when designing new projects and mitigate current facilities as funding is available.		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Department of Emergency Preparedness/County and Public Works Department	On going	While may increase building and development costs, will reduce significant flood impacts		Medium	NFIP CRS program and grant funding
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing	The County encourages utilities to flood proof infrastructure in unincorporated areas and Local Public Works departments are encouraged to mitigating flood prone streams and corresponding facilities at the local level		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Department of Emergency Preparedness/County and Public Works Department	Open	While initial cost is high, will reduce recovery and replacement costs from flooding events		High	Private funding
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	County has identified repetitive loss areas in unincorporated portions of the County and constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties through buyout projects. This sources include private, local, state and federal grants.		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Mitigation grant funding
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing	The County constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties by encouraging owners and businesses to elevate their structures in flood prone areas		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Mitigation grant funding

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing	The County constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties by encouraging owners and businesses to retrofit their structures to prevent flooding.		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Department of Emergency Preparedness/County and Public Works Department	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Private Sector and City general funds and/or grant funding
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing	Flood Plan management continues to enforce and recommend changes to meet FEMA requirements and regulations		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Low/no cost mechanism to increase public safety.		Low	County General Funds
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing	County's Flood Plan manager continues to enforce and recommend changes to meet FEMA requirements and regulations		High	Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Low/no cost mechanism to increase public safety.		Low	County General Funds
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Not a county function										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Complete	Although flood hazard areas of the County have been mapped with current FEMA flood map digital data that is integrated into county geo-data on a regular basis. The County continues to review flood hazard areas and incorporate necessary changes as needed.		High	New and Existing Areas	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	County's General Funds
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	The County currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capability's in partnership with numerous County departments		High	New and Existing Areas	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	County's General Funds
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing	The County currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capabilities in partnership with numerous County departments		High	New and Existing Areas	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	County's General Funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing	The County currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capabilities in partnership with numerous County departments		High	New and Existing Areas	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	County's General Funds
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing	The Counties Office of Emergency Preparedness has several outreach programs to Encourage home owners and businesses to purchase flood insurance.		High	New and Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	County's general funds and EMPG program grant monies
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing	The County's Office of Emergency Preparedness and Public Works Departments have on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		High	New and Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	County's general funds and EMPG program grant monies
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing	The County's Office of Emergency preparedness and Public works Departments have on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. County department also participate in local, regional, State and national public educational events such as Safety City and Echo- Fest put on by local jurisdictions throughout the county each year.		High	New and Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	County's general funds and EMPG program grant monies
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing	The County has adopted the NFIP regulations and continues to participate in the program completing mandatory maintenance as required by program regulations.		High	New and Existing	Flood Plan Management, Public Works and Emergency Preparedness addressing FEMA NFIP requirements	Flood Plan Management/Public Works	Ongoing	Will ensure flood insurance is available for homeowners and businesses to control flooding costs.		Low	City General Funds
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing	The County continues to maintain up-to-date flood maps and tracks any LOMR etc.		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	City General Funds
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing	Eastern Jackson County utilizes real time weather and USGS real-time water data for local daily stream flow conditions which are operated in cooperation with the USGS.		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Low	County General Funds and EMPG grants
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing	Eastern Jackson County has real time weather data stations that track local activity on a regular basis		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Ongoing	Data Sharing is a relatively low cost effective measures to warn of flooding events and implement mitigation measures. Sharing of data will improve county floodplain management.		Low	County General Funds and EMPG grants
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing	The County uses Flood warning procedures supported by NOAA to acquire real-time flood inundation prediction capability using stream gauge and forecast information.		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Flood warning procedures supported by NOAA	Will ensure that citizens are prepared real time for flood events.		Low	County General Funds and EMPG grants
9. Reduce flood losses within the County													
**Facilitate river flood gate for Fire Prairie Creek, Leavasy, MO	2015	Ongoing	Help facilitate the design and implementation of a flood gate to prevent flooding events that occur on a regular basis.	Structure and Infrastructure Projects	Medium	new	Office of Emergency Preparedness and Public Works Department functions and Leavasy ordnances and codes	City of Leavasy and County Department of Emergency Preparedness	Ongoing	High initial cost but will prevent long term flooding losses		High	Unknown
10. Improve emergency response during flooding events													
Develop rapid response teams	2015	Ongoing	Development of specialized teams to help clean-up flooded homes and businesses to reduce flood damages throughout the County.	Planning	Medium	new	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Office of Emergency Preparedness	ongoing	No/low cost mechanism to reduce flood damages		Low	County General Funds and EMPG grants
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	Not a county function										
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Not a county function										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Not a county function										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The County has numerous shelters that have back-up power, but the county continues to work with existing and future shelter locations to find ways to retrofit them with emergency power.		High	Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Fairly high cost installation price but will ensure continuity of shelter operations.		Medium	Unknown
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	The County currently does not have any existing regulations, but continues to try and implement these policies		High	Existing	Emergency Preparedness and Public Works planning and in place generators for emergency status	Public Works and Emergency Preparedness	Ongoing	Fairly high cost program to implement but would help ensure continuity of government operations.		High	Unknown
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deleted	The County does not have a plan for at risk groups										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Not a County function but we work with relief agencies and United Way										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing	This expense is outlined in the Public Works budget on a yearly basis and funding amount is reviewed every year.		Low	New	Public Works function within Code of Ordinance	Public Works	NA	Will ensure continued open roadways.		Medium	General Fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing	The County Public works Department works with regional partners regarding salt and sand contracts		Medium	New	Public Works function within Code of Ordinance	Public Works	NA	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing	The County Public Works Department is part of a regional Public Works Mutual Aid Agreement through the MARC organization		Medium	New	Public Works function within Code of Ordinance	Public Works	NA	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to stay off the roads.	2010	Ongoing	The County does have procedures in-place regarding "snow days" for governmental employees and continues to work on educating non-governmental organizations on the hazards of employees on roadways during severe winter weather.		Low	New	Public works and Law Enforcement function within Code of Ordinance	Public Works	NA	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Low	General Fund
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather. Also as new homeowners are registered they receive preparedness materials.		High	Existing	Emergency Preparedness working with relief agencies and United Way and 211	Emergency Preparedness	On going	No/low cost mechanism to increase public safety.		Low	County general funds and EMPG
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Emergency Preparedness working with relief agencies and United Way and 211	Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Emergency Preparedness working with relief agencies, United Way, 211, MEMC to provide assistance	Emergency Preparedness	On going	No/low cost mechanism to increase public safety.		Low	County general funds and EMPG monies
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety including severe winter weather. These programs include standardized educational materials coordinated with local and regional partners. These partners include County Departments, local faith based organizations and many other public and private groups. The Office of Emergency Preparedness also participates in local and regional public educational events such as the Safety City Preparedness show.		High	Existing	Emergency Preparedness and Public Works planning and in place generators for emergency status	Public Works and Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	County general funds
6. Increase planning and severe weather coordination between regional partners													
Increase CORE4 participation and coordination efforts	2015	Ongoing	Increase the County's support and coordination efforts with the CORE4 group regarding coordination of severe winter weather warnings, regional decisions and public safety decisions.	Local Plans and Regulations	Medium	New and Existing	Emergency Preparedness and Public Works planning and in place generators for emergency status	Public Works and Emergency Preparedness	Ongoing	No/low cost mechanism to increase public safety.		Low	County general funds
Drought													
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Complete							2-1-12				
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing	The County is constantly utilizing local, state and federal programs and guidance regarding long term planning for severe drought.				Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low cost mechanism to support drought response.		Low	City General Funds
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing	The County is utilizing local programs and guidance and coordinates with MARC regarding water drought and conservation programs in County plans				Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low cost mechanism to support drought response.		Low	City General Funds
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing	County is working with MDNR and local jurisdictions to conduct local public educational programs. This includes supplying literature and conducting presentations at local schools and civic events throughout the County.		Medium	New	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to support drought response.		Low	County General Funds
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	County does not control local water districts										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	Not a county function										
c. Develop and implement water conservation ordinances.	2010	Deferred	Not a county function										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Deferred	Not a county function										
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Not a county function										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Not a county function										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing	The County works with several local and regional stakeholders to ensure the County and local jurisdictions within the county have numerous "Cooling Centers" open to the public during times of sever heat waves.		High	Existing	Office of Emergency Preparedness and County Health Department functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	County General Funds
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing	Currently the county has numerous shelter sites but, efforts to continue increasing shelter facilities Implemented through the Counties educational preparedness programs and Faith Based shelter initiative are ongoing. Many of these sites have air-conditioning but efforts continue to try and retrofit those shelters that are not climate controlled.		High	Existing	Emergency Preparedness utilizes the Safe Shelter Partnership for cooling centers in addition to the Salvation Army and United Way	Office of Emergency Preparedness	Ongoing	Medium cost mechanism to assure populations vulnerable to heat waves are protected.		Medium	Unknown
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing	The office of Emergency Preparedness is currently exploring ways to get at-risk populations into a GIS database.		High	Existing	Emergency Preparedness working with local health departments to link with Safe Shelter and cooling centers locations	Emergency Preparedness/local health departments	ongoing	Medium cost method to identify at-risk populations to prevent injury of death		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing	The Counties Office of Emergency Preparedness has numerous government facilities that are air conditioned and available to residents during times of severe heat conditions. The County also coordinates with the United Ways regional 211 information system to help residents identify local "Cooling Centers"		High	Existing	Emergency preparedness working with local relief agencies and business contacts including Untied Way	Emergency Preparedness	On going	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		Low	County General Fund
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing	All weather procedures and plans are continually updated and changed as needed.		High	Existing	Emergency Preparedness working with local health departments to link with Safe Shelter and cooling centers locations	Emergency Preparedness/local health departments	Ongoing	Low cost mechanism to increase public safety.		Low	EMPG and County General Fund
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing	The County has a severe heat plan that coordinates with public and private agencies to check on at-risk populations in the unincorporated areas of the county. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		High	Existing	The county links with the severe weather plan that coordinates with the local health departments	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	EMPG and County General Fund
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing	The County has a severe heat plan that coordinates with public and private agencies to check on at-risk populations in the unincorporated areas of the county. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		High	Existing	Emergency Preparedness working with Safe Shelter Partnerships FBIO	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	EMPG and County General Fund
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	Not a county function										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause.		High	Existing	Emergency Preparedness working with local heath departments and NOAA	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	County Emergency Preparedness Budget/EMPG
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause.		High	Existing	Emergency Preparedness working with local heath departments and NOAA	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	County Emergency Preparedness Budget/EMPG
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing	he City's Office of Emergency Preparedness also participates with the regional Integrated Warning Team. This group is task to bring all organizations with responsibilities regarding warning the public about severe weather events together to develop more resilient and effective warnings.		High	Existing	Emergency Preparedness working with local heath departments and NOAA	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	County Emergency Preparedness Budget/EMPG

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause. The educational program also includes information about making residents homes more energy efficient.		High	Existing	Emergency Preparedness working with local heath departments and NOAA	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	County Emergency Preparedness Budget/EMPG
5. Increase communication and Planning capabilities between Public Safety agencies													
Develop a communication network between Emergency Management Agencies, Health Departments throughout the County with the Jackson County Medical Examiners Office	2015	Ongoing	Establish a dedicated communications and planning group between public safety, health departments and emergency management agencies within the county	Local Plans and Regulations	Medium	New & existing	Emergency Preparedness working with local heath departments, public safety and medical examiner's office	Emergency Preparedness	On going	Low cost mechanism to increase public safety.		Low	County Emergency Preparedness Budget/EMPG
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	The County has level one HAZUS data available and is in the process of working with other county departments to customize additional GIS metadata into the software		Medium	New & Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing	The county has level one HAZUS data available and is in the process of working with other county departments to customize other GIS metadata into the software such as demographic, economic, geologic and other data		Medium	New & Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing	The county has level one HAZUS data available and is in the process of working with other county departments to customize other City GIS metadata into the software such as demographic, economic, geologic and other data. When this data is integrated into the software in-depth earthquakes analysis can be done.		Medium	New & Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Complete	Done through county building codes 2006 edition						2006				
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deleted	Not required by building codes										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete	Done through county building codes 2006 edition						2006				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing	The County continues to work with developers to look at construction techniques and materials that may minimize earthquake damage to residential/ commercial structures. The County has adopted the 2006 International Building Code strengthening this area as well.		Medium		Emergency Preparedness working with other county departments	Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	County General Funds
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deleted	County does not have seismic retrofitting programs										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	Not a county function										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deleted	The county does not have an inventory of these types of facilities but relies on local jurisdictions within the county for the information										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Complete							4-1-13				
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing	The County's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The County has numerous shelters that have back-up power, but the county continues to work with existing and future shelter locations to find ways to retrofit them with emergency power.		Medium	New & Existing	Emergency Preparedness working with other county departments	Emergency Preparedness	On going	Fairly high cost installation price but will ensure continuity of shelter operations.		Medium	Unknown
Dam Failures													
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing	The County's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	County General Funds
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Complete							4-3-12				
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Complete							5-1-13				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							5-1-13				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Complete							5-1-13				
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Complete							5-1-13				
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Complete							5-1-13				
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Complete							5-1-13				
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Complete							5-13-13				
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Complete							5-12-13				
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Ongoing	The County continues to work with local jurisdictions to discouraging development in the vicinity of dam inundation zones.		Medium	Existing	Parks & Rec/Public Works/Corps of Engineers working with MDNR to maintain safety building codes to dam inundation zones	Parks & Rec/ Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	County General Funds
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Complete							2-1-12				
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing	The County has an on-going program to educate the public about fire safety which includes standardized educational materials coordinated with regional partners. The County also participates in local, regional, State and national public educational events such as fire prevention week.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	County General Funds
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Complete							2-1-13				
6. Reduce the wildland fire threat by regulating outdoor burning.													
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Ongoing	The county defers to local fire and brush burning ordinances to local jurisdictions		Medium	Existing	Parks & rec receives local fire jurisdiction input concerning use of campfires and similar activities	Parks & Rec/ local fire jurisdictions	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	County General Funds
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							2-1-13				
Severe Thunderstorms													
1. Increase severe weather warning capabilities													
Increase volunteer local weather spotter capability	2015	Ongoing	Development of a countywide home spotter network increasing weather spotters by a minimum of 50 volunteers	Local Plans and Regulations	Medium	new	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	County General Funds
Increase weather radio distribution	2015	Ongoing	Increase the use of weather radios by general public and businesses throughout the county	Education and Awareness Programs	Medium	existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Medium	Unknown
Increase weather training effectiveness	2015	Ongoing	Develop advanced spotter training classes increasing the level of training weather spotters receive	Local Plans and Regulations	Medium	existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	County General Funds
Levee Failure													
1. Improve levee warning systems													
Increase accuracy and timely data release from COE regarding water levels on levees throughout the County	2015	Ongoing	Develop methods to accurately know height and length of time water sits on levees	Structure and Infrastructure Projects	Medium	existing	Office of Emergency Preparedness, within City ordnances and codes	County's Office of Emergency Preparedness	on going	Relatively low cost mechanism to increase public safety warnings regarding levee failures.		Low	County General Funds

Blue Springs 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Deferred	This component will be considered in conjunction with the update of our development code.										
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	This component will be addressed with the update of the development code.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing	The City has designated safety locations in all City facilities for staff and visitors to shelter in during severe weather events.		Medium	New	Plan reviews and code requirements, if adopted.	Community Development staff	Ongoing	Low/no cost mechanism to increase public safety.		Low	General fund
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing	The new building designs will include rooms that provide safe refuge from tornados and storms.		Medium	New	The new building designs will include rooms that provide safe refuge from tornados and storms.	Planning and Codes Departments	Ongoing	High cost to retrofit existing buildings but can also prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Unknown
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing	This component will be addressed with the update of the development code. Further stakeholder input required.		Medium	New	This component will be addressed with the update of the development code. Further stakeholder input required.	Planning and Codes Departments	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing	If the strategy is adopted into the code the entities will be in the process and it will be a community effort.			N/a	Citizen Preparedness Programs	Community Development staff	Ongoing	Low/no cost mechanism to increase public safety.		Low	General fund
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing	This component will be addressed with the update of the development code. Further stakeholder input required.		Medium	New	This component will be addressed with the update of the development code. Further stakeholder input required.	Planning and Codes Departments	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	The Eastern Jackson County Home Builders Association will be included in overall discussions as the process evolves.										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	The City currently utilizes the 2006 editions of the International Building Code. Newer additions are evaluated as they come out for possible upgrades.										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	May be included with the code revision.										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	This option will be reviewed when considering code changes and amendments.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing	The City works with utility companies to implement these mitigation strategies. Due to the prevalence of ice storms in the area KCP&L and its acquired company Aquila, have been working to find areas that are in peril from trees and other natural factors.		Low	Existing	Office of Emergency management functions as outlined by ordnances and codes	Kansas City Power & Light	Ongoing	High implementation cost but offset by improved public safety		High	Private Utility Funding
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing	On a project by project basis the option is strongly considered to put utility lines underground. Some corridors are too expensive to address without a redevelopment project.		Low	Existing	Office of Emergency management functions as outlined by ordnances and codes	City / Utility/ developer	on going	High implementation cost but offset by improved public safety		High	Grant Funding, Redevelopment funds, KCP&L Funds
6. To use the latest guidance issued in upcoming International Building Code IBC versions.													
Update Building regulations as the IBC changes	2015	Ongoing	Accomplished through adopted building codes	Local Plans and Regulations	High	Overall	IBC Code adoption	Planning and Development Department	Ongoing	Medium cost mechanism to increase public safety.		Low	General Fund and building fees
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing	The Public Works Department reviews each water call to determine the source of the flow. Mitigation strategies are formulated on a case by case basis.		Low		Blue Springs Public Works Department	Blue Springs Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Funds
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing	Blue Springs Public Works Department constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties. This sources include private, local, state and federal grants.		Low	Existing	Public Works grant searches.	Blue Springs Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	General fund
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	Due to the current economy the Capital Improvement Budget is only addressing maintenance needs.										
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing	The Department consistently looks for ways to partner with residents and property owners to alleviate overland flooding issues.		Medium	Existing	Emergency Management and other City Departments as outlined by ordnances and codes	Blue Springs Public Works	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	General fund and CIP Budget
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	Through the plan review process and code requirements detention is required. A comprehensive plan update that was completed in September 2009 heightened awareness of natural detention options and encourages the implementation of such practices.		High	Existing	Emergency Management and other City Departments as outlined by ordnances and codes	Public Works and Community Development departments	Ongoing	Will prevent flooding for moderate costs		Medium	Developer / Owners
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing	Development in flood zones is prohibited by code. If flood prone areas are incorporated in a large development the area is typically used as green space.		Medium	New	Emergency Management and other City Departments as outlined by ordnances and codes	City's Community Development and Public Works departments	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	Unknown
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing	The city has very few flood plain areas within the current boundaries. However, there has been an area identified in the intent to annex area that would be suitable for some of these uses. If the area is annexed these applications will be considered.		Medium	New	Emergency Management and other City Departments as outlined by ordnances and codes	Community Development, Public Works, and Parks departments	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	General fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	The city is currently working through a multi year plan to assess the watersheds throughout he city and determine the best management practices associated with each situation.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing	The City partners with the Jackson County Storm water commission to identify regional initiatives and programs.		Medium	Existing	Emergency Management and other City Departments as outlined by ordnances and codes	Jackson County Storm water Commission	Ongoing	Low/no cost mechanism to increase public safety.		Low	General funds and EMPG program monies
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing	The city works with each property owner on a case by case basis to identify solutions to flooding in buildings.		Medium	Existing	Emergency Management and other City Departments as outlined by ordnances and codes	Public Works	Ongoing	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	General funds and/or grant funding
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	This initiative has been deferred until funds become available.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	The process of elevating entire structures is complicated and expensive. In most cases there are more attractive and economical options available.										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing	The data is available and updated through the City's GIS system.		Low	Existing	Community Development responsibilities as outlined by ordnances and codes	Community Development	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	General Funds
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	Standard practice is to direct interested parties to the FEMA website.										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing	Flood maps are maintained and updated as needed		High	New	Project Plan Reviews	Public Works Engineering	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	General Fund
9. To continue to monitor for possible flooding issues within the city and adapt solutions to correct the issues when they arise,													
**Monitor for FEMA Flood Map updates	2015	Ongoing	Work with FEMA and regional partners to assure most current flood maps are available to City residents and businesses	Local Plans and Regulations	High	Overall	Flood Plain Management	Planning and Development Department	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	General Fund
**Update DAM EAP Annually	2015	Ongoing	Review inundation areas outlined in Dam EAPs	Local Plans and Regulations	High	Yes	Local Emergency Operations Planning	Public Works	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	General Fund
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing	City Departments have continued discussions with the utility providers to improve the resiliency of their infrastructure.		High		Local Emergency Operations Planning	Kansas City Power & Light	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		High	Utility Funding
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing	The City works with regional organizations to assure continued operations of shelters		Medium	New	Discussions and project reviews.	Blue Springs and CJCEMA	Ongoing	No/low cost mechanism to ensure shelter operations increasing public safety		Low	General fund
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The City continues to work with existing and future shelter locations to find ways to retrofit them with emergency power.		High		MARC emergency management in conjunction with Central Jackson County Emergency Management.	MARC	ongoing	Fairly high cost installation price but will ensure continuity of shelter operations.		Medium	Looking for grant funding
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	The City has policies in place regarding shelter design as outlined in FEMA regulations and build codes which are reviewed on a regular basis		Medium	New	Strategic planning and plan review.	City/ owner/ developer	ongoing	Fairly high cost program to implement, but would help ensure continuity of government operations.		Medium	General fund
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	Considering the viability of the regional stockpiling concept for operations.										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	Considering the viability of the concept as it relates to the suburban areas.										
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	Due to the economy, this idea has been put on hold until companies are on surer footing. Media coverage of companies that offer this option applies peer pressure to their competition.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	This option is being considered.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	The city is not sure if another outlet is needed. The local media does several features on home winterizing each year.										
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	Several departments and sub entities have the ability to disseminate information, but a clear concise message must be formulated.										
6. To provide manpower, equipment and materials to ensure the safety of motorists during severe winter weather.													
Research and identify upgrades to operations through new technology to improve mitigation capabilities to reduce damage from ice and snow on roads	2015	Ongoing	Review new technologies being implemented by surrounding jurisdictions throughout the region and state.	Local Plans and Regulations	Medium	New & Existing	City's Public Works Department as outlined by ordnances and codes	City's Public Works Department	Ongoing	Low cost program that will ensure that citizens are prepared for severe weather events.		Low	General fund
7. Review and update building codes to improve structural snow loads													
Work with trade organizations to inform builders and developers of construction techniques and materials guidance outlined by the IBC regarding snow loads.	2015	Ongoing	The City's Community Development and Codes Department will work with developers to look at construction techniques and materials that may minimize snow load damage to residential/ commercial structures.	Local Plans and Regulations	High	New & Existing	Community Development responsibilities as outlined by ordnances and codes	Community Development	Ongoing	Medium initial cost to builders and developers but is offset by reduction of damage to structures and increased public safety		Medium	General fund
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deferred	The City's water model will have to be updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP.										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	The City's water model is in the process of being updated using the Missouri Drought Plan parameters. The current plan is designed for the NFP and this mitigation action will depend on the new water model.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Ongoing	The water rates are set in a tiered structure with prices increasing as certain levels are reached.		Medium	Existing	Blue Springs Water Department's codes and regulations	Blue Springs Water Department	Ongoing	Low cost program that will ensure that citizens are prepared for severe weather events.		Low	Water fees
c. Develop and implement water conservation ordinances.	2010	Ongoing	The water rates are set in a tiered structure with prices increasing as certain levels are reached.		Medium	Existing	Code of Ordinances - Water Rates	Blue Springs Water Department	Ongoing	Low cost program that will ensure that citizens are prepared for severe weather events.		Low	Water fees
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing	System improvements are continuously included in the Capital Improvement Program.		Medium	Existing	Blue Springs Water Department's codes and regulations.	Blue Spring Public Works Department	Ongoing	High cost of implementation but offset by savings in water conservation		High	Water fees
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing	Included in City's Capital Improvement Program		High	Existing	City's codes, ordnances and regulations	Blue Springs Public Works	Ongoing	Medium cost of implementation but offset by savings in water conservation		Medium	Water fees
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Complete							January 2015 through Tri County Water Authority				
6. To ensure an adequate water supply by maintaining contracts for water purchase from three separate entities.													
Monitor water use during times of drought and use voluntary restrictions if warranted	2015	Ongoing	City's Water Department to implement water modeling to determine and forecast water demands and when restrictions may be needed	Local Plans and Regulations	High	New & Existing	Blue Springs Water Department's codes and regulations.	Public Works	Ongoing	Medium cost of implementation but offset by savings in water conservation		Medium	Water fees
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing		Local Plans and Regulations	High	Existing	Local Emergency Operations Planning	Emergency Management/Jackson County Public Health	On-going	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	City general fund
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Complete							June 2014				
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	Proposed for a future budget year when interns and funding are available.										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Complete							June 2014				
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	Future project with KCP&L. when funding becomes available										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Complete							June 2014				
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Will work with MARC regarding regional heat planning is being done. Blue Springs has not historically had issues with wide spread heat wave problems.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deleted	Not identified as a problem by the EMS crews working for our jurisdiction.										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	May be included in CERT Team duties in the future.										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	The issue has not been identified as a need.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Complete							May 2013				
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	The City coordinates with the heat safety messages distributed to the media through the Kansas City Health Department and MARC which do a good job of informing the public.										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deferred	Will be placed in the City's magazine for the summer.										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	KCP&L and MGE already send out fliers in the fall concerning weather stripping.										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	The City does not currently utilize HAZUS software but waiting to see if surrounding jurisdictions may implement the program and partner with them.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	The City does not currently utilize HAZUS software but waiting to see if surrounding jurisdictions may implement the program and partner with them. Our predominant issue will be the influx of refugees if either fault line in the central US shifts.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	Will work in conjunction with MARC and regional partners if this initiative is moved forward.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Complete							October 2013				
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Complete							October 2013				
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete							October 2013				
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	We are utilizing the requirements in the IBC.										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Complete							10/1/2013				
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	The City is currently researching options.										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deleted	MARC does this for the region.										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	MARC provides this interaction for the region.										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	Considered for a future project.										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	Systematically replacing lines as condition dictates.										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	No high hazard dams in danger within Blue Springs.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deleted	Both entities are aware of the issue and are planning accordingly.										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	Looking into the issue for possible application in future outreach.										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deleted	Using the earthquake guidance for our area in the IBC.										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deleted	The issue has not been identified as a critical issue at this point in the metropolitan area.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	Further geologic data needed.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	We need to have the assessment done first.										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	Looking for grant funding for the retrofits.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Done on a case by case basis, but not required for all public construction.										
8. To enhance the earthquake annex within the LEOP to be able to respond to the needs of our residents and refugees in the event of an earthquake.													
Update Building regulations as the IBC changes	2015	Ongoing	The City will continue to try and adopt current building codes	Local Plans and Regulations	High	Yes	IBC Code adoption	Planning and Development Department	Ongoing	Medium initial cost to builders and developers but is offset by reduction of damage to structures and increased public safety		Medium	General fund and Building fees
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Complete							2007				
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Complete							2010				
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Complete							2010				
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Complete							2010				
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	Will develop a brochure for those in the path in the future. The dam in our area is backed up by the base of I-70, which makes a full breach nearly impossible.										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deleted	See question 4.										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	See question 6.										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	See question 6.										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	City is looking at similar policies to implement.										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							2007				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Complete							2010				
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Complete							2010				
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	This needs to be evaluated on a case by case basis.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	This is a state level function.										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	No dams currently fit this description. If it becomes an issue grants will be pursued.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	Dams in the area do not fit this criteria.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing	On going maintenance is budgeted for within the Public Works budget.		Low	Existing	City's Public Works Department as outlined by ordnances and codes	Blue Springs Public Works	Ongoing	Low cost program that will ensure that citizens are protected from dam failures.		Low	General revenue
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Complete							2010				
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	No campgrounds are within the flood inundation zone.										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Exercising more critical hazards at this time. It will be considered for a future training exercise.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Complete							2012				
7. To update the Dam Emergency Action Plan annually.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Update inundation maps in the Dam EAP as provided in the USACE	2015	Ongoing	Review and update dam inundation maps	Local Plans and Regulations	High	Yes	Dam Emergency Action Plan	Public Works	Ongoing	Low cost program that will ensure that citizens are protected from dam failures.		Low	General revenue
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deleted	No wild land fire areas within the jurisdiction.										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deleted	No wild land fire areas lie within the district.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	No wild land fire areas lie within the district.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	No wild land fire areas lie within the district.										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deleted	No wild land fire areas lie within the district.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deleted	No wild land fire areas lie within the district.										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deleted	No wild land fire areas lie within the district.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deleted	No wild land fire areas lie within the district.										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deleted	No wild land fire areas lie within the district.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	No wild land fire areas lie within the district.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete							2012				
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Complete							2012				
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	No wild land fire areas lie within the district.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deleted	No wild land fire areas lie within the district.										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	No wild land fire areas lie within the district.										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deleted	No wild land fire areas lie within the district.										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deleted	No wild land fire areas lie within the district.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deleted	No wild land fire areas lie within the district.										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deleted	No wild land fire areas lie within the district.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							2007				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							2007				
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							2009				
7. To continue to monitor adjacent areas to the jurisdiction for possible annexation of any areas that might be considered a potential for wildland fires.													
Identify potential areas that could be susceptible to wildland fires	2015	Ongoing	Work with local fire departments and districts to identify possible areas that could be susceptible to wild fires	Local Plans and Regulations	High	New & Existing	LEOP	CJCFPD	Ongoing	Low cost program that will ensure that citizens are protected from dam failures.		Low	General revenue
Severe Thunderstorms													
1. To maintain the level of awareness and public education concerning severe thunderstorms as guided by the NWS.													
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during severe weather events	2015	Ongoing	Conduct classes with school, businesses and local residents on severe weather events including lightning awareness	Education and Awareness Programs	High	New	Emergency Operations Plan	Emergency Management	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from severe weather.		Low	General Fund
Hazardous Materials													
1. Improve the City's hazardous materials response capabilities													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Increase training to City personnel regarding HazMat response	2015	Ongoing	Develop a local exercise to test the Local Emergency Operations Plan (LEOP) to coordinate response efforts to a chemical release.	Education and Awareness Programs	High	New	Emergency Operations Plan	Emergency Management	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from a hazardous materials event.		Low	CJCFPD Budget
Emerging Infectious Diseases													
1. Improve capabilities of the City to respond to Emerging Infectious Diseases													
Conduct exercise with the Health Department and City personnel	2015	Ongoing	and exercises on identification, containment, and treatment for Health personnel regarding the best use of POD sites etc.	Education and Awareness Programs	High	New	Emergency Operations Plan and Health Department Response Plan	Emergency Management and Health Department	Ongoing	cost mechanism to increase public safety and reduce recovery		Low	General fund and Health Department
Civil Disorder													
1. Improve capabilities of law enforcement to respond to civil disturbances													
To review policies and training to ensure all officers are prepared for such a possibility	2015	Ongoing	Identify and conduct training courses and exercises to respond to acts of civil disorder	Education and Awareness Programs	High	N/a	City Police Department as outlined by ordnances and codes	Blue Springs Police Department	Ongoing	Medium cost mechanism to protect public from civil disturbances		Low	General Fund
2. Increase regional coordination response to civil disturbances													
Conduct training and exercise with the metropolitan LEOs to offer a coordinated response to civil disturbances	2015	Ongoing	Identify and conduct training exercises to respond to acts of civil disorder utilizing regional resources	Education and Awareness Programs	High	N/a	City Police Department as outlined by ordnances and codes	Blue Springs Police Department	Ongoing	Medium cost mechanism to protect public from civil disturbances		Low	General fund
Mass Transportation Accident													
1. Improve response plans and capabilities to mass transportation accidents													
Review the LEOP for adequate planning and resources for a mass transportation accident	2015	Ongoing	Review, exercise and make changes as needed to LEOP .	Education and Awareness Programs	High	N/a	City's Emergency Management agency , Fire district and Police Department as outlined by ordnances and codes	Emergency Management Office	Ongoing	Medium cost mechanism to protect public from civil disturbances		Low	General fund and Public Safety Sales Tax
Cyber Disruption													
1. Improve resiliency of city cyber systems and networks to cyber attacks													
Implement, improve and enhance cyber equipment protection	2015	Ongoing	Review all security software to be sure it is up to date. Stay abreast of threats to our system and others our system interacts with to reduce the probability of being attacked.	Structure and Infrastructure Projects	High	New/Existing	All City department as outlined by ordnances and codes	Emergency Management Office	Ongoing	Medium cost mechanism to protect governmental service disruption from a cyber attack		Medium	General fund
Improve detection and increase awareness of cyber disruption	2015	Ongoing	Identify and conduct training and exercises to increase awareness regarding the threat and damage of cyber disruption and cyber terrorism	Education and Awareness Programs	High	Existing	All City department as outlined by ordnances and codes	Emergency Management Office	Ongoing	Medium cost mechanism to protect governmental service disruption from a cyber attack		Medium	General fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Transboundry Animal Disease Outbreak (Foreign Animal Disease)													
1. Enhance the capabilities of the Health Department and animal control to respond to and mitigate the spread of animal diseases													
Identify potential training that will allow City personnel to better respond to a Transboundry Disease outbreak	2015	Ongoing	City Departments work with the local health agency, FDA and CDC to be aware of any issues that may bring contaminated animals into or through Blue Springs.	Education and Awareness Programs	High	N/a	All City department as outlined by ordnances and codes	Emergency Management Office	Ongoing	Medium cost mechanism to reduce the publics risk to animal diseases		Medium	General fund

Grandview 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Deferred	Deferred due to staff turn-over, will resume work as an ongoing activity in 2016										
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	Deferred due to staff turn-over, will resume probably in 2016										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing	This item is addressed by both the Building Department and Fire Department during inspections on a regular basis		Medium	Existing	Building and Fire Department functions as outlined in City ordnances and codes	Building Department	Ongoing	Low/no cost mechanism to increase public safety.		Low	General fund - plan review fees
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	Due to Lack of funding at this time										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing	City has ordinances regulating safe room construction which are reviewed on an ongoing basis		Medium	New	City ordinance	Building Department	Ongoing	Medium implementation cost to builders but offset by increased public safety		Medium	Unknown
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	Due to Lack of funding at this time										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deferred	Deferred due to staff turn-over, possible resumption in 2016										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing	City has ordinances regulating safe room construction for specific facility uses, which are reviewed on an ongoing basis		Medium	Existing	City Administrator and Board of Aldermen	Emergency Management	Ongoing	Medium implementation cost to builders but offset by increased public safety		Medium	Unknown
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing	Done through current building codes which is reviewed on a regular basis		Medium	Existing	City Administrator, Board of Aldermen and Building Official, adoption of current building codes	Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.	Low	.Low	Unknown
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing	Through permit process for building alterations as well as adoption of current building codes		Medium	Existing	City Administrator and Board of Aldermen and City Ordinances	Building Department	Ongoing	Medium implementation cost to builders but offset by increased public safety		Medium	Unknown
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing	City has ongoing communications with electric and telecommunication agencies trying to implement these mitigation activities		Medium	Existing	City Administrator and Board of Aldermen and City Ordinances	Emergency Management	Ongoing	High implementation cost but offset by increased public safety		High	Unknown
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing	City has ongoing communications with electric and telecommunication agencies trying to implement these mitigation activities		Medium	Existing	City Administrator and Board of Aldermen and City Ordinances	Emergency Management	Ongoing	High implementation cost but offset by increased public safety		High	Unknown
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Due to Lack of funding										
6. Improve capabilities to enhance safety of property													
Control area access after a tornado	2015	Ongoing	Establish Boundaries	Local Plans and Regulations	High	Existing	Annual Capital Improvement process	Fire	Ongoing	Medium implementation cost but offset by increased public safety		Medium	City Funds, Federal and State Aid
Control area access after a tornado	2015	Ongoing	Provide Fencing	Structure and Infrastructure Projects	High	Existing	Annual Capital Improvement process	PW	Ongoing	Medium implementation cost but offset by increased public safety		Medium	City Funds, Federal and State Aid
Improve safety of fires responders	2015	Ongoing	Provide shelter and water	Local Plans and Regulations	Medium	Existing	Annual Capital Improvement process	Outside	Ongoing	Medium implementation cost but offset by increased public safety		Medium	City Funds, Federal and State Aid
7. Improve City's ability to conduct operations to mitigate loss of life and damage to property Restore transportation network													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Restore transportation network	2015	Ongoing	Clean Streets	Natural Systems Protection	High	Existing	Annual Capital Improvement process	PW	Ongoing	Medium implementation cost		Medium	City Funds, Federal and State Aid
8. Collect and dispose of debris													
Collect and dispose of debris	2015	Ongoing	Educate and awareness	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	PI	Ongoing	implementation cost but offset by		High	City Funds, Federal and State Aid
Educate pubic regarding debris clean-up and removal	2015	Ongoing	Place directional signage	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	PW	Ongoing	Low/no cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
Reduce debris management cost by having per-disaster debris contracts in-place	2015	Ongoing	Contract debris disposal	Local Plans and Regulations	High	Existing	Annual Capital Improvement process	PW	Ongoing	Medium implementation cost		Medium	City Funds, Federal and State Aid
9. Improve and enhance personnel resiliency to damage from tornados													
Educate and awareness	2015	Ongoing	Identify and implement enhanced procedures and improve facilities to provide adequate protection of personnel and tenants from the damage of tornados	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing	Regular review of flood maps and damage reports by public Works Department to identify repetitive loss properties		Medium	Existing	City Public Works Department as outlined in NFIP regulations and City codes	Public works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General fund
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing	The City constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties. This sources include private, local, state and federal grants.		Medium	Existing	City Public Works Department as outlined in NFIP regulations and City codes	Public works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	The City continues to review flood losses to identify repetitive loss buyout targets		Medium	Existing	City Public Works Department as outlined in NFIP regulations and City codes	Public works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing	The City continually works with property owners to mitigate future flood losses. While economic incentives are not always implemented many educational programs such as building water gardens, backflow valves and landscaping are done.		Low	Existing	City Public Works Department as outlined in NFIP regulations and City codes	Public works	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	City's general fund
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	As the City develops new areas basins will be considered as necessary to help control watershed runoff		Medium	Existing	The mechanism for this is through zoning ordinance and subdivision regulations.	Community Development	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing	The City will consider using local, State and Federal funding to buyout repetitive loss properties as needed. The City will continue to look for funding opportunities to remove targeted repetitive loss properties for use a open space land.		Medium	Existing	This is done through the Community Development Department.	Community Development	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing	The City consistently continue to apply for State and Federal grants to support and enhance flood mitigation and prevention programs. This includes identifying funding sources for the acquisition of flood-prone		Medium	Existing	Zoning Ordinance and Subdivision Regulations	Community Development/Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	City general funds and/or grant funding
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing	apply for State and Federal grants to support and enhance flood mitigation and prevention programs. This includes identifying funding sources for the acquisition of flood-prone		Medium	Existing	Park master plan	Park and Recreation Department	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	City general funds and/or grant funding
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing	The City works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of fish and wildlife habits		Medium	Existing	Review of natural resources inventory and flood plain data	Public Works	on-going	Helping to preventing future flooding of properties that have had history of flood damage for moderate cost		Low	City general funds and/or grant funding
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing	The City works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of these items		Low	Existing	Building plan review, review of flood damage maps	Public works/community Development	on-going	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	Permit fees

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	The City constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties through buyout projects. This sources include private, local, state and federal grants.		Low	Existing	Flood Plain damage reviews	Public works	On-going	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	City general funds and/or grant funding
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Complete							2006				
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2002				
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing	Although flood hazard areas of the City have been mapped with current FEMA flood map and the digital data is integrated into city geo-data on a regular basis. The City continues to review flood hazard areas and incorporate necessary changes as needed.		Medium	New	Zoning ordinances and subdivision regulations	Community Development/Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Unknown
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing	City officials and employees continue to participate in FEMA workshops and training		Medium	New	Participate in FEMA workshops and planning work, use products	Public Works	on-going	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	General fund
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	City uses HAZUS software and continues to update and improve accuracy of data as necessary		Low	New	Flood plain reviews	Public Works	on-going	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	General Fund
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing	City uses HAZUS software and continues to update and improve accuracy of data as necessary		Low	New	GIS system development	Public works	on-going	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	General fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing	City uses HAZUS software and continues to update and improve accuracy of data as necessary		Low	New	GIS System development	Public works	on-going	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	Grants, General Fund
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing	The Office of Emergency Preparedness has several outreach programs to encourage home owners and businesses to purchase flood insurance.		Low	New	We have an ordinance that prohibits building in the floodplain	Community Development	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	City general funds and EMPG program grant monies
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing	The City has on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		Low	New	Distribution as asked for.	Public Works	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	Unknown
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing	The City has on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events such as Safety City and Echo- Fest put on by the City each year.		Low	New	Coordinate with MARC.	MARC	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	Unknown
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Complete							1979				
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							2014				
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing	The City uses real-time information from the Army Corps of Engineers, National Weather Service and USGS river gauges along with information from surrounding jurisdictions and Jackson County Emergency Preparedness Office		Low	Existing	Flood plain review activity	Public works	On-going	Data Sharing is a relatively low cost effective measures to warn of flooding events and implement mitigation measures. Sharing of data will improve county floodplain management.		Low	Not known
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing	The City uses real-time information from the Army Corps of Engineers, National Weather Service and USGS river gauges along with information from surrounding jurisdictions and Jackson County Emergency Preparedness Office which can be quickly passes onto the public		High	Existing	We notify the population through City email blast and over cable Channel 2. As well as email and telephone warning systems	Emergency Management/Public Information	Ongoing	Will ensure that citizens are prepared real time for flood events.		low	Unknown
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	We were advised this is not financially feasible										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Deferred to better economic times										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing	The City works with regional organizations to assure continued operations of shelters		Medium	New	Will be discuss with new construction and require what is required by the fire and building codes.	Community Development/Fire Department	Ongoing	No/low cost mechanism to ensure shelter operations increasing public safety		Low	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	Waiting for better economic conditions										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	The City has policies in place regarding shelter design as outlined in FEMA regulations and build codes which are reviewed on a regular basis		Low	New	CIP program and site plan review	Community Development	on-going	ongoing	Fairly high cost program to implement, but would help ensure continuity of government operations.		Medium
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Waiting for better economic conditions										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing	City works with Kansas City Power & Light and Missouri Gas Energy which already has this project in-place.		Low	Existing	We consider this a utility program.	Unknown	Ongoing	No/low cost mechanism to ensure shelter operations increasing public safety		Low	Unknown
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing	This expense is outlined in the Public Works budget on a yearly basis and funding amount is reviewed every year.		High	Existing	Snow response plan.	Public Works	Ongoing	Medium cost strategy to ensure continued open roadways.		Medium	General Fund
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deferred	We have been able to handle past emergencies on our own and have not been approached by other municipalities										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing	The City has on-going programs to educate the public about "All hazards." This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events.		Medium	Existing	Citywide safety reviews	Public works	on-going	Low cost mechanism to support severe winter weather response.		Low	Not known
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing	The City has on-going programs to educate the public about "All hazards." This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events.		Medium	Existing	LEOP and public information	Emergency Management	Ongoing	Low cost mechanism to support severe winter weather response.		Low	General fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing	The City has on-going programs to educate the public about "All hazards." This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events.		Medium	Existing	Through our Communications Director	Communications Department	Ongoing	Low cost mechanism to support severe winter weather response.		Low	General fund
6. Improve City's ability to recover from severe winter weather													
Maintain open roads	2015	Ongoing	Continued improvements to remove snow from roadways	Local Plans and Regulations	High	Existing	Annual Capital Improvement process	PW	ongoing	Medium cost to prevent road closures		Medium	City Funds, Federal and State Aid
Keep City services open after a server winter storm event	2015	Ongoing	Provide access to critical properties after a severe winter storm event	Local Plans and Regulations	High	Existing	Annual Capital Improvement process	Police and fire	ongoing	Medium cost to prevent road closures		Medium	City Funds, Federal and State Aid
Conduct training and disseminate information on identifying hazards of severe winter weather	2015	Ongoing	Conduct educate and awareness classes to city personnel	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	PI	Ongoing	Low cost mechanism to support severe winter weather response.		Low	City Funds, Federal and State Aid
Identify funding in order to provide winter weather related protective equipment for officers	2015	Ongoing	Determine and plan for resource and equipment needs/acquisition	Structure and Infrastructure Projects	High	Existing	Annual Capital Improvement process	CIP	Ongoing	Low cost mechanism to support severe winter weather response.		Low	City Funds, Federal and State Aid
7. Maintain City infrastructure													
Maintain shelter operations	2015	Ongoing	Developed plans to provide temporary shelter and maintain water and heat at shelter locations	Local Plans and Regulations	Medium	Existing	Annual Capital Improvement process	Other	As needed	Medium cost mechanism which is offset by increased public safety		Medium	City Funds, Federal and State Aid
Safety education and awareness for City personal	2015	Ongoing	Ensure outdoor crews have adequate personal protection to mitigate the effects of prolonged cold	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	PI	As needed	Low cost mechanism to support severe winter weather response.		Low	City Funds, Federal and State Aid
Drought													
1. Assess the vulnerability of water systems.													
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Ongoing	City works with Jackson County Water District regarding local reservoirs		High	Existing	Tied to license	Jackson County Water District	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing	The City works with the Jackson County Water District to ensure improvements to municipal water systems are done.		High	Existing	Replacement and maintenance program	Jackson County Water District	Ongoing	High implementation cost but offset by water conservation		High	Revenue
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	This will be up to the private facilities.										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing	City is currently exploring ways to get at-risk populations into a GIS database.		High	Existing	Working with local agencies to develop this	Emergency Management	Ongoing	Medium cost method to identify at-risk populations to prevent injury of death		Medium	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing	The City coordinates with the United Ways regional 211 information system to help residents identify local "Cooling Centers"		High	Existing	Working with community service organizations and area businesses.	Emergency Management	Ongoing	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		Low	Unknown
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Ongoing	The City continues to work with utility companies to initiate these type programs		High	Existing	In contact with local utility companies	Emergency Management	Ongoing	Can be a high cost mitigation program but can significantly increase public safety		High	Unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing	All weather emergency procedures and plans are continually being updated.		High	Existing	Local Emergency Operations Plan and Mid America Regional Council	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deleted	No public swimming pools in City										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City has on-going program to educate the public about heat and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on heat wave mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		Medium	Existing	Heat Wave Mitigation Plan	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	City general funds
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City has on-going program to educate the public about heat and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on heat wave mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		Medium	Existing	Heat Wave Mitigation Plan	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	City general funds
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing	The City has on-going program to educate the public about heat and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on heat wave mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		Medium	Existing	Heat Wave Mitigation Plan	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	City general funds
5. Increase City's cooling center capabilities													
a. Develop additional cooling centers within the City	2015	Ongoing	Work with local faith based groups to increase shelter locations	Local Plans and Regulations	Medium	Existing	Annual Capital Improvement process	Parks, Fire and Police	On-going	Low cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
b. Increase the City's resources to operate cooling centers	2015	Ongoing	Increase the City's shelter resources including signs and other supplies such as water etc. needed to operate a cooling center	Local Plans and Regulations	Low	Existing	Annual Capital Improvement process	Parks, Fire and Police	On-going	Low cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
c. Disseminate information to public regarding cooling center locations and hours of operations	2015	Ongoing	The City coordinates with the heat safety messages distributed to the media through the Kansas City Health Department and MARC	Structure and Infrastructure Projects	High	Existing	Annual Capital Improvement process	PW	On-going	Low cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and where cooling centers located.	2015	Ongoing	The City coordinates with the heat safety messages distributed to the media through the Kansas City Health Department and MARC	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	PI	On-going	Low cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
e. Work with utility companies to assure shelter locations have priority infrastructure/Grid protection and restoration.	2015	Ongoing	City continues to coordinate with utility providers to implement these type mitigation projects	Structure and Infrastructure Projects	Medium	Existing	Annual Capital Improvement process	CD and PW	On-going	Low cost mechanism to increase public safety.		Low	City Funds, Federal and State Aid
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	The city utilizes HAZUS data and continues to customize GIS metadata into the software		Low	Existing	GIS System development	Public Works	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing	The city utilizes HAZUS data and continues to customize GIS metadata into the software		Medium	Existing	GIS system development	Public Works	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Various
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing	The city utilizes HAZUS data and continues to customize GIS metadata into the software. The City is also working with MARC to implement regional data into HAZUS.		Medium	Existing	Working with the Mid America Regional Council	Emergency Management/ Public Works	Unknown	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Ongoing	Outlined in the City's adopted building codes		Medium	Existing	Through adoption of current local building codes	Community Services/ Public Works	On-going	Low cost mechanism to increase public safety.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing	Outlined in the City's adopted building codes		Medium	Existing	Through adoption of local building codes	Community Development	Ongoing	Can have a medium implementation cost to builders but has substantial increase to public safety		Medium	Unknown
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing	The City regularly reviews and update the building codes as adopted by the City's Board of Aldermen		Medium	Existing	Regular updating and adoption	Community Development	Ongoing	Can have a medium implementation cost to builders but has substantial		Medium	Building permit fees
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Complete							2004				
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	Lack of funds										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Ongoing	The City has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Working through Mid America Regional Council	Emergency Services	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
4. Encourage the purchase of earthquake hazard insurance.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Ongoing	The City has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Through Community Services Division	Community Services	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	Lack of funding.										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Ongoing	City has an ongoing program to develop and update this type of information		Medium	Existing	GIS System development	Public Works	Ongoing	Low cost mechanism to increase public safety.		Low	Various/General fund
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Complete							2004				
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	We have no listed dams.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing	The City has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Information provided when asked.	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing	The City has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Provide information when asked.	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deleted	Function of mortgage companies.										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deleted	We have no method of doing this.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	This is not an issue for Grandview.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a	2010	Deleted	This is not an issue for Grandview.										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	City continues to look for ways to retrofit shelters with generators as funding becomes available		Medium	Existing	This is done as approved by the Board of Aldermen and as funds become available.	Emergency Management	Ongoing	Has a medium implementation cost but substantial increase in public safety		Medium	General Fund
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	The City has rules and regulations regarding shelter facilities as outlined in building codes and FEMA guidance		Low	Existing	CIP process	Community Development	Ongoing	Has a medium implementation cost but substantial increase in public safety		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Complete							2008				
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Complete							2008				
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted	2010	Complete							2008				
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Complete							2008				
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deleted	We are not impacted by this.										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deleted	We are not impacted by this.										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deleted	We are not impacted by this.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deleted	We are not impacted by this.										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing	The City has on-going programs to educate the public and dam owners about "all Hazards" safety and preparedness including dam safety issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	When meeting with landowners this is addressed.	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	None
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							2004				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing	The City continues to work with MDNR regarding funding and inspection of local dams		Medium	Existing	Working with Mid America Regional Council	Emergency Services	Ongoing	Medium cost mechanism to prevent dam failures		Medium	Unknown
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	We are not impacted by this.										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	We are not impacted by this.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the	2010	Deleted	We are not impacted by this.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	We are not impacted by this.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	We are not impacted by this.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	We have no publicly own dams										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	We are not impacted by this.										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	We are not impacted by this.										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	We are not impacted by this.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deleted	We are not impacted by this.										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deleted	We are not in an area where wildland fires are a risk.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Complete							2001				
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	We do not have a wildland fire risk.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	We do not have a wildland fire risk.										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deleted	We do not have a wildland fire risk.										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deleted	We are an urban area and do not have a wildland fire risk.										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deleted	We do not have a wildland fire risk.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing	Outlined in City's building codes and regulations		High	New	We have adopted current versions of Building and Fire Codes	Community Development	Ongoing	Medium cost to builders and developers to prevent wildland fires		Medium	General Fund/ Permit Fees
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deleted	No direction by local government to do this.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	No direction from the local government to consider this.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing	Outlined in the City's adopted building codes which are updated on a regular basis		High	Existing	Adopt current versions on a regular basis	Community Development	Ongoing	Medium cost to builders and developers to prevent wildland fires		Medium	General fund/ Permit Fees
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Ongoing	Outlined in the City's adopted building codes which are updated on a regular basis		High	Existing	This is discussed when meeting with builders.	Community Development/Fire Department	Ongoing	Medium cost to builders and developers to prevent wildland fires		Medium	Unknown
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	We do not face a wildland fire risk.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deleted	We do not face a wildland fire risk and we maintain our parks and open spaces on a regular basis										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	We do not face a wildland fire risk.										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing	The City consistently continues to apply for State and Federal grants to support and enhance fire prevention programs		Medium	New	CIP process	All	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City's general fund
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Complete							2009				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Ongoing	The Fire Department conducts regular training for operational firefighters and command staff. This training program includes information regarding wildland firefighting techniques but since the City is mainly an urban area with minimal risk for wildland fires this training mainly encompasses basic wildland firefighting techniques.		Low	Existing	Departmental Strategic Plans and Operations Plans	Fire	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City's general fund
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deleted	We do not face a wildland fire risk.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							2003				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							2003				
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							2003				
Civil Disorder													
1. Mitigate public facilities as targets of and prevent or reduce any damage as a result of civil disorder													
Identify funding sources to research, identify, and implement improved security features to protect from and mitigate damage to public facilities as a result of civil disorder	2015	Ongoing	Determine and establish critical infrastructure exposures	Structure and Infrastructure Projects	High	Existing	Annual Capital Improvement process	CD and PW	Ongoing	Medium cost mechanism to prevent damage from civil disorder		Medium	Unknown
Provide new and improve existing hard barriers protecting public facilities	2015	Ongoing	Determine types and quantities of material and equipment needed	Structure and Infrastructure Projects	Medium	Existing	Annual Capital Improvement process	CIP	Ongoing	Medium cost mechanism to prevent damage from civil disorder		Medium	Unknown
Hazardous Materials													
1. Enhance City's capabilities to mitigate a hazardous materials release													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify and conduct training courses to educate businesses and facilities in managing, handling, storing, and disposing of hazardous materials	2015	Ongoing	Development of training courses and content which will be updated on a regular basis	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	HR	Ongoing	Low cost mechanism to prevent damage from hazardous materials incident		Low	City Funds, Federal and State Aid
Obtain contractor/consultant services in advance of a hazardous materials event	2015	Ongoing	Work with regional partners to develop contractor services in advance of hazardous materials accidents	Structure and Infrastructure Projects	High	Existing	Annual Capital Improvement process	Fire and PW	Ongoing	Medium cost mechanism to prevent damage from hazardous materials incident		Medium	City Funds, Federal and State Aid
Work with local and regional partners to disseminate information to the public regarding shelter in place procedures, hazardous material safety, and other hazardous material issues.	2015	Ongoing	Incorporate hazardous materials information into City's "All Hazard" information	Education and Awareness Programs	High	Existing	Annual Capital Improvement process	Fire and PI	Ongoing	Low cost mechanism to prevent damage from hazardous materials incident		Low	City Funds, Federal and State Aid
2. Identify City's Critical infrastructure that could be affected by a hazardous materials spill													
a. Review and inspect Tier II and RMP sites	2015	Ongoing	City has ongoing inspections by Fire Department which can be incorporated into City plans and GIS information and mapped	Structure and Infrastructure Projects	Medium	Existing	Annual Capital Improvement process	Fire and Cd	Ongoing	Low cost mechanism to prevent damage from hazardous materials incident		Low	City Funds, Federal and State Aid
Structure/Bridges													
1. Increase City's resiliency to structure and bridge failures													
Review Bridges for structural deficiencies	2015	Ongoing	City works with MODOT and local officials to inspect bridges which includes detailed review of inspection reports regarding the structures vulnerability to "All Hazards" (including Terrorism), identifies all deficiencies, compare conditions with state/federal standards and creates a plan for repair/upgrades	Structure and Infrastructure Projects	Medium	Existing	Annual Capital Improvement process	PW	Ongoing	Low cost mechanism to prevent damage from structure and bridge failures		Low	City Funds, Federal and State Aid

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Educate public on hazards of structure and bridge failures	2015	Ongoing	The City has on-going programs to educate the public and dam owners about "all Hazards" safety and preparedness including hazards of structure and bridge failures . These programs include standardized educational materials coordinated with local, regional and federal partners.	Education and Awareness Programs	Medium	Existing	Departmental Strategic Plans and Operations Plans	PW	Ongoing	Low cost mechanism to prevent damage from structure and bridge failures		Low	City Funds, Federal and State Aid
Terrorism													
1. protect critical utilities from terrorist acts													
Improve surveillance capabilities of Water Services facilities	2015	Ongoing	City will work with the Jackson County Water District to enhance and upgrade surveillance systems regarding water infrastructure	Structure and Infrastructure Projects	medium	New & Existing	Internal Water Services mechanisms	Water Services	Ongoing	Low cost mechanism to prevent disruption of water services from a terrorist attack		Low	sources unidentified at this time
Identify and conduct training for personnel to recognizes signs of and report active and potential terrorist activity	2015	Ongoing	Development of training courses and content which will be updated on a regular basis	Education and Awareness Programs	low	New & Existing	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	Low cost mechanism to prevent disruption of utility services from a terrorist attack		Low	sources unidentified at this time

Independence 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing	Implemented through the City's preparedness educational and outreach program with emphasis on existing shelter facilities located throughout the City		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low/no cost mechanism to increase public safety.		Low	City general fund
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing	Work with private facilities, City and County volunteer groups, neighborhood groups, the City PIO and the Independence School District to put on workshops and classes to increase "Safe Room" awareness and utilization during severe weather events.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low/no cost mechanism to increase public safety.		Low	City general fund
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Review existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing	The City of Independence has designated safety locations in all City facilities for staff and visitors to shelter in during severe weather events. As a "Storm Ready" Community each facility has an "All-Hazard" weather radio and a method of being contacted by the EOC		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low/no cost mechanism to increase public safety.		Low	City's general fund
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing	The city continues to try and develop storm shelters in existing public facilities as funding and opportunities become available.		High	Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	High cost to retrofit existing buildings but can also prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Unknown
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	The City does not have any tax incentives for residential/ commercial builders/developers to construct safe rooms/community shelters in new public facilities due to economic conditions and City finances.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	The City does not have any tax incentives for residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities due to economic conditions and City finances.										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing	The City of Independence continues to work with all schools and non-governmental entities to promote the benefits of Safe Rooms in all public educational outreach materials.		High	New	Office of Emergency Preparedness functions within City ordnances and codes	Emergency Preparedness Office	On-Going	Low/no cost mechanism to increase public safety.	Low	.Low	General Funds and EMPG grants

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing	The City of Independence has an ordinance in place requiring all pre-manufactured home parks to include a community shelter for their residents if they expand or build a new facility. Other ordinances for apartment complexes and other large venue complexes are being considered.		High	New	Office of Emergency Preparedness functions within City ordnances and codes	Community Development	On-going	High cost to design and build shelter facilities but can prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Private Sector Funding
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	The Community Development Department adheres to the standards outlined in the 2012 International Building Code.										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	The Community Development Department adheres to the standards in the 2012 International Building Code.										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	The Community Development Department adheres to the standards outlined in the 2012 International Building Code.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	There is currently no funding available to encourage this mitigation action. Independence Power and Light (IPL) does offer residents a discounted price for burying electrical lines. This discount is offered because of bulk pricing agreements negotiated between IPL and the associated contractors.										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Independence Power and Light is a city owned utility. There is currently no mitigation money being used to bury power lines. Residents can get a discount for burying their lines due to a bulk pricing agreement with contractors.										
8. Increase capabilities to provide mass notifications to the public and increase coordination among city departments during times of severe weather.													
Purchase Mass Notification System to better inform residents and city employees during severe weather.	2015	Ongoing	Implement a citywide notification system that can warn residents of severe weather events and other natural and manmade hazards. The system can also help facilitate	Education and Awareness Programs	High	Existing	Work with other City departments through local ordnances to fund, implement, manage and maintain.	Emergency Preparedness	Unknown	Would give residents enhanced warnings and improved		Medium	unknown
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing	The City of Independence tracks all repetitive loss properties and works with the owners to mitigate potential flood losses through potential development and storm drainage enhancements.		High	Existing	City Codes and Community Development Plans	Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	City General Funds
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing	The City of Independence constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties. This sources include private, local, state and federal grants.		High	Existing	City Codes and Community Development Plans	Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	The City of Independence over the last 20 years has use city, State and Federal funding to buyout numerous repetitive loss properties. The City will continue to look for funding opportunities to remove targeted repetitive loss properties.		High	Existing	City Codes and Community Development and Storm water plans	Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing	The City of Independence continually works with property owners to mitigate future flood losses. While economic incentives are not always implemented many educational programs such as building water gardens, backflow valves and landscaping are done.		High	New & Existing	Emergency Preparedness, Public works and Water Pollution Control function within Code of Ordnances	Emergency preparedness	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	City's general fund
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	Recently the City has completed and maintains a network of retention basins containing green infrastructure to help reduce flooding and contribute to water quality. As the City develops new areas additional basins will be completed as necessary to help control watershed runoff		High	New	Storm water and Community Development Plans	Water Pollution Control	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing	The City of Independence over the last 20 years has use city, State and Federal funding to buyout numerous repetitive loss properties. The City will continue to look for funding opportunities to remove targeted repetitive loss properties for use a open space land.		High	Existing	City Codes and Regulations	Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing	The City's Fire, Public Works and Water Pollution Control Departments consistently continue to apply for State and Federal grants to support and enhance flood mitigation and prevention programs. This includes identifying funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses. The City also has a storm water sales tax program through the Water Pollution Control Department to help fund flood prevention projects and infrastructure.		High	Existing	City Codes and Regulations	Water Pollution Control and Public Works Department	On-going	Preventing future flooding of properties that have had history of flood damage		Low	City general funds and/or grant funding
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing	The City's Fire, Public Works and Water Pollution Control Departments consistently continue to apply for State and Federal grants to support and enhance flood mitigation and prevention programs. This includes identifying funding sources for the acquisition of flood-prone land for sports fields, parks, wildlife habitats, etc.		Med	Existing	City Codes and Regulations and NFIP CRS programs	Water Pollution Control and Public Works Department	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	City general funds and/or grant funding
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing	The City's Water Pollution Control Department works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of fish and wildlife habits		High	Existing	Office of Emergency Preparedness function within City ordnances and codes		Accomplished through the adoption of NFIP CRS programs (October 1991)	Helping to preventing future flooding of properties that have had history of flood damage for moderate cost		Low	City general funds and/or grant funding
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing	The City's Fire Prevention Office, Water Pollution Control and Public works Departments have on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events such as Safety City and Echo- Fest put on by the City each year.		High	Existing	City departmental functions within City ordnances and codes	Water Pollution Control and Public Works Department and Office of Emergency Preparedness	On-going	Low/no cost mechanism to increase public safety.		Low	City general funds and EMPG program monies
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing	The City's Water Pollution Control Department and Office of Emergency Preparedness works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of these items		High	Existing	City departmental functions within City ordnances and codes	Water Pollution Control and Office of Emergency Preparedness	Ongoing	Low/no cost mechanism to increase public safety and reduce high cost flood damages		Low	City general funds and/or grant funding

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing	All City departments work to reduce flood damages to infrastructure when designing new projects and mitigate current facilities as funding is available.		High	New & Existing	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	All City Departments	Ongoing	While may increase building and development costs, will reduce significant flood impacts		High	City general funds and/or grant funding
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing	The city owns the water, electrical and sewer utilities and assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, tries to retrofit or modify them to decrease vulnerability to flooding.		High	New & Existing	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	City Utility Departments		While initial cost is high, will reduce recovery and replacement costs from flooding events		High	City general funds and/or grant funding
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing	The City of Independence constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties through buyout projects. This sources include private, local, state and federal grants.		High	Existing	Emergency Preparedness, Public works and Water Pollution Control function within Code of Ordnances	Public Works	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	City general funds and/or grant funding
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing	The City of Independence constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties by encouraging owners and businesses to elevate their structures in flood prone areas		Med	Existing	Emergency Preparedness, Public works and Water Pollution Control function within Code of Ordnances and as Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Public Works	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Private Sector and City general funds and/or grant funding
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing	The City of Independence constantly tries to identify potential funding sources to mitigate flood losses to repetitive properties by encouraging owners and businesses to retrofit their structures to prevent flooding.		High	Existing	Emergency Preparedness, Public works and Water Pollution Control function within Code of Ordnances and as Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Public works and Office of Emergency preparedness	Ongoing	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Private Sector and City general funds and/or grant funding
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing	Although flood hazard areas of the City have been mapped since 2004 with current FEMA flood map and the digital data integrated into city geo-data on a regular basis. The City continues to review flood hazard areas and incorporate necessary changes as needed.		High	New and Existing Areas	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Water Pollution Control, Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City's General Funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	The City currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capabilities in partnership , the Water Pollution Control and Public Works Departments.		High	New and Existing Areas	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Water Pollution Control, Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City's General Funds
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing	The City currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capabilities in partnership , the Water Pollution Control and Public Works Departments.		High	New and Existing Areas	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Water Pollution Control, Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City's General Funds
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing	The City currently uses the HAZUS software at for Level One reviews. It is currently exploring the future integration of GIS data to increase the accuracy of flood inundation prediction capabilities in partnership , the Water Pollution Control and Public Works Departments.		High	New and Existing Areas	City departmental functions within City ordnances and codes and Regulated through the adoption of NFIP CRS programs (October 1991) and IBC 2006 codes (January 2009)	Water Pollution Control, Public Works	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City's General Funds
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing	The City of Independence is a CRS community with a rating of 7 which allows for a discount on the purchase of flood insurance. The Office of Emergency Preparedness has several outreach programs to encourage home owners and businesses to purchase flood insurance.		High	New and Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to encourage flood preparedness.		Low	City general funds and EMPG program grant monies
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing	The City's Office of Emergency Preparedness, Water Pollution Control and Public Works Departments have on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. This initiative includes brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross, NFIP and other organizations.		High	New and Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to encourage flood preparedness.		Low	City general funds and EMPG program grant funding

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing	The City's Office of Emergency preparedness, Water Pollution Control and Public works Departments have on-going program to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners. City department also participate in local, regional, State and national public educational events such as Safety City and Echo- Fest put on by the City each year.		High	New and Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to encourage flood preparedness.		Low	City general funds and EMPG program grant monies
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing	The City adopted NFIP in October 1991 and has been a CRS programs participant since 10/1991. The City continues to participate in the program completing mandatory maintenance as required by program regulations.		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	City General Funds
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing	The city continues to maintain up-to-date flood maps and tracks any LOMR etc. Current flood maps are dated May 2013		High	New and Existing	Office of Emergency Preparedness and Public Works Department functions within City ordnances and codes	Public Works Department and Office of Emergency Preparedness	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	City General Funds
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing	The City has installed real time weather stations and utilizes USGS real-time water data for local daily stream flow conditions which are operated in cooperation with the USGS.		High	New and Existing	Office of Emergency Preparedness, Water Pollution Control and Public Works Department functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Low	General Funds and EMPG grants
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing	The City has real-time weather data stations that track local rainfall amounts that are fully accessible to regional, State and Federal stakeholders. This system has been in place since 2007.		High	New and Existing	Office of Emergency Preparedness, Water Pollution Control and Public Works Department functions within City ordnances and codes	Water Pollution Control and Office of Emergency Preparedness	Ongoing	Data Sharing is a relatively low cost effective measures to warn of flooding events and implement mitigation measures. Sharing of data will improve county floodplain management.		Low	General Funds and EMPG grants

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing	Currently the City working with the Army Corps of Engineers, the National Weather Service and the Public Works and Water Pollution Control Departments to acquire real-time flood inundation prediction capability using stream gauge and forecast information.		High	New and Existing	Office of Emergency Preparedness, Water Pollution Control and Public Works Department functions within City ordnances and codes	Water Pollution Control and Office of Emergency Preparedness	Unknown	Will ensure that citizens are prepared real time for flood events.		low	General Funds and EMPG grants
9. Work with partner agencies to implement flood inundation prediction capability.													
**a. Implement flood prediction software programs in coordination with existing systems already utilized by surrounding jurisdictions	2015	Ongoing	Develop software and hardware systems in the Emergency Operations Center to help predict flooding throughout the city		High	New	Office of Emergency Preparedness function within City ordnances and codes	Water Pollution Control and Office of Emergency Preparedness	Unknown	Will ensure that citizens are prepared real time for flood events.		Medium	Unknown
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing	The City of Independence Power and Light Department does not have any ordinances requiring underground placement of electrical infrastructure but has extensive mitigation programs customers can choose to participate in that place electric lines underground. Customers can pay for a portion of the cost over a period of time through their electric bill.		High	Existing	Power & Light function within City ordnances and codes	City's Power and Light Department	On-going	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		High	City general funds and HMGP monies
to replace existing above-ground utility	2010	Ongoing	programs customers can choose to		High	Existing	ordnances and codes	Department	On-going	recovery costs,		High	and HMGP monies
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Ongoing	The City has extensive mitigation programs customers can choose to participate in that place electric lines underground. Customers can pay for a portion of the cost over a period of time through their electric bill.		High	Existing	Power & Light function within City ordnances and codes	City's Power and Light Department	On-going	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Medium	City General funds and HMGP monies
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The City has numerous shelters that have back-up power, but the county continues to work with existing and future shelter locations to find ways to retrofit them with emergency power.		High	Existing	Office of Emergency Preparedness functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Fairly high cost installation price but will ensure continuity of shelter operations.		Medium	Unknown
c. Consider the adoption of policie+A77:P77s requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	The City has policies in place for generators required in "Safe Room" applications. The City is also working with MARC to obtain funding to pre-wire Red Cross identified shelters for generators through UASI Mass Care initiatives. The City's Office of Emergency Preparedness has an on-going program to develop relationships with potential shelters located throughout the City to pre-wire or purchase generators for their facilities.		High		Office of Emergency Preparedness, Water Pollution Control and Public Works Department functions within City ordnances and codes	Public Works, Office of Emergency preparedness	Ongoing	Fairly high cost program to implement, but would help ensure continuity of government operations.		Medium	Unknown
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing	Although the City does not have a program in place to assist at-risk groups to winterize their homes. The city does promote its Citizen Corps volunteers to work with other private organizations involved in these type programs.		Med	Existing	Office of Emergency Preparedness within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		Low	General Funds and EMPG grants
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing	The City of Independence has several programs to reduce or eliminate home heating cost. The Independence Rate Assistance Program (IRAP) works with qualified low income families, elderly and special needs individuals to cut their energy bills in half. The I-SHARE program is where the City budgets money each year to match a dollar for dollar contributions donated by community partners to pay utility assistance for qualified low income households. The City's Power and Light Department also has an Average Share program where utility customers can average their electric bills over a year's period of time. The City has also started a program to pay utility customers $20.00 for every energy assistance application to apply for the Federal energy assistance program.		High	Existing	Power & Light function within City ordnances and codes	City's Power and Light Department	On-going	High Cost mechanism to support vulnerable populations access to heating but can prevent high numbers of death/injury from exposure to winter storms.		High	City general funds and grants
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing	This expense is outlined in the Public Works budget on a yearly basis and funding amount is reviewed every year.		Low	New	Public Works function within Code of Ordinance	Public Works	Ongoing	Will ensure continued open roadways.		Medium	General Fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing	The City's Public Works Department works with regional partners regarding salt and sand contracts		Medium	New	Public Works function within Code of Ordinance	Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing	The City's Public Works Department is part of a regional Public Works Mutual Aid Agreement through the MARC organization		Medium	New	Public Works function within Code of Ordinance	Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing	The City does have procedures in-place regarding "snow days" for public employees and continues to work on educating non-governmental organizations on the hazards of employees on roadways during severe winter weather.		Low	New	Public works and Law Enforcement function within Code of Ordinance	Public Works	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Low	General Fund
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds and EMPG monies
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds and EMPG monies
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety including severe winter weather. These programs include standardized educational materials coordinated with local and regional partners. These partners include City Departments, local faith based organizations and many other public and private groups. The Office of Emergency Preparedness also participates in local and regional public educational events such as the Safety City Preparedness show.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing	The City of Independence Water Department continually assess the demands on the water system and has plans in place for drought emergencies		High	Existing	Water Department function within City ordnances and codes along with procedures in Missouri Drought Plan	Independence Water Department	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Low	City General Funds
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing	City is constantly utilizing local, state and federal programs and guidance regarding long term planning		High		Water Department function within City ordnances and codes along with procedures in Missouri Drought Plan	Independence Water Department	Ongoing	Low cost mechanism to support drought response.		Low	City General Funds
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing	City is constantly utilizing local, state and federal programs and guidance regarding long term planning				Water Department function within City ordnances and codes along with procedures in Missouri Drought Plan	Independence Water Department	Ongoing	Low cost mechanism to support drought response.		Low	City General Funds
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing	City is utilizing local programs and guidance and coordinates with MARC regarding water drought and conservation programs in local plans				Water Department function within City ordnances and codes along with procedures in Missouri Drought Plan	Independence Water Department	Ongoing	Low cost mechanism to support drought response.		Low	City General Funds
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing	City Water Department partners with the Water Pollution Control Division to conduct local public educational programs. This includes supplying literature and conducting presentations at local schools and civic events.		Medium	New	Water Department function within City ordnances and codes	City's Water Department	On-going	Low cost mechanism to support drought response.		Low	City general funds
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing	City works partners the Water Pollution Control Division to conduct local public educational programs. This includes supplying literature and conducting presentations at local schools and civic events.		Medium	Existing	Water Department and Water Pollution Control Department function within City ordnances and codes	City's Water Department	On-going	Low cost mechanism to increase support water conservation measures.		Low	City general funds
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing	The City has implemented a Leak detection system to determine if underground water pipe infrastructures are leaking water.		High	Existing	Water Department and Water Pollution Control Department function within City ordnances and codes	City's Water Department	On-going	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	City general funds
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing	The City consistently continues to apply for State and Federal grants for water system infrastructure improvements		High	New	Water Department and Water Pollution Control Department function within City ordnances and codes	City's Water Department	On-going	High cost mechanism to implement but greatly increases water conservation measures.		High	Unknown
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing	The City of Independence works with several local and regional stakeholders to ensure the City has numerous "Cooling Centers" open to the public during times of sever heat waves.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	City general fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing	Currently the City has numerous shelter sites, but efforts to continue increasing shelter facilities through the City's educational preparedness programs and Faith Based Initiative are ongoing. Many of these sites have air-conditioning but efforts continue to try and retrofit those shelters that are not climate controlled.		High	Existing	Emergency Preparedness utilizes the Safe Shelter Partnership for cooling centers in addition to the Salvation Army and United Way	Office of Emergency Preparedness	Ongoing	Medium cost mechanism to assure populations vulnerable to heat waves are protected.		Medium	Unknown
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing	The office of Emergency Preparedness is currently exploring ways to get at-risk populations into a GIS database. One option is to use a Mass Notification service such as Everbridge or Regroup.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Medium cost method to identify at-risk populations to prevent injury of death		Medium	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing	The City's Office of Emergency Preparedness has numerous City facilities that are air conditioned and available to residents during times of severe heat conditions. The City also coordinates with the United Ways regional 211 information system to help residents identify local "Cooling Centers"		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		Low	City general fund
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing	All weather emergency procedures and plans are continually being updated.		High	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	EMPG and city general fund
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing	The City has a severe heat plan that coordinates with public and private agencies to check on at-risk populations in the City. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing	The City has a severe heat plan that coordinates with public and private agencies to check on at-risk populations in the City. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause. This year the City also adopted and implemented the regional 'Heat Health Warning System" which will bring advanced notification and education to citizens regarding the forecasting of high heat conditions.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause. This year the City also adopted and implemented the regional 'Heat Health Warning System" which will bring advanced notification and education to citizens regarding the forecasting of high heat conditions.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing	This year the City also adopted and implemented the regional 'Heat Health Warning System" which will bring advanced notification and education to citizens regarding the forecasting of high heat conditions. This program is designed to communicate standardized warning guidelines and conditions to the public through partnering organizations such as the NWS and local new media outlets. The City's Office of Emergency Preparedness also participates with the regional Integrated Warning Team. This group is task to bring all organizations with responsibilities regarding warning the public about severe weather events together to develop more resilient and effective warnings.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Management	On-going	Low cost mechanism to increase public safety.		Low	City general funds
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause. The educational program also includes information about making residents homes more energy efficient. The City's power and Light Department also has an educational program to help residents improve their homes energy efficiency and will go to residents homes to survey the structure.		High	Existing	Office of Emergency Preparedness, City Health Department function within City ordnances and codes	Office of Emergency Preparedness and Power and Light Department	On-going	Low cost mechanism to increase public safety.		Low	City general funds
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing	The city has level one HAZUS data available and is in the process of working with Water Pollution Control and Public Works to customize other city GIS metadata into the software		Medium	New & Existing	Normal City Department functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing	The city has level one HAZUS data available and is in the process of working with Water Pollution Control and Public Works to customize other City GIS metadata into the software such as demographic, economic, geologic and other data		Medium	New & Existing	Normal City Department functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing	The city has level one HAZUS data available and is in the process of working with Water Pollution Control and Public Works to customize other City GIS metadata into the software such as demographic, economic, geologic and other data. When this data is integrated into the software in-depth earthquakes analysis can be done.		Medium	New & Existing	Normal City Department functions within City ordnances and codes	Office of Emergency Preparedness	Ongoing	Data has multiple uses and can benefit across multiple programs.		Medium	Unknown
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing	The City continues to work with developers to look at construction techniques and materials that may minimize earthquake damage to residential/ commercial structures. The Community Development Department has adopted the 2006 International Building Code strengthening this area as well.		Medium		Office of Emergency Preparedness, Community Development function within City ordnances and codes	Community Development	On-going	Low cost mechanism to increase public safety.		Low	City general funds
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Office of Emergency Preparedness function within City ordnances and codes	Office of Emergency Preparedness and Community Development	On-going	Low cost mechanism to increase public safety.		Low	City general funds
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to City of Independence area residents.	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Office of Emergency Preparedness, within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Office of Emergency Preparedness, within City ordnances and codes	City's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Office of Emergency Preparedness, within City ordnances and codes	City's Office of Emergency Management	On-going	Low cost mechanism to increase public safety.		Low	City general funds
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing	The City's Office of Emergency Preparedness has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Office of Emergency Preparedness, within City ordnances and codes	City's Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Complete	Major shelters upgraded with generators						2012				
Dam Failures													
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Preparedness has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of dam failures. The City has two potential large dams that would affect our population should it fail.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	Office of Emergency Preparedness	On-going	Low cost mechanism to increase public safety.		Low	City general funds
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Ongoing	The City is mainly an urban area subject to minimal risk of wildland fires. The City has identified areas of concern in its community and has on-going coordination with surrounding jurisdictions to supply mutual aid regarding those areas outside the City subject to wildland fires.		High	Existing	Office of Emergency Preparedness, within City ordnances and codes	City's Fire Department	On-going	Low cost method to identify areas for ongoing mitigation efforts allowing for reduction of wildland fire cost.		Low	City general budget
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Ongoing	Although the City is mainly an urban area subject to minimal risk of wildland fires. The Fire Department continues to try and define areas subject to wildfires by updating maps integrated with fire response actions		Medium	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Low cost method to identify areas for ongoing mitigation efforts allowing for reduction of wildland fire cost.		Low	City general budget
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Ongoing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes educational materials regarding grass and wildland fires.		Medium		Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general funds
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes educational materials regarding grass and wildland fires.		Medium	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general funds
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Ongoing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes educational materials regarding grass and wildland fires.		Medium		Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Medium	City general funds
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes standardized educational materials coordinated with regional partners. The Independence Fire Department also participates in local, regional, State and national public educational events such as fire prevention week.		High	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general fund
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing	The City of Independence is mainly an urban area with minimal risk for wildland fires. The Fire Department coordinates with the City's Parks Department to minimize the risk of wildland fires in City parks and campgrounds.		High	Existing	Fire Department goals within City ordnances and codes	City's Parks and Fire Departments	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general fund
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes standardized educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.		High	Existing	Fire Department goals within City ordnances and codes	Fire Prevention Office	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Medium	City general fund
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing	The City's Fire Department consistently continues to apply for State and Federal grants to support and enhance fire prevention programs		High	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City's general fund
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Ongoing	The City's Fire Department Command staff researches fire related grants when time permits.		Medium	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general funds
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Ongoing	The Fire Department conducts regular training for operational firefighters and command staff. This training program includes information regarding wildland firefighting techniques but since the City of Independence is mainly an urban area with minimal risk for wildland fires this training mainly encompasses basic wildland firefighting techniques.		High	Existing	Fire Department goals within City ordnances and codes	City's Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general funds
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing	The City of Independence Fire Department has procedures to identify and review alternate water sources that could be used for all types of fires which would include wildland fires.		High	Existing	Fire Department goals within City ordnances and codes	City Fire Department	On-going	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City general funds
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	The City is mainly an urban area subject to minimal risk of wildland fires.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			High	Existing	The City of Independence is mainly an urban area with minimal risk for wildland fires. The Fire Department coordinates with the City's Parks Department to minimize the risk of wildland fires in City parks and campgrounds.	City's Parks and Fire Departments	On-going			$1,000 per year	City general fund
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing			High	Existing	The City's Fire Prevention Office has an on-going program to educate the public about fire safety. This program includes standardized educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	Fire Prevention Office	On-going			$15,000 Per year	City general fund
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing			High	Existing	The City's Fire Department consistently continues to apply for State and Federal grants to support and enhance fire prevention programs	City's Fire Department	On-going			Time of departmental personnel	City's general fund
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Ongoing			Medium	Existing	The City's Fire Department Command staff researches fire related grants when time permits.	City's Fire Department	On-going			Cost depends on additional staffing to backfill staff attending classes	City general funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Ongoing			High	Existing	The Fire Department conducts regular training for operational firefighters and command staff. This training program includes information regarding wildland firefighting techniques but since the City of Independence is mainly an urban area with minimal risk for wildland fires this training mainly encompasses basic wildland firefighting techniques.	City's Fire Department	On-going			Included in normal training budget cost	City general funds
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing			High	Existing	The City of Independence Fire Department has procedures to identify and review alternate water sources that could be used for all types of fires which would include wildland fires.	City Fire Department	On-going			Included in Fire Department's normal procedures - no defined cost outlined	City general funds
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							January 2009				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							January 2009				
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							January 2009				
Continue to work with surrounding jurisdictions to supply mutual aid to regional partners in areas of concern.	2015	Ongoing			High	Existing	Department operation procedures	City Fire Department	On-going			Included in Fire Department's normal procedures - no defined cost outlined	City general funds
Hazardous Materials													
1. Increase whole community resiliency through public awareness of hazardous material issues and safety													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
Work with local and regional partners to disseminate information to the public regarding shelter in place procedures, hazardous material safety, and other hazardous material issues.	2015	Ongoing		Education and Awareness Programs	High	New & Existing	external partnerships and internal with Independence Fire Department	Independence Fire Department	Ongoing	low cost per capita to increase public safety		Low	City General Funds
Add Tier II data to GIS system and LEOP for the purposes of developing vulnerability assessments and scenario based trainings.	2016	Ongoing		Plans and Regulations	High	N/a	EOP	Independence Emergency Preparedness	Ongoing	low cost per capita to increase public safety		Low	City General Funds
Emerging Infectious Disease													
1. Improve response planning for Emerging Infectious Diseases													
Continue to conduct regular planning sessions with health department to ensure adequate response capabilities.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds
Civil Disorder													
1. Improve response planning for Civil Disorder													
Continue to work with surrounding law enforcement agencies to develop effective plans and procedures to facilitate mutual aid.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP/Police Department procedures	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds
Mass Transportation Accidents													
1. Improve response planning for Mass Transportation Updates													
Continue to update LEOP and procedures with all relevant stakeholders. Create MOUs with all relevant stakeholders.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds
Levee Failure													
1. Improve response planning for Levee Failure													
Work with the water department to ensure the levees surrounding the water plant are adequate and properly maintained.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds
Cyber Disruption													
1. Improve response planning for Cyber Disruption													
Continue working with Tech Services department to update Cyber-terrorism Appendix in LEOP.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds
Transboundary Animal Disease Outbreak													
1. Improve response planning for Transboundary Animal Disease													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
TAD is regulated effectively at the state level. Currently working to incorporate state plans into the LEOP and Independence Health Dept. EOP.	2015	Ongoing		Local Plans and Regulations	High	New & Existing	EOP	Office of Emergency Preparedness	Ongoing	Low cost mechanism to increase public safety.		Low	City General Funds

Lee's Summit 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
6. Description: Update the Local Emergency Operating Plan													
Update Local Emergency Operation Plan to currently accepted framework.	2015	Ongoing	Update the LEOP to incorporate FEMA's ESF functions and other such requirements	Local Plans and Regulations	High	Existing	Involve all City departments in the planning process using the ESF framework.	Fire Department	Ongoing	Low/no cost mechanism to increase public safety.	Low	Low	General Fund
7. Description: Encourage building practices and the use of approved materials that reduce the damaging effects of tornadoes and high wind events.													
Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2015	Ongoing	The ICC Codes are reviewed, amended, and adopted typically every three years. Local Emergency Planning Guide	Local Plans and Regulations	High	Existing	Local Emergency Planning Guide	Planning and Codes Administration, Fire Department	Ongoing	Medium cost to builders and developers but significant increase in public safety		Medium	General Fund
Provide education/updates to designers, builders, residents on changes to newly adopted codes related to minimizing storm damage	2015	Ongoing	The City works with builders and developers updating them on new codes and interpretation of current ones	Education and Awareness Programs	High	Existing	Explain	Planning and Codes Admin., Fire Department	Ongoing	Low/no cost mechanism to increase public safety.	Low	Low	TBD
Consider adopting ordinances or regulations requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2015	Ongoing	Regulated by the building code which is reviewed on a regular basis. This strategy would mainly affect multi-family, education, and assembly occupancies	Local Plans and Regulations	Low	New	Amendment to the International Building Code	Planning and Codes Administration, Fire Department	Ongoing	Medium cost to builders and developers but significant increase in public safety		Medium	Private/Grants for Public Projects
Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2015	Ongoing	City tries to retrofit existing and new shelter facilities as funding is available	Structure and Infrastructure Projects	Low	New	Work with Parks and City Admin to add shelters to existing facilities	Fire Department, Planning and Codes Administration, Parks and Recreation, School Districts	TBD	High cost mitigation program but cost offset by increase in public safety		High	General Fund/Public Grants
8. Description: Increase public awareness of severe weather notification systems available within the City.													
Increase public awareness of severe weather notification systems available within the City through social media, school Safety Education Program, civic presentations, and printed and electronic publications.	2015	Ongoing	Adopt new warning technologies into City's warning capabilities including Provide News Releases, educational materials, and presentations on the importance of having at least two methods of reliable notification.	Education and Awareness Programs	High	Existing	Emergency Management function defined within City ordnances and codes	Fire Department and the City Communications Group	Ongoing	Medium cost to implement but large increase in public safety		Medium	General Fund
9. Description: Encourage the construction of safe rooms and tornado shelters in public and private buildings.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Work with chambers of commerce, school districts, corporations, homeowners, developers etc. to promote benefits of safe rooms and community shelters.	2015	Ongoing	The City continues to work with all schools and non-governmental entities to promote the benefits of Safe Rooms in all public educational outreach materials.	Education and Awareness Programs	High	New and Existing	Encourage the addition of safe rooms and shelters during the Development Review process.	Planning and Codes Administration, Fire Department	Ongoing	Low/no cost mechanism to increase public safety.		.Low	Private/Grants for Public Projects
10. Description: Evaluate warning systems in the City.													
Utilize ongoing communication studies and surveys to determine how residents receive severe weather warnings. Determine what is the most effective method(s) for the cost.	2015	Ongoing	Evaluate the most effective methods of providing mass warning information.	Education and Awareness Programs	High	New and Existing	Emergency Management function defined within City ordnances and codes	Fire Department, City Communications Group	Ongoing	Low/no cost mechanism to increase public safety.		.Low	General Fund/Public Grants
Flooding													
9. Examine repetitive flood loss properties and determine feasible and practical mitigation options.													
**Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2015	Ongoing	City determine when it is in the best interest of the City and property owner to remove structures or provide features to protect the property from flooding.	Structure and Infrastructure Projects	Medium	Existing	Public Works assess properties that are in need of flood mitigation.	Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Fund/Public Grants/Bonds/Capital Improvement Projects
**As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2015	Ongoing	Public Works assess properties that may be suitable for buyout.	Structure and Infrastructure Projects	Low	Existing	City Codes and Community Storm water plans	Public Works	Ongoing	Can have a high implementation cost but prevents future flooding of properties that have had history of flood damage		High	General Fund/Bonds/Grants
10. Continue to integrate flood mitigation strategies with projects and activities designed to protect , restore or enhance ecosystems and the environment and create recreational opportunities for the community.													
**Require storm water studies to determine the need for detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2015	Ongoing	Public Works will determine the need for storm water mitigation for new development.	Structure and Infrastructure Projects	High	Existing and New	City Codes and Community Storm water plans	Public Works, Development Process	Ongoing	Can have a high implementation cost but minimizes the impact of flooding downstream from new development		High	Private

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**In concert with existing comprehensive and land use plans, acquire flood-prone property for use as open space or park land.	2015	Ongoing	Public Works is acquiring stream corridors and repurposing there use as parks and common areas to have control over how they are maintained and prevent them from causing flood problems.	Natural Systems Protection	Medium	Existing	City Codes and Community Storm water plans	Public Works, City Development Process.	Ongoing	Can have a high implementation cost but minimizes the impact of flooding downstream from new development		High	Unknown
11. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems(i.e., furnaces, hot water heaters, electrical panels, etc.).	2015	Ongoing	The City Encourage the moving of critical equipment from frequently flooded areas.	Education and Awareness Programs	Low	Existing	City Codes and NFIP Regulations	Planning and Codes Admin.	Ongoing	Can have a medium implementation cost but reduces flood damage by removing equipment that may be damaged.		Medium	Private
Water Utilities is assessing their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2015	Ongoing	The City is working with water Utilities to reduce inflow and infiltration by surveying residences for improper connections to the sanitary sewer system, lining existing older sewer lines, repairing trunk lines, and increasing down stream capacity.	Structure and Infrastructure Projects	High	Existing	City Codes and Community Storm water plans	Water Utilities	Ongoing	Can have a high implementation cost but minimizes the impact of flooding downstream from new development		High	Enterprise Fund/Bonds/ Capital Improvement Projects
12. Enhance public Awareness and education efforts related to flooding.													
Encourage home owners and businesses to purchase flood insurance. Provide brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2015	Ongoing	The City provides ongoing preparedness programs with several types of information on the hazards of flooding to its residents.	The City already provides several types of information on the hazards of flooding to its residents.	Low	New and Existing	Office of Emergency Management function defined within City ordnances and codes	Office of Emergency Preparedness	On-going	No/low cost mechanism to increase public safety.		Low	City general funds and EMPG monies
13. Discourage new development in floodplains and flood prone areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**Enforce ordinances and comprehensive development plans that prohibit residential and commercial development in flood plains or flood-prone areas. Maintain updated FEMA Flood Plain maps.	2015	Ongoing	Public Works and Planning do not allow development in flood plains and areas prone to flooding,	Local Plans and Regulations	High	New and Existing	City codes and NFIP Regulations	Public Works, Planning and Codes Administration, City Development Process	Ongoing	Can have high impacts and cost to developers and builders but offset by decreased flood damages and public safety		High	Private
14. Participate in, and ensure compliance with, flood mitigation and flood plain management programs.													
**Participate in the National Flood Insurance Program (NFIP) and Community Rating System. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2015	Ongoing	The City has adopted NFIP regulations and Public Works continues to maintain the Flood Plain Management within the City.	Local Plans and Regulations	High	New and Existing	Public Works shall continue to maintain the Flood Plain Management within the City.	Public Works	Ongoing	Can have high impacts and cost to land owners, developers and builders but offset by decreased flood damages and public safety		High	Unknown
Winter Weather													
6. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
Maintain communication with local electric and telecommunication utilities to ensure ongoing maintenance of easements and right of ways.	2015	Ongoing	The City works with the local utilities to ensure that maintenance is being done to ensure fewer impairment to aboveground systems during severe winter weather.	Structure and Infrastructure Projects	Low	New and Existing	Emergency Management, Fire Department and City Development function defined within City ordnances and codes	Fire Department, City Development Process	Ongoing	Low cost mitigation effort to prevent loss of electricity and communication if overhead systems are compromised.		Low	Unknown
7. Update emergency shelter location lists and ensure human services agencies are aware of facilities in Lee's Summit and across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
Describe: Maintain a list of available emergency shelters from Jackson County Emergency Management, and work with JaCoEMA to establish potential sites within the City.	2015	Ongoing	JaCoEMA establishes and maintains shelter agreements with the City of Lee's Summit.	Local Plans and Regulations	Medium	Existing	Emergency Management function defined within City ordnances and codes	Ja.Co. EMA, Fire Department	Ongoing	Low cost mitigation effort to increase public safety and prevent loss of life and injuries during severe winter weather		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
8. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2015	Ongoing	The City's Planning and Codes Administration manages the CDBG program for minor home repair. Identify potential applicants for funding by working with the local civic and social service agencies to identify those in need.	Education and Awareness Programs	Low	Existing	Emergency Management function defined within City ordnances and codes	Planning and Codes Administration, Neighborhood Services, Social Services	Ongoing	Low cost mitigation effort to increase public safety and prevent loss of life and injuries during severe winter weather		Low	Unknown
Work with local social service agencies, churches, meal providers, postal service, and community groups to determine those in need of shelter during winter storm events.	2015	Ongoing	The City establishes methods of communication and awareness to agencies or groups working with the elderly or those with functional needs that may need additional assistance during severe winter weather.	Education and Awareness Programs	Low	New	Emergency Management function defined within City ordnances and codes	Fire Department	Ongoing	Low cost mitigation effort to increase public safety and prevent loss of life and injuries during severe winter weather		Low	Unknown
9. Maintain, improve and implement programs to improve road conditions and protect motorists during severe winter weather.													
The City shall continue to maintain and improve its Snow Removal Plan and maintain the necessary resources to protect motorists and provide emergency access during severe winter weather.	2015	Ongoing	The City's Public Works Department maintains the City's Snow Removal Plan and a ready supply of snow removal materials.	Local Plans and Regulations	High	Existing	Public Works function defined within City ordnances and codes	Public Works and all departments that assist with snow removal.	Ongoing	Low cost mitigation effort to increase public safety and prevent loss of life and injuries during severe winter weather		Low	Unknown
10. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation information.	2015	Ongoing	The City prepares and distributes winter weather preparedness and safety information via, mail inserts, LSTV, social media, news releases and group presentations.	Education and Awareness Programs	High	Existing	Emergency Management function defined within City ordnances and codes	Fire Department, Police Department, Public Works, and Water Utilities.	Ongoing	Low cost mitigation effort to increase public safety and prevent loss of life and injuries during severe winter weather		Low	General Fund
Drought													
6. Assess the vulnerability of water systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan or other approved system.	2015	Ongoing	City coordinates with Water Utilities (WU) will monitor demand and distribution systems and make changes as needed.	Structure and Infrastructure Projects	High	Existing	Emergency Management function defined within City ordnances and codes	Water Utilities	Ongoing	Low cost mechanism to reduce effects of drought.		Low	Enterprise Fund, Capital Improvement Projects
7. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and a.) develop a local drought plan. b.) Develop local procedures implementing the provisions of the Missouri Drought Plan. c.) Working with MARC, develop drought plans and water conservation programs.	2015	Ongoing	City works with water utilities to maintain and review water usage plans.	Local Plans and Regulations	High	Existing	Emergency Management function defined within City ordnances and codes	Water Utilities	Ongoing	Low cost mechanism to reduce effects of drought.		Low	Enterprise Fund
8. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2015	Ongoing	Water Utilities will provide information as needed to inform the public and water users on water conservation issues.	Local Plans and Regulations	High	Existing and New	Emergency Management function defined within City ordnances and codes	Water Utilities, City Communications Group	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	City general funds
9. Encourage water conservation efforts by commercial, industrial and private water users.													
Develop and implement a program to encourage voluntary water conservation.	2015	Ongoing	City works with water utilities to determine what large volume users can reduce usage during a drought without compromising business operations.	Local Plans and Regulations	Low	Existing	Emergency Management function defined within City ordnances and codes	Water Utilities	As needed	Low cost mechanism to increase support water conservation measures.		Low	City general funds
10. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
Assess where the water system infrastructure needs to be improved to reduce vulnerability to drought.	2015	Ongoing	Water utilities make repairs to existing infrastructure and secures agreements with water vendors to ensure and adequate supply during peak demand	Structure and Infrastructure Projects	Medium	Existing and New		Water Utilities	As needed	Low cost mechanism to increase support water conservation measures.		Low	Unknown
Heat Wave													
5. Ensure the public and human service agencies are aware of air conditioned facilities in Lee's Summit and surrounding areas that can be used as cooling shelters in the event of a heat wave													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2015	Ongoing	The City works with several local and regional stakeholders to ensure the City has numerous "Cooling Centers" open to the public during times of sever heat waves.	Local Plans and Regulations	Low	Existing	The Fire Department contacts local facilities to determine availability and distributes the information to the public.	Fire Department, Parks and Recreation, City Communications Group	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	City general fund
6. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
Continue to develop local heat emergency plans or heat wave annexes to local emergency operations plans that include: Partner with social service agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, or similar programs).	2015	Ongoing	The City utilizes the LEOP to coordinate cooling shelters and the identification od at risk populations.	Local Plans and Regulations	Medium	Existing	Emergency Management and Fire Department function defined within City ordnances and codes	Fire Department, City Communications Group	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
7. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
Collect and disseminate public education materials to the public and vulnerable populations that address heat wave safety, preparedness and mitigation activities.	2015	Ongoing	The City prepares and distributes heat emergency preparedness and safety information via, mail inserts, LSTV, social media, news releases and group presentations.	Education and Awareness Programs	Medium	Existing	LEOP, Provide information through the City Communications Group	Fire Department	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
Earthquake													
8. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events and determine the levels of seismic forces that structures must be designed to withstand.	2015	Ongoing	Local Building Codes determine the level of seismic resistance needed. Reviews occurred every 3 years	Local Plans and Regulations	Low	Existing and New	Local Building Codes determine the level of seismic resistance needed.	Planning and Codes Administration	Ongoing	Medium cost mitigation program to builders and developers, but has significant increases in public safety and in the reduction of damages to structures from earthquakes		Medium	General Fund
9. Encourage the purchase of earthquake hazard insurance.													
Encourage the purchase of earthquake insurance .	2015	Ongoing	Provide information through media, presentations to groups, and the Safety Education Program. Theses safety education program occur yearly.	Education and Awareness Programs	Low	New and Existing	LEOP, Provide information through the City Communications Group	Fire Department, City Communications Group		Low cost mitigation program with significant increases in public safety		Low	General Fund, FEMA Materials
10. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2015	Ongoing	The City provides earthquake safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly.	Education and Awareness Programs	Low	New and Existing	Provide earthquake safety information on LSTV, social media, News Releases etc.	Fire Department		Low cost mitigation program with significant increases in public safety	General Fund, FEMA Materials	Low	General Fund , FEMA Materials
Dam Failures													
7. Improve hazard assessment information for dams located in and near the Lee's Summit area.													
Work with MDNR's Water Resources Program and USACE to determine which dams in , and around Lee's Summit have had inundation studies, inundation pathway maps and emergency action plans developed.	2015	Ongoing	The City continues to update current inundation maps from MDNR regarding local area dams.	Local Plans and Regulations	Low	Existing	Local Emergency Operating Plan. USACE Emergency Action Plans	Public Works Flood Plain Manager, Fire Department	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams in Lee's Summit. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2015	Ongoing	The City continues to update current inundation maps from MDNR regarding local area dams and uses that information to improve planning and response efforts	Local Plans and Regulations	Low	Existing	Local Emergency Operating Plan, USACE Emergency Action Plans	Public Works Flood Plain Manager, Fire Department	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
8. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2015	Ongoing	The City continues to update current inundation maps from MDNR regarding local area dams and uses that information to improve public education programs regarding dam failure hazards	Education and Awareness Programs	Low	Existing	Local Emergency Operating Plan	Public Works Flood Plain Manager, Fire Department	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2015	Ongoing	The City provides earthquake safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. The information is also distributed to areas below dams and private dam owners/managers.	Structure and Infrastructure Projects	Low	Existing and New	Local Emergency Operating Plan, USACE Emergency Action Plans, MDNR Inventory of dams.	Public Works Flood Plain Manager, Fire Department, Development Process	Ongoing	Low cost mechanism to increase public safety from dam failures.		Low	Unknown
9. Improve the structural integrity of dams to reduce the threat of dam failures.													
There are currently no specific warning systems for dam breaks other than using mass notification systems already utilized for severe weather. Evacuation plans need to be updated.	2015	Ongoing	The City will research new warning technologies to warn and inform citizens not only for dam failures but also for "All Hazards"	Local Plans and Regulations	Low	New	Local Emergency Operating Plan,	Public Works flood Plain Manger, Fire Department, , USACE	Ongoing	Can have a medium implementation cost but can have a high impact on public safety		Medium	EMPG, Capital Improvement Projects, Private Funds
10. Improve warning and evacuation systems and procedures in the event of dam failure.													
Work with MDNR and dam owners to ensure that the structures are being inspected and maintained.	2015	Ongoing	The City continues to work with dam owners to assure inspections and repairs are completed as required.	Local Plans and Regulations	Low	Existing	Local Emergency Operating Plan	MDNR, USACE, Public Works Flood Plain Manager	Ongoing	Low cost mechanism to increase public safety from dam failures.		Low	Unknown
Wildland Fires													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
7. Enhance public awareness of wildland fire mitigation and preparedness activities.													
The City does not have a significant wildland fire issue. The primary focus is to make home owners aware how to maintain a defensible space around homes and business to keep a natural cover fire from spreading to them.	2015	Ongoing	The City provides burn ban and wildfire prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly.	Education and Awareness Programs	Medium	Existing	Utilizing the fire code to manage open burning and the Property Maintenance Code as guides to safe practices.	Fire Department, Planning and Codes Administration, Communications Group	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
8. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
Encourage the use of building materials that are less susceptible to fire. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention. Enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2015	Ongoing	Regulated through building codes	Local Plans and Regulations	Low	New and Existing	Utilize the Building and Fire Codes to decrease the risk of fire spreading to buildings in the rural, suburban , and urban setting.	Fire Department , Planning and Codes Administration.	Ongoing	Can have a medium cost of implementation to builders and homeowners but significant impacts in preventing damages from fire damages		Medium	Unknown
Hazardous Materials													
1. Encourage the safe handling and storage of Hazardous Materials through the adoption and enforcement of the most current local codes, and State and Federal regulations.													
Model building and fire codes are adopted to ensure that the latest regulations are in place to manage the safe storage and use of hazardous materials. Hazardous materials storage and use must also comply with EPA and MDNR requirements .	2015	Ongoing	Regulated by building codes which are updated on a regular basis by the City	Local Plans and Regulations	High	New and Existing	The Fire Department and Codes Administration inspect new and existing facilities to ensure compliance with local regulations. Haz-mat Permits are also in place when additional measures are needed.	Fire Department , Planning and Codes Administration, MDNR, EPA , and other state and federal departments tasked with handling specific types of materials.	Ongoing. Codes are typically adopted on a 3 year cycle.	Can have a medium cost of implementation to businesses but significant impacts in preventing damages from hazardous materials release damages		Medium	Unknown
2. Enhance public education on the safe use and disposal of household hazardous materials.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Provide information to the public on the safe handling , use, and disposal of hazardous materials.	2015	Ongoing	The City provides "All Hazards" prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. This includes the safe handling of hazardous materials.	Education and Awareness Programs	Low	Existing	Provide hazmat safety information to prevent spills and promote the use of Household Hazardous Waste Facility.	Fire Department, Public Works	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
3. Ensure the training of local and regional response crews.													
Response teams must have continuous training to maintain competencies for their level of certification as mandated by OSHA.	2015	Ongoing	Fire Department conducts ongoing training for response personnel	Education and Awareness Programs	High	Existing	Local Emergency Operations Plan indicates the City shall have trained response capability.	Fire Department	Ongoing	Medium cost mechanism to increase safety to public employees and increases citizen safety.		Medium	General Fund, State and Federal Funds
4. Ensure the that local and regional haz-mat response equipment is maintained or upgraded.													
Work with MARC to ensure regional haz-mat teams obtain and sustain assets needed for hazardous materials response .	2015	Ongoing	City Departments coordinate regionally through MARC programs and initiatives	Structure and Infrastructure Projects	High	New and Existing	Local Emergency Operations Plan, Regional Coordination Guide	Fire Department, LEPC, RHSC	Ongoing	Low cost mechanism to increase the City's capabilities to respond a and recover from HazMat incidents which improves public safety		Low	General Fund, Grants
Emerging Infectious Disease													
1. Enhance public awareness and education on emerging infectious disease outbreaks and pandemics.													
Provide information to the public on emerging infectious diseases and precautions against infection.	2015	Ongoing	The City provides "All Hazards" prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. This includes emerging infectious diseases such as the flu etc.	Education and Awareness Programs	Medium		Local Emergency Operations Plan, Regional Coordination Guide. Relay information provided by DHSS, CDC as part of public health plans.	Fire Department, Jackson County Health Department.	Ongoing	Low cost mechanism to increase public safety.		Low	General Fund, Grants
2. Continue to work with county, state and federal agencies on pandemic response.													
Continue to work with County , State and Federal public health agencies on Pandemic response plans.	2015	Ongoing	The City continues to coordinate with the Jackson County Health Department regarding Pandemic response plans.	Local Plans and Regulations	Medium		Local Emergency Operating Plan, County , State, and Federal Public Health Response Plans	Fire Department, Jackson County Health Department, DHSS,CDC	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
Civil Disorder													
1. Continue to improve local and regional plans for response to civil unrest .													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Update Local Emergency Operation Plan for civil disorder and include Armed Violent Intruder response	2015	Ongoing	The City's Emergency Management Agency updates the LEOP on a regular basis which includes procedures regarding Civil Disturbances	Local Plans and Regulations	High		Local Emergency Operating Plan	Police Department	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
Mass Transportation Accidents													
1. Continue to improve and maintain local transportation infrastructure.													
Identify and repair roads that are hazardous by design, condition , or vulnerable to damage due to naturally occurring conditions i.e. flash flooding, icing conditions etc..	2015	Ongoing	The City continually inspects the roads and bridges for "All Hazards"	Structure and Infrastructure Projects	Medium	New and Existing	Capital Improvement Plan , Access Management Plan, Local Emergency Operating Plan, Development Review Process	Public Works ,	Ongoing	High cost for inspections and repair but significant improvements to public safety		High	General Fund, Capital Improvement Projects, Federal Grants
2. Encourage development that encourages safe transportation practices.													
Encourage the building of safe roads by applying the Access Management Plan and other approved design standards.	2015	Ongoing	The City is always reviewing road development and design criteria	Structure and Infrastructure Projects	Medium	New and Existing	Access Management Plan, Development Review Process, State and Federal Design Standards.	Public Works	Ongoing	Can have a high implementation cost but significant improvements to public safety		High	General Fund, Capital Improvement Projects, Federal Grants
Cyber Disruption													
1. Enhance cyber threat protection on critical infrastructure.													
Evaluate and update security of critical infrastructure IT systems by assessing ,vulnerabilities, monitoring current threats, and applying appropriate solutions.	2015	Ongoing	ITS currently monitors existing systems for threats using third party security programs and information provided by law enforcement and other cyber community intelligence sources. ITS has internal plans for security.	Structure and Infrastructure Projects	High	Existing	Information Technology Services (ITS), Law enforcement functions defined within City ordnances and codes	Information Technology Services (ITS), Law enforcement,	Ongoing	Can have a medium implementation cost but significant reduction in cyber disruptions and data loss		Medium	General Fund
2. Enhance internal and public education on cyber attack prevention.													
Increase cyber security by educating staff and the public on the importance of safe cyber practices and recognition of threats.	2015	Ongoing	The City provides "All Hazards" prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. This includes cyber security. Public employees also have specialized training	Education and Awareness Programs	High	Existing	ITS Security Plans, Recommended industry safety guidelines.	Information Technology Services (ITS), Law enforcement,	Ongoing	A low cost mitigation program with significant reductions in cyber disruptions and data loss		Low	General Fund
TransBoundry Animal Diseases (Foreign Animal Disease Outbreak)													
1. Enhance public education on animal borne diseases .													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Provide information to the public on potential threats of foreign animal disease outbreaks.	2015	Ongoing	The City provides "All Hazards" prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. This includes Transboundry Animal Diseases	Education and Awareness Programs	Low	New	Follow CDC, MO Department of Agriculture, MO Department of Health and local disease outbreak plans.	Regional, State, and Federal Health agencies. Animal Control.	Ongoing	A low cost mitigation program with significant increase in public safety		Low	General Fund
Terrorism													
1. Enhance public awareness and recognition of terrorist threats.													
Enhance public awareness of potential terrorist threats with educational campaigns.	2015	Ongoing	The City provides "All Hazards" prevention and safety information on LSTV, social media, News Releases etc. Theses safety education program occur yearly. This includes Terrorism threats and hazards	Education and Awareness Programs	High	new and Existing	Regional Coordination Guide, Local Emergency Planning Guide	Police Department, KCTEW	Ongoing	A low cost mitigation program with significant increase in public safety		Low	General Fund, Grants
2. Improve communication and information sharing between all agencies on potential domestic or international threats													
Enhance the preparedness and response of regional first response agencies through the sharing of intelligence information, training, and regional planning.	2015	Ongoing	City law enforcement personnel participate with the regional KCTEW	Local Plans and Regulations	High	new and Existing	Law enforcement functions defined within City ordnances and codes	Fire Department, Police Department, MARC, RHSCC, KCTEW	Ongoing	A low cost mitigation program with significant increase in public safety		Low	General Fund, Grants
3. Ensure the maintenance and upgrading of local and regional response assets.													
Assess ways to ensure that terrorism response assets are sustained and upgraded. Equipment grants do not always include funds for maintenance and upgrades.	2015	Ongoing	City constantly review response assets for "All Hazard" events assuring maintenance and upgrades are done	Structure and Infrastructure Projects	High	New and Existing	Law enforcement functions defined within City ordnances and codes	MARC, LEPC, Fire Department, Police Department	Ongoing	A Medium cost mitigation program with significant increase in public safety		Medium	General Fund, Grants
4. Ensure the security of critical infrastructure.													
Assess current critical infrastructure and target hazards for vulnerabilities to terrorist attack.	2015	Ongoing	Constant review by law enforcement regarding critical infrastructure (schools, public building etc.)	Structure and Infrastructure Projects	Medium	New and Existing	Law enforcement functions defined within City ordnances and codes	Police Department, LEPC, MERC, Other Law Enforcement Agencies.	Ongoing	A Medium cost mitigation program with significant increase in public safety		Medium	General Fund, Grants
Additional Hazard													
1. Ensure the safety of the developed mined areas by updating and enforcing local Subterranean Building Code.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Ensure the safety of the developed mined areas by updating and enforcing local Subterranean Building Code. Evaluate for vulnerabilities and recommend changes to procedures and safety equipment.	2015	Ongoing	Regulated by building codes which are reviewed on a regular basis	Local Plans and Regulations	Medium	Existing	Building and Fire Codes, Subterranean Building Code	Fire Department, Planning and Codes Administration, Owners of the facility.	Ongoing	A Medium cost mitigation program to developers and underground facilities with significant increase in public safety		Medium	General Fund, Grants
2. Ensure the safety of petroleum and gas transmission pipelines in the City of Lee's Summit.													
Increase public awareness of major pipelines in the area and right of way protection. Provide information to properties adjoining pipelines via mailers, presentations to neighborhood groups etc.	2015	Ongoing	City works with pipeline operators routinely inspect the right of ways and make annual notifications to the Fire Department	Education and Awareness Programs	Medium	Existing	Federal guidelines., Local Emergency Operating Plan	Fire Department , Neighborhood Services, Pipeline Operators	Ongoing	A low cost mitigation program with significant increase in public safety		Low	General Fund
2. Ensure the safety of petroleum and gas transmission pipelines in the City of Lee's Summit.													
Increase public awareness of major pipelines in the area and right of way protection. Provide information to properties adjoining pipelines via mailers, presentations to neighborhood groups etc.	2015	Ongoing		Education and Awareness Programs	Medium	Existing	The pipeline operators routinely inspect the right of ways and make annual notifications to the Fire Department following Federal guidelines., Local Emergency Operating Plan	Fire Department , Neighborhood Services, Pipeline Operators	Ongoing	Unknown	High Consequence Areas near pipelines	TBD	General Fund

Oak Grove/ Sni-Valley Fire Protection District 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing	Implemented through the City's preparedness educational and outreach program with emphasis on existing shelter facilities located throughout the City		Low	New	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Revenue
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing	Although tornadoes have not caused damage in the city. Some persons were sheltered in the new Fire Station shelter in 2011 during a tornado warning, but the tornado did not affect Oak Grove and caused no damage.		Medium	New	Sni Valley Fire Protection District fire station construction projects	Sni Valley Fire Protection District	Ongoing	High cost to retrofit existing buildings but can also prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	General Revenue
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing	The city required safe rooms to be constructed at new Sni Valley Fire Station 1 and as the new R-VI school district Performing Arts Center.		Medium	New	General emergency operations planning	City of Oak Grove	Undetermined	High cost to design and build shelter facilities but can prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	General Revenue and FEMA Shelter Grant
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deleted	No legal mechanism available to accomplish this action.										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing	Shelter completed at R-VI School District in Fall 2014; no incidents requiring its use at the time of this survey 12-2014		Medium	New	General Policy	Emergency Management Agency and Planning and Zoning Department	Ongoing	Low/no cost mechanism to increase public safety.		.Low	FEMA Shelter Grant

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing	No enabling law so far. Efforts to promote legislation continue.		Medium	New	Building Codes	Planning and Zoning Department	Unknown	High cost to design and build shelter facilities but can prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Unknown
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing	Updated building codes and Uniform Development Code since 2010. No mechanism possible to quantify results.		Medium	New	Building Code Updates	Planning and Zoning Department	Ongoing	Low/no cost mechanism to increase public safety.		.Low	Unknown
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing	Current Building Codes Adopted but no mechanism possible to quantify results.		Medium	New	Update of Building Codes	Planning and Zoning Department	Ongoing	Low/no cost mechanism to increase public safety.		.Low	General Revenue
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing	Review of regulations are ongoing but no mechanism possible to quantify results.		Medium	New	Update of Building Codes	Planning and Zoning Department	Ongoing	Low/no cost mechanism to increase public safety.		.Low	General Revenue
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing	Current Building Codes Adopted but no mechanism possible to quantify results.		Medium	Existing	Update of Building Codes	Planning and Zoning Department	Ongoing	Medium cost mechanism to public/private facilities but large increase in public safety.		.Low	General Revenue
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing	City tries to implement these types of mitigation measures, but no mechanism possible to quantify results. Numerous poles and infrastructure have been replaced during the last five years., especially during the two Broadway (F Highway) widening projects and at other locations.		Medium	Existing	Kansas City Power and Light Mitigation programs	Kansas City Power and Light	Ongoing	High cost to implement but substantial increase to public safety		High	Private Funding Source

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No funding available for project.										
6. Minimize the effects, respond to, and provide education and warning to the public of tornadoes in the area.													
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015		Conduct classes at schools, businesses etc. to educate residents about the inherent dangers of and maintaining safety during a tornado	Education and Awareness Programs	High	New & existing	General Policy	Emergency Management Agency	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Revenue
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing	No repetitive loss properties have been identified from stream or river flooding. At this time but continual reviews occur after heavy rain events	Structure and Infrastructure Projects	High	Existing	Oak Grove is a participant in the National Flood Insurance Program and strives to follow the guidelines of that program.	Oak Grove Inspection and Code Enforcement Department	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Revenue
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing	The City has not identified any repetitive loss properties at this time but continual reviews occur after heavy rain events		High	Existing	Identification of properties through damage assessments carried out by the Oak Grove Emergency Management Agency. No repetitive flood loss properties under the scope of the National Flood Insurance Program have been identified.	Emergency Management Agency and Oak Grove Public Works Department	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Revenue
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	No such properties eligible for buyout.										
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deferred	Funding not available.										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	The City continues to review the feasibility of these type projects. No mechanism possible to quantify results. Numerous storm water projects have been conducted since 2009 as part of construction of the Broadway (F Highway) Widening Project, Oaks of Edgewood development, and numerous projects rebuilding existing infrastructure.		High	New & Existing	Storm water Plan	Oak Grove Planning and Zoning and Public Works Departments	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing	The City has a strategy for using flood prone areas as open space. For example, a large tract of city-owned property purchased a part of the Sewer Treatment Plant construction project has been designated as green space, and initially will become practice soccer fields.		High	New	Storm water Plan requires various features listed to be applied to new construction to reduce storm water impact and reduce flooding.	Oak Grove Planning and Zoning and Public Works Departments	Ongoing	Implementation cost can be high but effective in preventing future flooding of properties that have had history of flood damage		High	Unknown
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing	The City is consistently trying to identifying funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses		High	Existing	Incorporated into land-use planning and land acquisition under Unified Development Code.	Planning and Zoning Department	Continuous Project; no foreseeable end.	Preventing future flooding of properties that have had history of flood damage		Low	City revenue funds and/or grant funding
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing	Incorporated into land-use planning and land acquisition under Unified Development Code, but no mechanism possible to quantify results.		High	Existing	Unified Development Code	Planning and Zoning Department	Continuous Project; no foreseeable end.	Preventing future flooding of properties that have had history of flood damage		High	City revenue funds and/or grant funding
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing	City works with property owners and other stakeholders to develop and implement flood mitigation strategies which promotes protection of fish and wildlife habits, but no mechanism possible to quantify results.		High	Existing	Unified Development Code	Planning and Zoning Department	Ongoing	Helping to preventing future flooding of properties that have had history of flood damage for moderate cost		Low	City revenue funds and/or grant funding

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing	The City has on-going programs to educate the public about flooding and its associated hazards. This program includes standardized educational materials coordinated with local and regional partners, no mechanism possible to quantify results.		High	Existing	N/A	Emergency Management Agency and Planning and Zoning Department	Ongoing	Low/no cost mechanism to increase public safety.		Low	City revenue funds and/or grant funding
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing	The City has accomplished this mitigation action in several projects through project design and site elevation. No mechanism possible to quantify monetary results.		High	Existing	Policy in designing new projects.	Oak Grove Public Works	Continuous Project; no foreseeable end.	While may increase building and development costs, will reduce significant flood impacts		High	Missouri DNR Revolving Wastewater Fund
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	No authority over utility providers for this purpose.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing	The Uniform Development Code (UDC) requires such measures in areas identified by the National Flood Insurance Program		High		City regulations as adopted by the National Flood Insurance Program	Oak Grove Planning and Zoning Department	Continuous Project; no foreseeable end.	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Private Sector and City Revenue Funds and/or grant funding
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing	The Uniform Development Code (UDC) requires such measures in areas identified by the National Flood Insurance Program		High		City regulations as adopted by the National Flood Insurance Program	Oak Grove Planning and Zoning Department	Continuous Project; no foreseeable end.	Initial high cost but prevents future flooding of properties that have had history of high cost flood damage		High	Private Sector and City Revenue Funds and/or grant funding
4. Discourage new development in floodplains and flood-prone areas.													
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Complete	No development allowed of this type in flood plain, unless elevated.						2-1-2003				
5. Improve flood hazard assessments and flood mapping.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Deferred	Flood boundary data of sufficient precision not available.										
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	Not a function of local government. (Counties only)										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Now very expensive and time intensive.										
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing	City and County continue to collect this data with eventual hopes of integrating into GIS systems		Low	Existing	Emergency Management Planning program	Emergency Management Agency	Undetermined	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Unknown
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	At this time suitable data was not available.										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing	The City and County have several outreach programs to encourage home owners and businesses to purchase flood insurance.		High	Existing	Emergency Management Education Program	Emergency Management Agency and Planning and Zoning Department	Continuous	No/low cost mechanism to encourage flood preparedness.		Low	Unknown
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing	The City and County have several outreach programs to inform home owners and businesses about mitigation, preparedness, response and recovery options.		High	Existing	Emergency Management Education Program	Emergency Management Agency	Continuous	No/low cost mechanism to encourage flood preparedness.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	Little public interest in such an focused event in local area.										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing	The city continues to maintain up-to-date flood maps and tracks any LOMR etc.		High	Existing	Emergency Planning. New FIRM are just (2014) becoming available due to delays in the mapping process caused by the Biggert-Waters Flood Insurance Reform Act of 2012	Emergency Management and Building and Code Enforcement Departments	Continuous Project; no foreseeable end.	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	National; Flood Insurance Program
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	No local funding available for such a project; streams are too small for effective gauging.										
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Deferred	No flood warning systems available other than visual observation.										
9. Minimize and prevent the effects of and provide education and warning the public of flooding in the area.													
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during flooding events	2015	Ongoing	Conduct classes at schools, businesses etc. to educate residents about the inherent dangers of and maintaining safety during flooding events	Education and Awareness Programs	High	New & existing	General Policy	Emergency Management Agency	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Revenue
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No funding available for project.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Not a function of local government. Utilities are carrying out this project.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing	The City works with regional partners to provide shelters to the public. For example, the Oak Grove Civic Center (100 KW Generator)is designated for this purpose under the TRAPPED Plan by American Red Cross pre-positioning a Shelter equipment trailer in Oak Grove in the Winter months. The shelter was opened once in five years and sheltered on family of three for one night.		High	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low/no cost mechanism to assure shelters maintain readiness and to increase public safety.		Low	General Revenue
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The City has implemented several generator projects. The Oak Grove City Hall and Oak Grove Sewer Treatment Plant have been fitted with generators since 2009. Oak Grove Civic Center and Public Safety Center had generators pre-2009. The City continues to look for funding opportunities to install generators at other shelter locations		High	Existing	Emergency Operations Plan. The City of Oak Grove has spent approximately $80,000 since 2002 to retrofit the Civic Center and Public Safety Center with generators.	Emergency Management Agency	Ongoing	Fairly high cost installation price but will ensure continuity of shelter operations.		High	Unknown
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	No funding available for project.										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing	Oak Grove Public Works has adopted a preventive policy of applying salt brine pre-storm to city streets. and has purchased additional snow removal equipment during the last five years.		High	Existing	Public Works Department Snow Plan and Oak Grove Snow Emergency Ordinance	Oak Grove Public Works Department	Ongoing	Will ensure continued open roadways.		Medium	Unknown
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing	Ongoing efforts to enable Public Works mutual aid agreements for this type of activity for the City is needed.		High	Existing	Public Works mutual aid agreements	Public Works Departments	N/A	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	Unknown
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing	Ongoing efforts to enable Public Works mutual aid agreements for this type of activity for the City is needed.		High	Existing	Public Works mutual aid agreements	Public Works Departments	N/A	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	Unknown
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Deferred	Continued research and work is needed for the practicality of this mitigation goal to be determined.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	Information for this type of project is abundantly available from utility providers.										
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Distribution of various information from MARC, NWS, American Red Cross, and other sources	Emergency Management Agency	Ongoing	No/low cost mechanism to increase public safety.		Low	General Revenue
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards of severe winter weather.		High	Existing	Distribution of various information from MARC, NWS, American Red Cross, and other sources	Emergency Management Agency	Ongoing	No/low cost mechanism to increase public safety.		Low	General Revenue

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	No resources currently for this project.										
6. Minimize the effects of, and respond to, and recover from the effects of winter storms in the area.													
Identify and conduct training for personnel to respond to winter related issues such as snow and ice removal	2015	Ongoing	Set-up safety classes and training for equipment operation regarding public safety concerns	Education and Awareness Programs	High	New & Existing	Oak Grove Public Works Department Operating Procedures	Emergency Management Agency	Ongoing	No/low cost mechanism to increase public safety.		Low	General Revenue
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing	The City continually assess the demands on the water system and has plans in place for drought emergencies		Low	New & Existing	Emergency Operations Plan	Emergency Management Agency	Unknown	Relatively low cost mechanism to inform mitigation strategies		Low	General Revenue
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	No local reservoirs affecting local water supply.										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing	City is constantly utilizing local, state and federal programs and guidance regarding long term planning		Low	Existing	Emergency Operations Plan. As part of the Local Emergency Operations Plan, this is an ongoing process.	Emergency Management Agency	Undetermined	Low cost mechanism to support drought response.		Low	General Revenue
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing	City is constantly utilizing local, state and federal programs and guidance regarding long term planning		Low	Existing	Local Emergency Operations Plan an ongoing process.	Emergency Management Agency	Undetermined	Low cost mechanism to support drought response.		Low	General Revenue
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing	City is utilizing local programs and guidance and coordinates with MARC regarding water drought and conservation programs in local plans		Medium	Existing	Emergency Operations Plan	Emergency Management Agency and Public Works Department	Undetermined	Low cost mechanism to support drought response.		Low	General Revenue
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing	City supplies local public educational materials which includes supplying literature and conducting presentations regarding water conservation at local schools and civic events.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to support drought response.		Low	General Revenue
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing	City supplies local public educational materials which includes supplying literature and conducting presentations regarding agricultural drought mitigation and management. at local schools and civic events.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to support drought response.		Low	General Revenue
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing	City supplies local public educational materials which includes supplying literature and conducting presentations regarding water conservation at local schools and civic events.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	General Revenue
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	Not a viable program.										
c. Develop and implement water conservation ordinances.	2010	Deferred	No current public support.										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing	Oak Grove Public Works has a program of water system capital improvements including main replacement, which reduces water losses due to main breaks and leaks, and (2014) replacement of the main Oak Grove standpipe water tower with an elevated water tower. This results in more usable water storage.		High		Comprehensive water system maintenance plan, Water main replacement program in conjunction with major street projects.	Public Works Department	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Water Fund from user fees.; Bond issues.
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing	Oak Grove Public Works has a program of water system capital improvements including main replacement, which reduces water losses due to main breaks and leaks, and (2014) replacement of the main Oak Grove standpipe water tower with an elevated water tower. This results in more usable water storage.		High		Comprehensive water system maintenance plan, Water main replacement program in conjunction with major street projects. Comprehensive water system flushing and valve exercise program.	Public Works Department	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Water Fund from user fees.; Bond issues.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing	The City consistently continues to apply for State and Federal grants for water system infrastructure improvements		High		Comprehensive water system maintenance plan,	Oak Grove Public Works Department	Ongoing	High cost mechanism to implement but greatly increases water conservation measures.		High	Unknown
6. Minimize the effects of, and respond to, educate the public of, and recover from the effects of drought in the area.													
Include drought information in preparedness outreach and campaigns	2015	Ongoing	Include drought information in existing public preparedness programs and presentations	Education and Awareness Programs	Medium		Local Emergency Operations Plan an ongoing process.	Emergency Management Agency	Ongoing	Low cost per capita to increase public awareness regarding drought risk		Low	General Revenue
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Deferred	Appropriate facilities already exist in the community. No mechanism possible to quantify results.										
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	No need for program in this community since several facilities already exist.										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing	The office of Emergency management is currently exploring ways to get at-risk populations into a GIS database. .		Low	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Medium cost method to identify at-risk populations to prevent injury of death		Medium	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing	The City works with several regional partners too identify local and regional cooling centers		Medium	Existing	Emergency Operations Plan	Emergency Management Agency and Community Services League	Ongoing	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		Low	Unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing	All weather procedures and plans are continually being updated.		Medium		Local Emergency Operations Plan	Public Service Commission	Ongoing	Low cost mechanism to increase public safety.		Low	Utility Providers

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Ongoing	The Kansas City Health Department has a heat plan that covers the Kansas City Metro Area.		Medium	Existing	Kansas City Health Department and MARC	MARC and National Weather Service	Undetermined	Low cost mechanism to increase public safety.		Low	Unknown
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing	The City coordinates with public and private agencies to check on at-risk populations. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		Medium	Existing		Emergency Management Agency	Undetermined	Low cost mechanism to increase public safety.		Low	General Revenue
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing	The City coordinates with public and private agencies to check on at-risk populations. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		Medium	Existing	Local Emergency Operations Plan	Emergency Management Agency	Undetermined	Low cost mechanism to increase public safety.		Low	General Revenue
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	No public demand.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause.		Medium		Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety. This program includes standardized educational materials that address the hazards heat waves can cause.		Medium	Existing	Local Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing	The City's Office of Emergency Management participates with the regional Integrated Warning Team through the MEMC. This group is task to bring all organizations with responsibilities regarding warning the public about severe weather events together to develop more resilient and effective warnings.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	This information is abundantly available from utility providers.										
5. Minimize the effects of, and respond to, educate the public of, and recover from the effects of extreme heat in the area.													
Conduct training and disseminate information to personnel and tenants on mitigating the effects of prolonged heat events	2015	Ongoing	Include mitigation information in existing public preparedness programs and presentations regarding effects of prolonged heat events	Education and Awareness Programs	Medium	New & Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	HAZUS software requires GIS capabilities currently not available to the City. Limited staffing, software and equipment does not currently allow the use of this resource.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	HAZUS software requires GIS capabilities currently not available to the City. Limited staffing, software and equipment does not currently allow the use of this resource.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	HAZUS software requires GIS capabilities currently not available to the City. Limited staffing, software and equipment does not currently allow the use of this resource.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	Inadequate data to determine. City uses requirements outlined in the building code										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	Inadequate data to determine. City uses requirements outlined in the building code										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing	These issues outlined in the City's adopted building codes		High	New	Planning and Zoning Department update program	Planning and Zoning Department and Board of Aldermen	Undetermined	Higher cost to implement by builders, architects etc. , but offset by increase in public safety		Medium	Unknown
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	No local input from trade organizations										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	No available funding										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	The City does not have a program developed to distribute sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects for earthquakes										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Low	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	The City does not have a program developed to distribute earthquake insurance information directly to insurance companies at this time.										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Ongoing	The City continues to review facilities regarding current seismic standards .		High	Existing	Local Emergency Operations Plan	Oak Grove - Sni Valley Emergency Management	Continuous Project; no foreseeable end.	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	Not a valid program at this time										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	Pre-empted by Missouri DNR										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including earthquake issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	No local demand; outside local authority and expertise.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	Insufficient data available on soil types.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing	The City works with MARC and other regional initiatives through the Metropolitan Emergency Managers Committee		High		Emergency Operations Plan	Emergency Management Agency	Ongoing	Medium cost mechanism to increase public safety.		Medium	Emergency Management Performance Grant (EMPG)
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	Oak Grove City Hall and Oak Grove Sewer Treatment Plant have been fitted with generators after 2009. Oak Grove Civic Center and Public Safety Center had generators pre-2009. The City continues to look for funding to add additional generators to these type facilities		High	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Fairly high cost installation price but will ensure continuity of shelter operations.		High	Unknown
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing	Although the City does not have any policies requiring generators in new public structures due to requirements of adopted building codes. The City continues to tries to get emergency power systems in the construction of new and existing public facilities. This includes Oak Grove City Hall and Oak Grove Sewer Treatment Plant have been fitted with generators since 2009. Oak Grove Civic Center and Public Safety Center had generators pre-2009.		High	New & Existing	Emergency Operations Plan	Public Works Department	Ongoing	Fairly high cost installation price but will ensure continuity of operations for these facilities.		High	Unknown
Dam Failures													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing	The City continues to try and obtain inundation maps from DNR to the local level.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing	The City continues to try and obtain inundation maps from DNR to the local level.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing	The City continues to try and obtain inundation maps from DNR to the local level.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing	The City continues to try and obtain inundation maps from DNR to the local level.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing	The City continues to try and obtain inundation maps from DNR to the local level.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including dam failure issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium		Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including dam failure issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including dam failure issues. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Low cost mechanism to increase public safety.		Low	General Revenue
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	Not within local authority; pre-empted by MoDNR										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	No legal authority for this function by the City.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing	The City continues to work with MDNR on dam inspections		Medium		Emergency Operations Plan	Emergency Management Agency	Ongoing	Medium cost mechanism to increase public safety.		Low	Unknown
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	No authority for this action. (USACE and MoDNR)										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Ongoing			Medium	Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing			Unable to determine; EM Staff time.	Emergency Management Performance Grant (EMPG)

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	No authority for this action; USACE and MoDNR										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	No applicable public projects.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	No authority by the City for this action.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing	The City continually reviews publicly owned dams		Low	Existing	Parks Maintenance Program	Oak Grove Parks and Recreation Department	Ongoing	Medium cost mechanism to increase public safety.		Low	Unknown
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deferred	Outside local authority; USACE and MoDNR										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Ongoing	One siren (installed 2010) is currently in an flood plain area affected by dams upstream. The City continues to look for funding to install these types of warning systems to warn residents of pending flooding downstream from dams		Medium	New	Emergency Operations Plan	Emergency Management Agency	Ongoing	Medium cost mechanism to increase public safety.		Medium	General Revenue in conjunction with grant funding
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Ongoing	The City continues to work with dam owners to increase preparedness		Medium	New	Emergency Operations Plan	Emergency Management Agency	Unknown	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Ongoing	City has development and Zoning regulations that are reviewed on a regular basis		Medium	New	Unified Development Code	Oak Grove Planning and Zoning and Public Works Departments	Ongoing	Medium impact to developers and land owners but can result in a major increase in public safety		Medium	Unknown
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	No available funding or staff time										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	Information already known to fire district. Essentially all areas are susceptible to wildfire.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	Not applicable since all areas in jurisdiction are nearly equally susceptible to wildfire.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		Medium	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		High	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		High	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated and participation in special events with local, regional and federal partners.		High	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	Emergency Management Performance Grant (EMPG)
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing	This is done through City building codes and is reviewed on a regular basis		High	Existing	Building Codes	Oak Grove Planning and Zoning and Sni Valley Fire Protection District	Ongoing - Continuous Project	Can be a medium impact to developers and builders but can result in a major increase in public safety		Medium	Unknown
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Ongoing	This is done through City building codes and is reviewed on a regular basis		High	Existing	Building Codes	Oak Grove Planning and Zoning and Sni Valley Fire Protection District	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	General Revenue
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	No authority for this action.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing	This is done through City building codes and is reviewed on a regular basis				Building Code Updates	Oak Grove Planning and Zoning and Sni Valley Fire Protection District	Ongoing - Continuous Project	Can be a medium impact to developers and builders but can result in a major increase in public safety		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Ongoing	This is done through City building codes and is reviewed on a regular basis		High	New	Building Codes	Oak Grove Planning and Zoning and Sni Valley Fire Protection District	Ongoing - Continuous Project	Can be a medium impact to developers and builders but can result in a major increase in public safety		Medium	Unknown
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		High	New	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	General Revenue
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		High	Existing	Parks Maintenance Program	Oak Grove Parks and Recreation Department	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	General Revenue
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public about "all Hazards" safety and preparedness including wild fire hazards. These programs include standardized educational materials coordinated with local, regional and federal partners.		High	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Low cost mechanism to increase public safety.		Low	General Revenue
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing	The City works with local Fire Department s and districts to apply for State and Federal grants to support and enhance fire prevention programs		High	Existing	Fire district Fire Prevention Program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	Emergency Management Performance Grant (EMPG)

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deleted	Not a local function							No mechanism possible to quantify results.			
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Ongoing	The local fire protection district conducts regular training for operational firefighters and command staff. This training program includes information regarding wildland firefighting techniques		High	Existing	Fire district personnel training program	Sni Valley Fire Protection District	Ongoing - Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	General Revenue
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing	The City works with the local fire protection district to identify and review alternate water sources that could be used for all types of fires which would include wildland fires.		High	Existing	Fire district GIS mapping project	Sni Valley Fire Protection District	Ongoing - Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	Emergency Management Performance Grant (EMPG)
6. Reduce the wildland fire threat by regulating outdoor burning.													
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Ongoing	City work with local fire departments and districts to review and change local ordinances as need				City Criminal Code	Oak Grove Code Enforcement Dept.; Oak Grove Police		Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	Unknown
7. Minimize occurrence and damage from wildland and other natural cover fires and prevent those fires from reaching a conflagration level.													
Identify funding sources to enhance fire prevention programs.	2015	Ongoing		Local Plans and Regulations	medium	New & Existing	Emergency Operations Plan	Emergency Management Agency	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	Unknown
Severe Thunderstorms													
1. Minimize the effects, respond to, and provide education and warning to the public of severe thunderstorms in the area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during severe weather events	2015	Ongoing	Conduct classes with school, businesses and local residents on severe weather events including lightning awareness	Education and Awareness Programs	High	New	Emergency Operations Plan	Emergency Management Agency	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from severe weather.		Low	Unknown
Hazardous Materials													
1. Minimize the opportunity for, minimize the effects of and respond to hazardous materials releases in the community.													
Use Fire and Building Codes to control fixed facility hazardous materials	2015	Ongoing	City has ongoing efforts to work with local fire departments and fire districts regarding these issues.	Structure and Infrastructure Projects	High	New and Existing	Fire and Building Codes	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from HazMat Incidents.		Low	General Revenue
Pre-Incident Planning for existing fixed facilities and most likely materials and transportation modes	2015	Ongoing	City has ongoing efforts to work with local fire departments and fire districts regarding these issues.	Local Plans and Regulations	High	New and Existing	Emergency Management Program	Oak Grove - Sni Valley EMA	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from HazMat Incidents.		Low	General Revenue; EMPG
Emerging Infectious Diseases													
1. Minimize the effects of any emerging infectious disease.													
Assist Health Departments to promote vaccination and good preventive practices	2015	Ongoing	City has ongoing efforts to work with the County Health Department regarding this issues.	Local Plans and Regulations	High	Existing	Emergency Management Program	Oak Grove - Sni Valley EMA	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from infectious diseases.		Low	General Revenue; EMPG
Civil Disorder													
1. Prevent, minimize the effects of, and recover from civil disorder events.													
Incorporate Civil Disorder prevention and control measures into SOGs and LEOP	2015	Ongoing	City continues to review all applicable SOPs and SOGs outlined by local law enforcement agencies.	Local Plans and Regulations	High	New	Emergency Management Program	Oak Grove - Sni Valley EMA	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from Civil Disorder.		Low	General Revenue; EMPG
Mass Transportation Accidents													
1. Prevent, minimize the effects of, and recover from mass transportation accidents.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Design safety measures into traffic systems to help prevent accidents	2015	Ongoing	New measures and technology continually reviewed by City and incorporated into traffic systems as funding and opportunities exist	Local Plans and Regulations	Medium	New and Existing	Project Design	City of Oak Grove, Public Works	Ongoing; Continuous Project	Can have a high implementation cost but high benefits from reduced accidents and injuries/death to people	N/A	High	Unknown
Enhance Response Planning for mass casualty transportation accidents	2015	Ongoing	City has ongoing efforts to work with local public safety agencies regarding this issues.	Local Plans and Regulations	Medium	New and Existing	Emergency Management Program	Oak Grove - Sni Valley EMA	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from transportation accidents.		Low	General Revenue; EMPG
Cyber Disruption													
1. Prevent, minimize the effects of, and recover from cyber disruption events.													
Create prevention plans for cybersecurity	2015	Ongoing	The City continues to research and implement alternative procedures and technology to improve cyber security.	Local Plans and Regulations	High	New and Existing	Emergency Management Program	All Agencies	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from cyber disruption.		Low	General Revenue; EMPG
Utilize firewalls, security measures, protective software and other preventive measures	2015	Ongoing	The City has programs in place regarding the upgrade and enhancement of existing network systems to increase resiliency to cyber disruptions	Structure and Infrastructure Projects	High	New and Existing	Plans	All Agencies	Ongoing; Continuous Project	Can have a medium implementation cost but high benefits from reduced accidents and injuries/death to people	N/A	Medium	General Revenue; EMPG; Enterprise Funds
Create Continuity of Government (COOP) Plan to assist incident response	2015	Ongoing	The City continually reviews cyber threats and disruptions to governmental operations	Local Plans and Regulations	High	New	All Agencies	Oak Grove - Sni Valley EMA	Continuous Project when started; depends on time available	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from cyber disruptions.		Low	General Revenue; EMPG
Transboundry Animal Diseases (Foreign Animal Disease Outbreak)													
1. Minimize the effects of any foreign animal disease outbreak.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Create and enhance response plans for animal disease outbreaks	2015	Ongoing	City has ongoing efforts to work with the County Health Department regarding this issues.	Local Plans and Regulations	Medium	New and Existing	Emergency Management Program	Oak Grove - Sni Valley EMA	Explain	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from Transboundry Animal Diseases.		Low	General Revenue; EMPG
Terrorism													
1. Prevent terrorism incidents as much as possible and minimize the effects of any incidents that do occur/													
Enhance directory and GIS layers of Critical Infrastructure	2015	Ongoing	City continues to increase GIS metadata	Local Plans and Regulations	High	New and Existing	Emergency Management Program	Oak Grove - Sni Valley EMA	Explain	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from Terrorism.		Low	General Revenue; EMPG
Create and follow security plans to make terrorist acts harder to carry out; enhance security measures.		Ongoing	City continues to work with local law enforcement and regional (KCTEW)	Local Plans and Regulations	High	New and Existing	All Agencies	All Agencies	Explain	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from terrorism.		Low	General Revenue; EMPG
Structure Fires													
1. Minimize occurrence and damage from structural and other urban-type fires and prevent those fires from reaching a conflagration level.													
Continue current program of fire prevention inspections and enforcement of fire and building codes	2015	Ongoing	City works with local fire departments and districts to review needed changes to these Programs	Local Plans and Regulations	High	Existing	Fire Codes	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from fires.		Low	General Revenue; EMPG
Continue current program of incident pre-plan inspections and written pre-incident plans for target hazard, high life rick, hazardous material, and other commercial occupancies.	2015	Ongoing	City works with local fire departments and districts to review needed changes to these Programs	Local Plans and Regulations	High	Existing	Emergency Management Program	Sni Valley FPD and Oak Grove-Sni Valley EMA	Ongoing; Continuous Project	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from fires.		Low	General Revenue; EMPG

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Promote installation of commercial and residential sprinkler systems	2015	Ongoing	City works with local fire departments and districts to review needed changes to these Programs	Local Plans and Regulations	High	New and Existing	Fire and Building Codes	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project	Can have a medium implementation cost but high benefits from reduced injuries/death from fire	N/A	Medium	General Revenue; Building Fees
Support sprinkler systems and other fire protection water supplies by testing and promotion of water system infrastructure improvements.	2015	Ongoing	City works with local fire departments and districts to review needed changes to these Programs	Structure and Infrastructure Projects	High	New and Existing	Expansion of current water system testing program Also Required for Insurance Services Office	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project	Can have a medium implementation cost but high benefits from reduced injuries/death from fire	N/A	Medium	General Revenue; EMPG; Water Enterprise Fund
Promote installation of commercial and residential sprinkler systems	2015	Ongoing		Local Plans and Regulations	High	New and Existing	Fire and Building Codes	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project				General Revenue; Building Fees
Support sprinkler systems and other fire protection water supplies by testing and promotion of water system infrastructure improvements.	2015	Ongoing		Structure and Infrastructure Projects	High	New and Existing	Expansion of current water system testing program	City of Oak Grove, City of Bates City, and Sni Valley FPD	Ongoing; Continuous Project	Also Required for Insurance Services Office	N/A		General Revenue; EMPG; Water Enterprise Fund

Raytown 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of tornados and safe rooms.		Low	New	MARC	MARC	Ongoing	No/low cost mechanism to increase public safety.		Low	City general funds and EMPG monies
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing	The City continues to review these shelters on a regular basis assuring their operational readiness		Medium	Existing	public information	City of Raytown	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing	City continues to retrofit shelters as funding opportunities and facilities become available		Medium	Existing	public information	City of Raytown	Ongoing	High cost to retrofit existing buildings but can also prevent large number of injuries and fatalities. Some cost could be subsidized by tax incentives and grants		High	Unknown
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	No initiatives at this time										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing	The City's Office of Emergency Management has an on-going program to educate the public about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of tornados and safe rooms.		Medium	New	public information	City of Raytown	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	No initiatives at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	No initiatives at this time										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deferred	No initiatives at this time										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	No initiatives at this time										
6. Examine alternative methods of notification / awareness for citizens e.g. reverse 911, social media													
Examine alt methods of public warning systems for all hazards	2015	Ongoing	Review implementation of alternate warning systems including reverse 911 and social media	Education and Awareness Programs	Medium	exist	ongoing partnerships with other City departments and associated agencies	Raytown EP	ongoing	Medium cost to implement technology but can have large public safety benefits		Medium	Unknown
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Complete							01-01-01				
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Complete							01-01-01				
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing	City continues to review construction of storm water protection systems on a regular basis		Low	New	City Codes	City of Raytown	ongoing	Will prevent flooding for moderate costs		Medium	Unknown
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing	City continues to review vulnerabilities to these type of systems		Low	Existing	discussions	City of Raytown	Ongoing	While may increase building, maintenance and development costs, will reduce significant flood impacts		High	Unknown
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing	City continues to review vulnerabilities to these type of systems and look for opportunities to retrofit		Low	Existing	discussions	varies	Ongoing	While initial cost is high, will reduce recovery and replacement costs from flooding events		High	Unknown
4. Discourage new development in floodplains and flood-prone areas.													
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			Low	New/Existing	Land use plans/floodplain management	Community development	Ongoing	Will reduce vulnerabilities to flood.		Low	Unknown
5. Improve flood hazard assessments and flood mapping.													
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	Not an issue for the City										
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of flooding.		Medium	Existing	City Emergency Management Department in conjunction with MARC	City Emergency Management Department in conjunction with MARC	ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
Winter Weather													
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing	City works with regional partners regarding shelter operations and associated resources		Medium	Existing	City Emergency Management Department in conjunction with MARC	City Emergency Management Department in conjunction with MARC	ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of severe winter weather.		Low	Existing	ongoing	City of Raytown	ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing	City continually works with water providers to assess water usage and potential shortages		Low	Existing	on-going relationships with both water providers in the City	Raytown EP	Ongoing	No/low cost mechanism to increase public safety.		Low	prioritized funds
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Ongoing	City continually works with water providers to assess reservoir capacities and operations		Low		on going relationship with both water providers to the City	Raytown EP	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing	City continually works with water providers to develop and maintain local drought plans and procedures		Low	Existing	on going relationship with both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing	City continually works with water providers to develop and maintain local drought plans and procedures		Low	New	on going relationship with both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing	City continually works with water providers to develop and maintain local drought plans and procedures including water conservation programs		Low	New	on going relationship with MARC	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of drought and water conservation.		Low	Existing	on going relationship with MARC and both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of drought and water conservation.		Low	Existing	ongoing relationship with MARC and both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of drought and water conservation.		Low	Existing	ongoing relationship with both water providers and MARC	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Ongoing	The City works with water service providers to initiate this type of water conservation program		Low	Existing	ongoing relationship with both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
c. Develop and implement water conservation ordinances.	2010	Ongoing	City continues to review these issues and regulations on a regular basis		Low	Existing	ongoing relationship with both water providers to the City	Raytown EP	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing	The City works with water service providers to initiate these types of infrastructure improvements		Low	New	ongoing relationship with both water providers to the City	Raytown EP	Ongoing	Can have a high implementation cost which can be offset by savings from water conservation		High	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	water provider is private company										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	water provider is private company										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing	The City works with several local and regional stakeholders to ensure the City residents have access to "Cooling Centers" available to the public during times of sever heat waves.		Low	Existing	MEMC	MARC	ongoing	Low cost mechanism to reduce injuries and death from heat related hazards		Low	Unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deferred	City in the process of informational review for development of this annex to the EOP										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Ongoing	City works with regional partners regarding the regional heat emergency plan		Medium		MEMC	MEMC / NWS/ Kansas City and Jackson County Health Departments	12-31-10	Low cost mechanism to reduce injuries and death from heat related hazards		Low	Unknown
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing	The City coordinates with regional public and private agencies to check on at-risk populations. This is an on-going program continually identifying additional partners such as CERT, VIPS and faith based organizations.		Medium	New	MEMC, United Way 211	MEMC / NWS/ Kansas City and Jackson County Health Departments	12-31-10	Low cost mechanism to reduce injuries and death from heat related hazards		Low	Unknown
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	The City does not utilize HAZUS data at this time.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	The City does not utilize HAZUS data at this time.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	The City does not utilize HAZUS data at this time.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	No initiatives at this time										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	No initiatives at this time										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Complete							8-14-2012				
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	No initiatives at this time										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	No initiatives at this time										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	No initiatives at this time										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	No initiatives at this time										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	No initiatives at this time										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	No initiatives at this time										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	No initiatives at this time										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	No initiatives at this time										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	No initiatives at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	No initiatives at this time										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	No initiatives at this time										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	No initiatives at this time										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	No initiatives at this time										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing	MARC ESF-6 Mass Care Planning Initiative		Low	Existing	Existing regional partnerships	MARC	Ongoing	Low cost mechanism to maintain shelters during disaster situations.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing	The City continues to try and retrofit shelter facilities with generators as funding becomes available		Low	Existing	Existing regional partnerships	MARC	Medium	Can have a medium initial installation cost but is offset by increased public safety		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	No initiatives at this time										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Complete							1-1-13				
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Complete							1-1-13				
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Complete							1-1-13				
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Complete							1-1-13				
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of dams and possible inundation pathways.		Low	Existing	existing PIO	Raytown EP	1-1-2020			unk	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of dams and possible inundation pathways.		Low	Existing	existing PIO	Raytown EP	1-1-2020	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of dams and possible inundation pathways.		Low	Existing	existing PIO	Raytown EP	1-1-2020	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials to dam owners and citizens living in inundation pathways.		Low	Existing	uncertain	Raytown EP	1-1-2020	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Complete							1-1-13				
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Complete							1-1-13				
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	No initiatives at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Ongoing	The City works with dam owners to educate them regarding regulations involving planning and coordination with public safety agencies.		Low	Existing	on going relationship with property owner	Raytown EP	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	No initiatives at this time										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	No initiatives at this time										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	privately owned dam										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	No initiatives at this time										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	privately owned										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	no location suitable for new dams within City boundaries										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	not an issue for City										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	No initiatives at this time										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Complete							1-1-13				
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	No initiatives at this time										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	No initiatives at this time										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	No initiatives at this time										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	No initiatives at this time										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	No initiatives at this time										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	No initiatives at this time										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives. This program includes standardized educational materials that address the hazards of dams and possible inundation pathways. This includes special events and activities.		Medium	Existing	existing partnerships with FD	Raytown Fire Protection District	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	No initiatives at this time										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	No initiatives at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	No initiatives at this time										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete							August 14, 2012				
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deleted	No initiatives at this time										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deleted	No initiatives at this time										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	No initiatives at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing	The City's Office of Emergency Management has on-going programs to educate the public and businesses about "All hazards" preparedness and safety through MARC regional initiatives and local fire departments and districts. This program includes standardized educational materials that address the hazards of wildfires and clearing brush etc. from property		Medium	Existing	ongoing relationship with local FD	Raytown Fire Protection District	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing	The City's works with fire departments and districts to identify and apply for State and Federal grants to support and enhance fire prevention programs		Medium	Existing	ongoing relationship with local FD	Raytown Fire Protection District	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Ongoing	The City's works with fire departments and districts to identify and apply for State and Federal grants to support and enhance fire prevention programs		Medium	Existing	ongoing relationship with local FD	Raytown Fire Protection District	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deleted	No initiatives at this time										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing	The City works with local fire departments and districts to identify and review alternate water sources that could be used for all types of fires which would include wildland fires.		Low	Existing	ongoing relationship with local FD	Raytown Fire Protection District	ongoing	Low cost mechanism to reduce injuries and death from dam failures		Low	Unknown
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							1972				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							1972				

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deleted	No initiatives at this time										
Civil Disorder													
1. Determine / access real time info on potential disruptions													
Determine needs and training for additional personnel	2015	Ongoing	Assess the need by local law enforcement regarding the additional personnel needed to respond to civil disturbances	Local Plans and Regulations	Medium	New & Exist	Law Enforcement	Raytown PD	ongoing	Can have a medium initial training cost but is offset by increased public safety		Medium	Unknown
2. Host / conduct / attend training on mass disturbances													
Determine providers of necessary training	2015	Ongoing	Develop necessary training classes required to properly respond to civil disorder events	Education and Awareness Programs	High	New & Exist	local	Raytown PD	ongoing	Can have a medium initial training cost but is offset by increased public safety		Medium	Unknown
Conduct training classes	2015	Ongoing	Conduct training classes for City and law enforcement personnel	Education and Awareness Programs	High	New & Existing	local law enforcement agencies	Raytown PD	Ongoing	Can have a medium initial training cost but is offset by increased public safety		Medium	Unknown
3. Expand capabilities for dealing with mass disturbances													
Purchase and implement equipment, barriers and other less lethal capabilities used to control civil disorders	2015	Ongoing	Purchase of specialized equipment utilized for crown control	Local Plans and Regulations	High	New & Existing	local law enforcement agencies	Raytown PD	Ongoing	Can have a medium initial purchasing cost but is offset by increased public safety		Medium	Unknown
Cyber Disruption													
1. Determine methods of hardening network against cyber intrusions													
Assess providers of necessary training	2015	Ongoing	Identify practical training programs and providers for City personnel	Education and Awareness Programs	High	exist	unk	Raytown PD	Ongoing	Low cost mechanism to secure government operations from cyber disruptions		Low	Unknown
2. Educate City employees on methods of reducing / mitigating cyber risks													
award / host / attend training programs	2015	Ongoing	Identify and conduct training and exercises to increase awareness regarding the threat and damage of cyber disruption and cyber terrorism	Education and Awareness Programs	High	exist	IT partnering with other agencies/departments	Raytown PD	Ongoing	Low cost mechanism to secure government operations from cyber disruptions		Low	Unknown
Terrorism													
1. Maintain liaison with local, State, and Federal partners to assess risks locally													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Coordinate information sharing to maintain increased situational awareness regarding terrorism	2015	Ongoing	City law enforcement agency continues to partner with regional KCTEW and law enforcement agencies	Education and Awareness Programs	High	exist	local law enforcement agencies and KCTEW	Raytown PD	Ongoing	Low cost mechanism to reduce damages and disruptions for terrorism		Low	Unknown
2. Continue to maintain awareness of potential local events with nexus to terrorism													
Improve surveillance capabilities	2015	Ongoing	Develop, implement, and conduct training programs for personnel assigned to monitor surveillance during local events	Education and Awareness Programs	High	exist	local law enforcement agencies and KCTEW	Raytown PD	Ongoing	Low cost mechanism to reduce damages and disruptions for terrorism		Low	Unknown
award / host / attend tng	2015	Ongoing		Education and Awareness Programs	High	exist	unk	Raytown PD	1-2 yrs	Explain	150	unk	unk
Terrorism													
1. Maintain liaison with local, State, and Federal partners to assess risks locally													
maintain liaison with partners	2015	Ongoing		Education and Awareness Programs	High	exist	unk	Raytown PD	1-2 yrs	Explain	30k	unk	unk
2. Continue to maintain awareness of potential local events with nexus to terrorism													
Examine alt methods of warning	2015	Ongoing		Education and Awareness Programs	High	exist	unk	Raytown PD	1-2 yrs	Explain	30k	unk	unk

Platte County 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			High	Existing	Updated for 2015 We do not currently have a requirement in the building code for safe rooms. We do offer help with them as well as encourage construction if in a new development. At this time no new developments that we have would have required this.	Planning and Zoning	open	Low/no cost mechanism to increase public safety.		NA	NA
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	We will offer to help with them as well as we encourage construction if a new development. Reviewed for 2015 no change.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Deferred	Currently all facilities should have locations selected for visitors and employees. Reviewed for 2015										
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	If remodel or new construction, building codes for 2006 will be followed. Reviewed for 2015										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	Planning and Zoning will assist and encourage construction if in a new development. Reviewed for 2015										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deferred	Currently no incentives offered. Reviewed for 2015										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	Existing	School districts are working on updating the safe rooms in new and current buildings Update review for 2015	School Districts	ongoing	Low/no cost mechanism to increase public safety.		unknown	FEMA Grants

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	No ordinance in place at this time. Refer to 2006 Building codes for remodels, add ons, etc. Reviewed for 2015										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Medium	Existing	2006 Building Codes Reviewed for 2015		Ongoing	Low/no cost mechanism to increase public safety.		0.00	NA
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Medium	Existing	2006 Building Codes Review and updated for 2015		Ongoing	Low/no cost mechanism to increase public safety.		0	NA
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Medium	Existing	2006 Building Codes Review and updated for 2015	Planning and Zoning	Ongoing	While may increase building costs, will lead to greater occupant safety		0	NA
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	2006 Building Codes Review for 2015 update										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	Utilities companies have plans in effect for this type of event. But this will be a cost to bear by the consumer/ county or both if interested. Reviewed for 2015										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	These follow utilities companies requirements for each subdivision. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	no incentive offered from the County. Reviewed for 2015										
6. Evaluate the county to continue to add more warning sirens in locations of the greatest need													
Add additional outdoor warning sirens.	2015			Structure and Infrastructure Projects	Medium	existing	County budget	EM	Ongoing	Will improve alert/warnings coverage.	community	$ 21,000	Budget
7. Increase public safety alert and warning.													
Continue public education on the all hazard weather radio.ontinued public education on the all hazard weather radio.	2015			Education and Awareness Programs	Medium	existing	Education	EM	Ongoing	Low/no cost mechanism to increase public safety.	community	$ 30	PCA
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			High	Existing	Through the Planning and Zoning departments Building and CRS requirements Reviewed for 2015	Platte County Planning and Zoning	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	CDBG or some other grant that might be available
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			High	Existing	This is being reviewed for 2015 plan	Platte County Planning and Zoning	Unknown	Preventing future flooding of properties that have had history of flood damage		Low	CDBG or another grant that might be available

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Planning and Zoning Department Reviewed for 2015	Platte County Planning and Zoning	Unknown	The county in 2011 found that they did not want to enter in a buyout for those in Bean Lake as this was done once in 1993 flood.		High	CBDG grants
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	County Planning and Zoning with Emergency management will work with groups to encourage mitigation planning for those in a flood plain area. Reviewed for 2015	Platte County Planning and Zoning	Unknown	Prevent future flooding of properties that have experienced past damage from floods		Low	Unknown at this time
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	Local cities and property owners are encourage to have mitigation plans in place. Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will prevent flooding for moderate costs		High	Unknown at this time
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			High	Existing	Future Land use plans are now in place and continually reviewed. Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will reduce floodplain vulnerability and increase city greenspace.		Low	Unknown at this time
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			High	Existing	Future land use plans may address this in the future. Reviewed for 2015	Platte County Planning and Zoning	Unknown	No/ or low cost to implement and require little staff support.		Low	Unknown at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			High	Existing	Platte County Parks Department and Master Land use plan. Reviewed for 2015	Platte County Parks Department	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Medium	Parks Task
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			High	Existing	Planning and Zoning Parks and Recreation department Reviewed for 2015	Platte County Parks Department	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Low	Unknown at this time
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			High	Existing	Planning and Zoning, Flood plain plan Reviewed for 2015	Platte County Planning and Zoning	Unknown	Low cost mechanism to improve floodplain management on local and regional levels.		Low	Unknown at this time
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	Planning and Zoning Building codes Reviewed for 2015	Platte County Planning and Zoning	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		Medium	Unknown at this time
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	We do not maintain or have authority over utilities. We would need to speak with the Platte County Regional Sewer District and the water districts to determine this outcome. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	To Utility companies Reviewed for 2015										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Planning and Zoning by the County commission. Reviewed for 2015	Planning and Zoning	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Unknown	Unknown at this time
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			High	Existing	Flood plain plan Reviewed for 2015	Platte County Planning and Zoning	Unknown	While initial cost is high, will reduce recovery and replacement costs.		High	Unknown at this time
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			High	Existing	Flood plain plan Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will greatly reduce and offset construction costs and limit recovery costs.		Medium	Unknown at this time
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			High	Existing	Master Land use and Future Land use plans Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will provide legal mechanism to enforce floodplain management.		Low	Unknown at this time
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			High	Existing	Master Land Use Plan Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will reduce future vulnerability to flood.		Low	Unknown at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Ongoing			High	Existing	Master Land Use Plan and Future Land Use Plan. Reviewed for 2015	Platte County Planning and Zoning	Unknown	Will provide legal mechanism to enforce floodplain management.		Unknown	Unknown at this time
Work with USACE and levee owners to be better prepared for future flooding events.	2015	Ongoing		Local Plans and Regulations	Medium	existing	EM	EM	Ongoing	Low cost mechanism for better floodplain management.	LEVEE group	Low	Explain
**Work with County and Cities to update the FIRM and address education to the public and business community in the flood	2015	Ongoing		Education and Awareness Programs	Medium	existing	Planning Zoning	EM	Ongoing	Low cost mechanism for better floodplain management.	community	Low	unknown
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	Existing	Flood Plain Plan Reviewed for 2015	Platte County Planning and Zoning	Unknown	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Unknown at this time
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			High	Existing	Flood Plain Plan Reviewed in 2013 and for 2105	Platte County Planning and Zoning	Ongoing	Free program that can increase floodplain management.		Low	Unknown at this time
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Planning and Zoning GIS has capability. Reviewed for 2015										
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Medium	Existing	Flood plain Plan Reviewed for 2015	Planning and Zoning	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		0	0
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Medium	Existing	Flood Plain Plan, Planning and Zoning, and Emergency Management	Flood Plain Manager	Ongoing	No/low cost mechanism to encourage flood preparedness.		0.00	unknown at this time
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			Medium	Existing	Flood Plain Plan Reviewed for 2015	Planning and Zoning	Ongoing	No/low cost mechanism to encourage flood preparedness.		0.00	unknown at this time
Continue to work with Public works on using WebEOC to update all county roads that are flooded during the season.	2015	Ongoing		Education and Awareness Programs	Medium	existing	WEBEOC	EM	Ongoing	Will provide up-to-date information to speed response and recovery efforts.	County	Low	Budget
Continue to educate public on flooding and driving through water.	2015	Ongoing		Education and Awareness Programs	Medium	existing	Public information programs.	EM	Ongoing	Will reduce injuries/deaths from floods.	Community	Low	Unknown
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing					Flood Plain Plan	Planning and Zoning	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management		0.00	unknown at this time
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Medium	Existing	Flood Plain Plan Planning and Zoning	Planning and Zoning	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		50,000	Parks and Recreation
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Medium	Existing	County Reviewed for 2015	Department of Public Works	Ongoing	Sharing of data will improve county floodplain management.		50,000	Department of Public Works
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Medium	Existing	County emergency operation plan Reviewed for 2015	Department of Public Works	Ongoing	Will ensure that citizens are prepared real time for flood events.		50,000	Department of Public Works
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	Existing	Local Utilities have this plan Reviewed for 2015	Utility company	ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		0	0
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Utilities have this plan Reviewed for 2015										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Utilities have this plan Reviewed for 2015										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High	Existing	RHMP and local inventories Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		0	0
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	Emergency Operation Plans Reviewed for 2015	Platte County and Planning and Zoning	Ongoing	Would ensure ADA compliance for emergency shelters.		0	0
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Not done at this time. County Commission is being advised to look at this on all county owned buildings. Reviewed for 2015										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	this process in being observed by Senior Service fund										
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	contact Senior Service fund										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	Department of Public Works Reviewed for 2015	Department of Public Works	Ongoing	Will ensure roadways are able to be maintained during winter storms.		100,000	Department of Public Works
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	nothing in the works at this time. Verbal agreements and gentlemen handshakes										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			High	Existing	MARC APWA Reviewed for 2015	MARC	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		0	0
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			High	Existing	County Reviewed for 2015	County	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that		0	0
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			High	Existing	Planning and Zoning Building Codes Reviewed for 2015	Platte County and Planning and Zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	0
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	Department of Public Works and emergency management Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Low	0
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			High	Existing	County and Emergency Management Reviewed for 2015	County	Ongoing	No/low cost mechanism to increase public safety.		Low	0
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			High	Existing	County emergency operations plan, public health plans Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Low	0
6. Sustain severe storm readiness.													
Keep updated on NWS products and education on current trends (IWT)	2015			Local Plans and Regulations	Medium	existing	NWS	EM	Ongoing	No/low cost mechanism to increase public safety.	community	Low	Budget
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Medium	Existing	Local Water departments within Platte County Reviewed for 2015	Public utilities	Ongoing	Relatively low cost mechanism to inform mitigation strategies		0	0

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	MDNR										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Medium	Existing	Local Water departments Reviewed for 2015	Public utilities	Ongoing	Low cost mechanism to support drought response.		0	0
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Medium	Existing	Model of Missouri State Drought Plan Reviewed for 2015	Local Hazardous Mitigation Plan	Ongoing	Low cost mechanism to support drought response.		0	0
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Medium	Existing	Done by National office Reviewed for 2015	MDNR	Ongoing	Low cost mechanism to increase support water conservation measures.		Unknown	unknown at this time
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Medium	Existing	done by local Water departments	MDNR	Ongoing	Low cost mechanism to increase support water conservation measures.		unknown	Budgeted
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Medium	Existing	Local water departments	Local Public utilities	Ongoing	Low cost mechanism to increase support water conservation measures.		Unknown	Budget
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			High	Existing	Local Added Storage and updated booster station	Local Public utilities	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		1 million +	Rate increased
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	no done as a private utility										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing			High	Existing	Working with Community centers (Platte County has two centers and these are being set up with shelter supplies at both locations)and local business, along with the Mid Continent Library which does not solicit this fact but will invite these folks in. Reviewed for 2015	Local jurisdictions	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		0	unknown
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	Nothing in plans										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	we have this data base but have not implemented this is due to private information concerns. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing			High	Existing	Elder Cool project with our Platte County Senior Services, along with Minor home care Reviewed for 2015	Senior Services	Ongoing	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		12,000.00	Budget line item
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Ongoing			High	Existing	Work with local utility company. Missouri Gas and KCP&L do offer similar provisions during cold and warm weather events. Reviewed for 2015	Senior Services	Ongoing	Low cost mechanism to support resiliency for vulnerable populations during heat waves.		0	Budget item
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			High	Existing	Current in Local EOP with List of cooling Center which is updated yearly. Reviewed for 2015	Platte County	Ongoing	Low cost mechanism to increase public safety.		0	0
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Ongoing			High	Existing	Currently being started - IWT team gets together to work this out and the way the forecast is set to advise agencies how to prepare. Reviewed for 2015	Local	Ongoing	Low cost mechanism to increase public safety.		0	0
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			High	Existing	Senior Services fund and Emergency Management	Emergency management	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		0	0

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			High	Existing	CERT teams and Neighborhood watch groups are now incorporated into this. Reviewed for 2015	Platte County	Ongoing	Low cost mechanism to support mitigation strategies for populations vulnerable to heat waves.		0	0
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	Local and pool owners option Reviewed for 2015										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities. Get buy in from Senior Services to educate their clients.	2010	Ongoing			High	Existing	Platte County , Power companies, and CERT,DART, and ARES teams are now doing this at all events. Reviewed for 2015	Local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		0	unknown
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	Utility company, Senior Services Fund, and Emergency Management. Reviewed for 2015	local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		0	unknown
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			High	Existing	Platte county local news papers, local radio stations, and local television. Reviewed for 2015	Platte County	Ongoing	Low cost mechanism to increase public safety.		0	unknown
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	Local utilities and local jurisdictions Reviewed for 2015										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	no Hazus software										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	no Hazus Software										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	No plans in the works										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			High	Existing	Current building codes	Planning and Zoning	Ongoing	While may increase building costs, will lead to greater occupant safety		0	Budgeted
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	current building codes										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	based on current codes										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	nothing at this time										
4. Encourage the purchase of earthquake hazard insurance.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	insurance companies										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	Insurance Companies										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	not at this time										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	this is currently done by all water companies and water districts										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	defer to Army Corp and local dam owners										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	School district offices										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	Building codes and education										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	Insurance companies, rental agencies, and realtors										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	Building manager and Facilities manager										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			Medium	Existing	Local building codes in place	Planning and Zoning	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		0	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	Working on Grants and donations	Platte County	Ongoing	Would ensure ADA compliance for emergency shelters.		0	unknown
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Nothing on the books for ordinances										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			Medium	Existing	MDNR and SEMA have updated plans for current dams in local jurisdiction. Currently Riss Lake, Weatherby Lake and Lake Waukomis have submitted EAP to both MDNR and Platte County Emergency Management. Reviewed for 2015	MDNR Dam Safety Program	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		0.00	unknown at this time
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing			Medium	Existing	Local jurisdictions with Dam located within. Platte County Planning and Zoning has the inundation maps for all of these dams. Reviewed for 2015	Planning and Zoning	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		0.00	unknown at this time
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing			Medium	Existing	Platte County Assessor office and Planning and Zoning	Platte County Assessor office	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		0.00	unknown at this time
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			Medium	Existing	Planning and Zoning	Planning and Zoning	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		0.00	unknown at this time
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	to local jurisdictions with dams located within. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	local jurisdiction will follow up on Review for 2015										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	to local jurisdiction with dam located within. Reviewed for 2015										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Ongoing			High	Existing	yearly inspections private engineer firm and two inspection by MODNR for a permit.	local jurisdiction	Ongoing	Lost cost mechanism to increase public safety		$5,000.00	Damn owner
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing			High	Existing	yearly inspections private engineer firm and two inspection by MDNR for a permit. Reviewed for 2015	local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		$5,000.00	Damn owner
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	no new dams and MDNR and CORP will follow up on this issue Reviewed for 2015										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	this is deferred to the individual dam owners to provide at this time. The MDNR charges fees to do the bi-yearly inspections now. Reviewed for 2015										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Ongoing			Medium	Existing	Local Jurisdiction are recommended to create a EAP for dams located in those jurisdiction. State has funded some of the plans in 2010. Reviewed for 2015	local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		0.00	unknown at this time
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	refer to MDNR as this is in place. Reviewed for 2015										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	This is already regulated and does not apply Reviewed for 2015										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Ongoing			High	Existing	yearly inspections private engineer firm and two inspection by MDNR for a permit. This will left to the local jurisdictions to apply for. Reviewed for 2015	local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		$5,000.00	Damn owner
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			High	Existing	yearly inspections private engineer firm and two inspection by MDNR for a permit.	local jurisdiction	Ongoing	Relatively low cost preventative maintenance programs ensure continued structural integrity of dams.		$5,000.00	Damn owner
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Ongoing			High	Existing	none at this time. suggest that a table top exercise occur to test response , recover issue. Reviewed for 2015	local jurisdiction	Ongoing	Low cost mechanism to increase public safety.		unknown	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	the dams have land bought around them. The areas of development have knowledge of existing dam in the area need to be rechecked and updated to vulnerability of the dam. Reviewed for 2015										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Ongoing			Low	Existing	Fire Department Reviewed for 2015	Fire Department	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		0	unknown
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Ongoing			Low	Existing	Emergency management and local Fire Departments. Reviewed for 2015	Platte County and Fire Departments	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		0 0	unknown at this time
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	No wildfire areas defined yet there are farm fields that have control burns. There is no maps plan for it. Reviewed for 2015										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Ongoing			Low	Existing	MEMC Citizen Preparedness committee and local Emergency Managers. Reviewed for 2015	local jurisdiction	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		50,000.	unknown at this time
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	Citizen Preparedness Committee	Platte County and Local jurisdiction	Ongoing	No/low cost mechanism to increase public safety.		0	unknown at this time
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	local jurisdiction and insurance Reviewed for 2015										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing			Medium	Existing	Local Fire departments and Local jurisdiction cover this. Reviewed for 2015	Platte County and Local jurisdiction	Ongoing	No/low cost mechanism to increase public safety.		0	0
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			Medium	Existing	Planning and Zoning	Platte County and Local jurisdiction	Ongoing	No/low cost mechanism to increase public safety.		0.00	unknown at this time
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	Local Jurisdictions will work on adoption of these building materials in their adopted building codes. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	Local Jurisdiction Reviewed for 2015										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deferred	Platte County and local Jurisdiction planning and zoning have the most current building codes Reviewed for 2015										
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	Platte County and Local Jurisdiction planning and zoning building codes. Reviewed for 2015										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	Based on local Fire Department ordinances an MDNR permits. Reviewed for 2015										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	Local Jurisdiction and Platte County Parks and Recreation Reviewed for 2015										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	Local Jurisdiction and fire departments. Reviewed for 2015										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing			Low	Existing	MDNR and local fire departments Reviewed for 2015	Local fire departments	Ongoing	No/low cost mechanism to increase public safety.		00	unknown at this time
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Ongoing			Low	Existing	Local Fire department ordinances Reviewed for 2015	Local fire department	Ongoing	No/low cost mechanism to increase public safety.		0	unknown at this time
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	MDNR and local fire department ordinances. Reviewed for 2015										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing			High	Existing	Local fire departments have tanker truck to run water in to units. Reviewed for 2015	local fire department	Ongoing	No/low cost mechanism to increase public safety.		0	0
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	Local fire department and MDNR permit requirements. Reviewed for 2015										
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	County and State parks have a no burning issued for those properties except where permitted Reviewed for 2015										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deferred	Each local political subdivision has ordinance adopted. Reviewed for 2015										

Farley 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
6. Increase tornado preparedness.													
Install tornado warning sirens.	2015	Ongoing			High	New	EOP	Farley	TBD as funding allows	Will provide storm alerting		Medium	TBD as available.
Flooding													
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	TBD as available.
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	TBD as available.
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	TBD as available.
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Medium	TBD as available.

Edgerton 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
Improve public safety communication and warning systems.													
Upgrade outdoor warning systems.	2015	Ongoing			High	New	EOP	City Admin	1 year	high	5,000	medium	Cell phone tower fee
Flooding													
Enhance public awareness and education efforts related to flooding.													
**Increase participation in the National Flood Insurance Program through continued development of floodplain maps and collection of data to inform hazard zone analyses.	2015	Ongoing			Medium	Existing	Floodplain management plan	Planning	Ongoing	medium	2,000	low	City budget
Severe Thunderstorms													
Enhance public awareness and safety skills needed to protect lives and property during a severe thunderstorm. System's StormReady program to become better prepared.													
Utilize the resources and information through the National Weather	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Severe Winter Weather													
Ensure that city plans, policies and budgets include procedures that prepare for and accommodate severe winter weather conditions.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Drought													
Ensure that city plans, policies and budgets include procedures that prepare for and accommodate drought conditions.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Heat Waves													
Ensure that city plans, policies and budgets include procedures that prepare for and accommodate heat wave conditions.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Earthquakes													
Ensure that city plans, policies and budgets include procedures that prepare for and accommodate for an earthquake either locally or in the region. Continue to update plans, policies and budgets.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Dam Failures													
Ensure that city plans, policies and budgets include procedures that prepare for dam failures.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Wildland Fires													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent wildland fires.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Hazardous Materials Release													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent injury and damage from hazardous material spills.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Emerging Infectious Disease													
Ensure that city plans, policies and budgets include procedures that prepare for an emerging infectious disease outbreak in the community.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Civil Disorder													

Ensure that city plans, policies and budgets include procedures that prepare for a civil disorder event.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Mass Transportation Accidents													
Ensure that city plans, policies and budgets include procedures that prepare for the possibility of a mass transportation accident.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Levee Failures													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent damage from a possible levee failure.													
Continue to update plans, policies and budgets.	2015	Ongoing			Medium	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Cyber Disruption													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent the damage that may occur as a result of a cyber attack..													
Continue to update plans, policies and budgets.	2015	Ongoing			Low	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Transboundary Animal Disease (TAD) Outbreak													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent the damage that may occur as a result of a FAD Outbreak													
Continue to update plans, policies and budgets.	2015	Ongoing			Low	Existing	EOP	Planning	5 years	medium	2,000	low	City budget
Terrorism													
Ensure that city plans, policies and budgets include procedures that prepare for and prevent the damage that may occur as a result of a terrorist attack..													
Continue to update plans, policies and budgets.	2015	Ongoing			Low	Existing	EOP	Planning	5 years	medium	2,000	low	City budget

Ferrelview 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public/critical facilities with inadequate protection from tornadoes and high wind, including installation of backup power.	2010	Ongoing			Medium	Existing	Capital Improvement plan	Emergency Management/Health Officer	TBD as funds are available	Will better ensure safety of residents.		High	TBD
Improve tornado warning capabilities.													
Install outdoor warning sirens	2015	Ongoing			Medium	New	Capital Improvement plan	Emergency Management/Health Officer	TBD as funds are available	Will better ensure safety of residents.		Medium	TBD
Flooding													
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	Existing	Floodplain management	Emergency Management/Health Officer	Ongoing	Low cost mechanism to inform flood risk.		Low	Operating Budget
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	Floodplain management	Emergency Management/Health Officer	Ongoing	Low cost mechanism to inform flood risk.		Low	Operating Budget
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	Floodplain management	Emergency Management/Health Officer	Ongoing	Low cost mechanism to inform flood risk.		Low	Operating Budget
9. Improve drainage for areas prone to standing water.													
Re-grade ditch lines along Heady Road.	2015	Ongoing			High	Existing	Capital Improvement Plan	Emergency Management/Health Officer	Ongoing, as funding available	Would reduce standing water and reduce mosquito breeding areas.		Medium	TBD

Houston Lake 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			High	Existing	Literature from various manufacturers made available at city functions and at city council meetings.	Office of Emergency Management & City Officials	Ongoing	Low/no cost mechanism to increase public safety.		0.00	None required
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			High	Existing	Office of Emergency Management	EMC		Low/no cost mechanism to increase public safety.		None required	None required
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Medium	Existing	Mayors office.	Mayors office	Ongoing	Initial high costs offset by potential savings in recovery costs.		None required	None required
6. Increase public safety alert and warning.													
Increase communication with NWS for timely reporting	2015	Ongoing		Local Plans and Regulations	High	existing	EMA	EMA	2015	Low/no cost mechanism to increase public safety.	City of	None required	None required
Increase community education of weather conditions avorable for developing tornadoes.	2015	Ongoing		Education and Awareness Programs	Medium	new	EMA/City of	EMA	2016	Low/no cost mechanism to increase public safety.	City of	None required	FEMA
Develop stronger local community tornado warning systems	2015	Ongoing		Education and Awareness Programs	High	new	EMA/City of	EMA	2016	Low/no cost mechanism to increase public safety.	City of	None required	None required
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Low	Existing	City of Houston Lake.	City of Houston Lake	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Not Known	Not Known
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			Medium	Existing	Homes Association.	Homes Association	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		None required	None required
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	Existing	Homes Association.	Homes Association	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		None required	None required
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	City of Houston Lake. Awaiting delivery of new maps from FEMA.	City of Houston Lake	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		None required	None required
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Medium	New	City of Houston Lake	Office of Emergency Management & City Officials	Ongoing	Will ensure that citizens are prepared real time for flood events.		None required	None required
Increase communication with NWS for timely reporting	2015	Ongoing		Local Plans and Regulations	High	existing	EMA	EMA	2015	Low/no cost mechanism to increase public safety.	City of	None required	None required
Develop stronger local community flood warning systems	2015	Ongoing		Education and Awareness Programs	Medium	new	EMA/City of	EMA	2016	Low/no cost mechanism to increase public safety.	City of	minimal	City of
Winter Weather													
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	Emergency Sheltering Plan	City Council	Ongoing	Would ensure ADA compliance for emergency shelters.		Medium	Unknown
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	City Council	City of Houston Lake	Ongoing	Will ensure roadways are able to be maintained during winter storms.		$4000.00 yea	Budget
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			High	Existing	City Council	City of Houston Lake City of Riverside	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		None required	None required

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			High	Existing	City of Houston Lake	City of Houston Lake & City of Riverside	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		None required	None required
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Medium	Existing	City of Houston Lake	City of Houston Lake	Ongoing	No/low cost mechanism to increase public safety.		None required	None required
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	City of Houston Lake, Office of Emergency Management, FEMA	City of Houston Lake	Ongoing	No/low cost mechanism to increase public safety.		None required	None required
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Medium	Existing	City of Houston Lake	City of Houston Lake	Ongoing	No/low cost mechanism to increase public safety.		None required	None required
6. Create system utilizing community CERT team to check elderly or medically sensitive residents													
Develop CERT program	2015	Ongoing		Education and Awareness Programs	Medium	new	EMA/City of	EMA	2016-17	No/low cost mechanism to increase public safety.	City of	minimal	City budget
Drought													
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	We have no control over our water supply. A severe drought would come down to neighbors helping neighbors										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	Not familiar with this plan. Will explore options in 2015.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Low cost mechanism to support drought response.		None required	None required
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Low cost mechanism to increase support water conservation measures.		None required	None required
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Medium	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	Low cost mechanism to increase support water conservation measures.		None required	None required
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Medium	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	Low cost mechanism to increase support water conservation measures.		None required	None required
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Deferred	Low priority										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		None required	None required
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Medium	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		None required	None required
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			Low	Existing	City of Houston lake	Office of Emergency Management & City of Houston Lake	Ongoing	Low cost mechanism to increase public safety.		None required	None required
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Ongoing			Low	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	Low cost mechanism to increase public safety.		None required	None required
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			Medium	Existing	City of Houston Lake and the Platte County Sheriffs Dept.	City of Houston Lake and the Platte County Sheriffs Dept.	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		None required	None required

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Medium	Existing	City of Houston Lake and neighbors.	City of Houston Lake & community	Ongoing	Low cost mechanism to support mitigation strategies for populations vulnerable to heat waves.		None required	None required
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	Low cost mechanism to increase public safety.		None required	None required
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Low cost mechanism to increase public safety.		None required	None required
Earthquake													
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Low cost mechanism to increase public safety.		None required	None required
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		None required	None required
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	City of Houston Lake & Office of Emergency Management.	City of Houston Lake	Ongoing	Would ensure ADA compliance for emergency shelters.		Medioum	TBD
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			Low	Existing	Homes Association	Homes Association	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		None required	None required
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing			Low	Existing	HOA	HOA	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		None required	None required
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Ongoing			High	Existing	HOA	HOA	Ongoing	Lost cost mechanism to increase public safety		None required	None required
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing			High	Existing	HOA	HOA	Ongoing	Lost cost mechanism to increase public safety		None required	None required
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing			High	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Lost cost mechanism to increase public safety		None required	None required
7. Increase dam safety,													
Develop bi-annual dam condition inspection schedule with EM and HOA	2015	Ongoing		Natural Systems Protection	Low	existing	City of/HOA	City of/HOA	2015-17	Lost cost mechanism to increase public safety	City of	None required	None required
Wildland Fires													
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Ongoing			Low	Existing	City of Houston Lake	City of Houston Lake	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		None required	None required
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	City of Houston Lake	Office of Emergency Management & City of Houston Lake	Ongoing	No/low cost mechanism to increase public safety.		None required	None required
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Medium	Existing	City of Houston Lake and our HOA	City of Houston Lake & Home Owners Association	Ongoing	No/low cost mechanism to increase public safety.		None required	None required
Severe Thunderstorms													
1. Increase communication with NWS for timely reporting													
Increased communication	2015	Ongoing		Local Plans and Regulations	High	existing	EMA	EMA	2015	No/low cost mechanism to increase public safety.	City of	None required	None required
2. Develop stronger local community severe thunderstorm warning system													
Community awareness	2015	Ongoing		Education and Awareness Programs	Medium	existing	EMA/City of	EMA	2016	No/low cost mechanism to increase public safety.	City of	minimal	City of
3. Increase community after storm damage reporting to EMD													
Community awareness	2015	Ongoing		Education and Awareness Programs	High	new	EMA/City of	EMA	2015	No/low cost mechanism to increase public safety.	City of	minimal	City of
Hazardous Materials													
1. Open and increase communication with surrounding communities that have hazardous locations (plume drift)													
Increased communication/partnership	2015	Ongoing		Local Plans and Regulations	High	new	EMA/City of	EMA/City of	2016	No/low cost mechanism to increase public safety.	City of	None required	None required
2. Develop stronger local community hazardous materials release warning systems													
Community awareness	2015	Ongoing		Education and Awareness Programs	Medium	new	EMA/City of	EMA/City of	2016-17	No/low cost mechanism to increase public safety.	City of	minimal	FEMA/City of

Lake Waukomis 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Improve emergency public information, education and warning.													
Better communications with citizens inside city limits.	2015	Ongoing		Education and Awareness Programs	High	Exixting	Community-Events	Emergency Manager	Ongoing	Low cost mechanism to increase public safety.	600	Low	Budget
Flooding													
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2015	Ongoing			High	New	Floodplain Management	Floodplain manager	TBD as funding allows	Will prevent flooding for moderate costs		Medium	Grants as available
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2015	Ongoing			Low	Existing	Floodplain Management	Floodplain manager	TBD as funding allows	Will reduce floodplain vulnerability and increase city greenspace.		Low	Grants as available
Construct floodway dam over spillway.	2015	Ongoing			High	New	Floodplain Management	Floodplain manager	TBD as funding allows	Will prevent flooding and reduce recovery costs.		High	Grants as available
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	New	Floodplain Management	Floodplain manager	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Unknown
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	New	Floodplain Management	Floodplain manager	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	Unknown
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	New	Floodplain Management	Floodplain manager	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	Unknown
Dam Failures													
1. Increase dam safety through Emergency Action Planning													
Integrate with the Association to have up to date plans and education and awarness for those down stream of inundation pathways.	2015	Ongoing		Education and Awareness Programs	High	Existing	EOP	City	12/1/2017	Low cost mechanism to increase public safety.	2000	Low	Unknown
Severe Thunderstorms													
1. To obtain a generator for City Hall.													
Obtain Generator for Community Center	2015	Ongoing		Structure and Infrastructure Projects	Medium	New	Coop	City	12/1/2017	Will better ensure continuity of government operations.		$100,000	Grants

Northmoor 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Information given to public	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	none
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	Existing	Awareness	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	none
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Complete							3/2010				
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	Public Facility has a basement below ground										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			Medium	Existing	Public Awareness	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	None
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Medium	New	Community Awareness	City Council	ongoing	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		$1,000	None

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	New	Public Awareness	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	None
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			Medium	New	Creating Ordinances for new construction	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	None
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Medium	New	Contact building industry	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	None
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Medium	New	Adopt New building codes	City Council	Ongoing	Low/no cost mechanism to increase public safety.		$1,000	None
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Medium	New	adopt new building codes	City Council	Ongoing	While may increase building costs, will lead to greater occupant safety		$1,000	None
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			Medium	Existing	adopt new codes and implement with current businesses	City Council	Ongoing	While may increase building costs, will lead to greater occupant safety		$1,000	None
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Medium	Existing	Contact public utilities and work with them to complete this	City Council	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		$1,000	None
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	Existing	Adopt new building codes	City Council	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		$1,000	none
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing			Medium	Existing	work with utilities on this	City Council	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		$1,000	None
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Medium	Existing	Work with property owners	City Council	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Medium	New	Check on possible grants	City Council	Ongoing	Preventing future flooding of properties that have had history of flood damage		$1,000	none
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Low	New	check on local flooding properties	City Council	Ongoing	Preventing future flooding of properties that have had history of flood damage		$1,000	none
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Low	New	explore incentive options with property owners	City Council	Ongoing	Preventing future flooding of properties that have had history of flood damage		$1,000	none
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Low	New	Construction of detention ponds	City Council	Ongoing	Will prevent flooding for moderate costs		$1,000	none
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			Low	New	develop land use plans	City Council	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		$1,000	None
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			Low	New	Find funding sources	City Council	Ongoing	No/ or low cost to implement and require little staff support.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Low	New	Find new use for floodplains	City Council	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		$1,000	none
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			Low	New	Create wildlife habitats	City Council	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		$1,000	None
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Low	New	Work with other agencies	City Council	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		$1,000	none
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			Low	New	Work with property owners on elevate mechanical systems	City Council	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		$1,000	None
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			Low	New	We don't have any pumping stations	City Council	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		$0	None

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing			Low	New	Talk with Utility companies about this	City Council	Ongoing	While initial cost may be high, will reduce recovery and replacement costs.		$1,000	None
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Low	New	Target repetitive flood property for buyout	City Council	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		$1,000	none
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			Low	New	encourage new properties to be elevated in flood plains	City Council	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		$1,000	none
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Low	New	Locate grants for business and home owners	City Council	Ongoing	Will greatly reduce and offset construction costs and limit recovery costs.		$1,000	none
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			Low	New	adopt new ordinances	City Council	Ongoing	Will provide legal mechanism to enforce floodplain management.		$1,000	none
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			Low	New	Develop land use plans	City Council	Ongoing	Will reduce future vulnerability to flood.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Ongoing			Low	New	adopt new ordinances	City Council	Ongoing	Will provide legal mechanism to enforce floodplain management.		$1,000	none
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	get parcel data	City Council	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		$1,000	none
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			Low	New	contact Fema	City Council	Ongoing	Free program that can increase floodplain management.		$1,000	none
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing			Low	New	check on software	City Council	Ongoing	Free program that can increase floodplain management.		$1,000	none
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Low	New	collect data	City Council	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			Low	New		City Council	Ongoing	Will allow for better assumptions to support mitigation activities.		$1,000	none
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Complete							3/2010				
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Complete							3/2010				
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			Low	New		City Council	Ongoing	No/low cost mechanism to encourage flood preparedness.		$1,000	none
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New		City Council	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		$1,000	none
b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							3/2010				
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Low	New		City Council	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		$1,000	none
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Low	New		City Council	Ongoing	Sharing of data will improve county floodplain management.		$1,000	none
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Low	New		City Council	Ongoing	Will ensure that citizens are prepared real time for flood events.		$1,000	none
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Low	New	new ordinances	City Council	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing			Low	New		City Council	Ongoing	Would reduce recovery costs, but would have high intial implementation.		$1,000	none
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Ongoing			Low	New		City Council	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		$1,000	none
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Low	New		City Council	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		$1,000	none
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Low	New		City Council	Ongoing	Would ensure ADA compliance for emergency shelters.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			Low	New		City Council	Ongoing	Relatively low cost mechanism to ensure continuity of government operations.		$1,000	none
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			Low	New		City Council	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		$1,000	none
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing			Low	New		City Council	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		$1,000	none
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Complete							3/2010				
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			Low	New		City Council	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			Low	New		City Council	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		$1,000	none
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			Low	New		City Council	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		$1,000	none
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Low	New		City Council	Ongoing	No/low cost mechanism to increase public safety.		$1,000	none
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Low	New		City Council	Ongoing	No/low cost mechanism to increase public safety.		$1,000	none
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Low	New		City Council	Ongoing	No/low cost mechanism to increase public safety.		$1,000	none

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			Low	New		City Council	Ongoing	No/low cost mechanism to increase public safety.		$1,000	none
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	New		City Council	Ongoing	Relatively low cost mechanism to inform mitigation strategies		$1,000	none
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Ongoing			Low	New		City Council	Ongoing	Relatively low cost mechanism to inform mitigation strategies		$1,000	none

Parkville 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			High	Existing	Parkville Master Plan, and Floodplain regs. Current Monthly siren drills.	Community Dev Dept / Public Works	Ongoing	Public awareness, through drills and events. Unknown losses saved.		Low	Unknown
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	Not planned at this time.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Deferred	No program at this time.										
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	None planned at this time.										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	No such requirement. Not planned at this time. Currently regulated by adopted IRC / IBC codes.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deferred	No program in place at this time.										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			Medium	New	Tornado shelters currently required through planned development approval. Code update being prepared. High wind 90MPH design per 06 IRC / IBC. Working on amendments to require shelters to be built with new multi-family and assembly uses.	Community Dev Dept, Building Safety Div.	2010			NA	NA
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deferred	No program in place at this time.										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Medium	New	currently 2006 IBC / IRC	Community Dev Dept, Building Safety Div.	Adopt 2009 code in 2011			NA	NA
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	Not required by existing code. No plans to require at this time										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	Utility responsibility.										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Utility responsibility.										
6. Increase citizen disaster preparedness.													
Provide public education materials.	2015	Ongoing		Education and Awareness Programs	High	existing	EOP	EM	2015	Citizens better prepared for disasters.	5500	Low	Unknown
7. Improve existing and future storm sirens													
Purchase new/update existing storm sirens.	2015	Ongoing		Structure and Infrastructure Projects	Low	new	New construction	City	Unknown	Continued functionality of outdoor warning systems.	500	Medium	Unknown
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			High	Existing	Parkville Master Plan, and Floodplain regs	Community Dev Dept / Public Works	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	Unknown
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			High	Existing	FEMA / SEMA	Community Dev Dept / Public Works	As grants are available	Preventing future flooding of properties that have had history of flood damage		Low	Unknown
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	FEMA / SEMA funding	Community Dev Dept / Public Works	As grants become available	Preventing future flooding of properties that have had history of flood damage		High	Unknown
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	Parkville Master Plan, and Floodplain regs	Community Dev Dept / Public Works	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	Unknown
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	Parkville Master Plan, Stormwarter Management Plan, NPDES Plan	Public Works	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			High	Existing	Parkville Master Plan; Parkville Parks Plan; County Parks Plan	Public Works; CLARB	ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Low	Unknown
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			High	Existing	None locally. State and federal grants.	Community Dev. Dept; Public Works	as available	No/ or low cost to implement and require little staff support.		Low	Unknown
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			High	Existing	Parkville Master Plan; Parkville Parks Plan; County Parks Plan	Community Dev. Dept; Public Works	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Medium	Unknown
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			High	Existing	Existing efforts with Army Corp; Platte Land Trust; Platte County P&R; stream teams	All above entities	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Low	Unknown
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			High	Existing	Existing efforts with Army Corp; Platte Land Trust; Platte County P&R; stream teams	All above entities	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	Unknown
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	New construction addressed, retrofits ongoing. Requirement of Chpt 404: Flood Management regs	Community Development; Floodplain manager	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		Low	Unknown
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			High	Existing	PCRSD and Parkville Sewer utility plans; Floodplain regs	Public Works; Floodplain Manager	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	Unknown
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing			Medium	Existing	New facilities required to meet floodplain regs; modifications ongoing. Floodplain regulations; utility ordinance	Public Works; Floodplain Manager	Ongoing	While initial cost may be high, will reduce recovery and replacement costs.		Low	Unknown
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	None planned do to funding. Planning pending available funding.										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	Existing facilities that can be elevated have been. Those that have not (downtown) can not be elevated										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	None available or planned.										
4. Discourage new development in floodplains and flood-prone areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			High	Existing	Requirement of Chpt 404: Flood Management regs; Objective of City Master Plan	Community Development; Floodplain manager	Ongoing			NA	Unknown
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	No mechanism available at this time.										
5. Improve flood hazard assessments and flood mapping.													
a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Deferred	No such program started at this time.										
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			High	Existing	Area map updates coordinated through County Planning Dept	Community Development	Ongoing	Free program that can increase floodplain management.		Low	Unknown
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Medium	Existing	Floodplain regulations; insurance providers; lending agencies	insurance providers	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		Low	Unknown
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	No such program started at this time.										
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	No such program started at this time.										
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	upstream and down stream gauges installed. None planned in Parkville at this time. Surveyed points referenced to existing gauges used as alternative.										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			High	Existing	EM planning; NOAA online gauge level data; data sharing with abutting jurisdictions; PCEM coordination	Parkville EM manager	Ongoing	Sharing of data will improve county floodplain management.		Low	Unknown
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			High	Existing	Currently use local government channel, webpage and email blasts; working on other social media notifications; regional news channels used in emergencies.	Parkville EM Manager	Ongoing	Will ensure that citizens are prepared real time for flood events.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
9. Improve flood awareness education and preparedness training													
Distribute and promote flood preparedness information.	2015	Ongoing		Education and Awareness Programs	High	existing	EOP	City	2015	Low cost mechanism to increase flood safety.	5500	Low	Unknown
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	Utility provider responsibility. No incentives planned by City.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	No aboveground City utility lines. Utility provider responsibility.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High	Existing	local coordination with Red Cross; coordination with PCEM	American Red Cross	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	no effort at this time.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Not required at this time. No plans for requiring.										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Those in need refered to Platte County Health and Senior Services										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Those in need refered to Platte County Health and Senior Services and utilities that have existing programs.										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	Public Works Street Department operation and maintenance plan	Public Works	ongoing			$34,000	Annual budget
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	No mechanism or budget for participation at this time										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			Medium	Existing	Verbal assistance agreement with Parkville Special Roads District.	Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	Unknown
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			Medium	Existing	Addressed on case-by-case basis by Admin & Board.	City Administrator	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Low	Unknown
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Deferred	No plans at this time. Currently addressed by KCP&L/MGE										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Deferred	No plans at this time. Currently addressed by KCP&L/MGE										
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Deferred	No plans at this time.										
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Deferred	PCEM effort. PCEM education/outreach program.										
6. Ensure continuity of government operations during severe winter weather.													
Increase ability to take care of staff on site 12 on 12 off (feeding, cots, laundry, showers and other necessities)	2015	Ongoing		Local Plans and Regulations	Medium	new	new SOP	EM	2015-2016	Will ensure government operations continue.	50	Low	unknown
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	None offered by Missouri American Water & CPWSD # 1 of Platte County at this time.										
c. Develop and implement water conservation ordinances.	2010	Deferred	None existing or planned at this time.										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Funded by user fees / rate increases.										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	No municipal water utility. Service Provided by Missouri American Water & CPWSD # 1 of Platte County. Funded by user fees / rate increases.										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Medium	Existing	Existing programs by local churches; Red Cross facilities; Platte County facilities	All listed above	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	No plans at this time.										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Medium	Existing	Platte County Health and Senior Services existing database	Parkville EM Manager	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	None at this time. Those in need referred to Platte County Health and Senior Services.										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	No such effort at this time. Existing utility programs only.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			High	Existing	City EOP; County EOP	Parkville EM Manager	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Supportive of idea, but MEMC or MARC to lead effort										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			High	Existing	Platte County Health and Senior Services list of those in need; Police / EM Manager implementation based on assessed need.	City / County EM Manager	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	Unknown
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	None at this time.										
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	No public pools at this time.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	No such program at this time										
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	No such program at this time										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deferred	No such program at this time outside existing PSA info from utility providers										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	No such program at this time										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	No software purchased locally. No plans for purchase at this time.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	Not required by existing code. No plans to require at this time.										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing			Medium	New	currently 2006 IBC / IRC	Comm. Dev Dept, Building Safety Div.	Adopt 2009 code in 2011			NA	NA
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	No such effort at this time. None currently planned.										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	Not required by existing code. No plans to require at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	No such effort at this time. None currently planned.										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	responsibility of insurance providers										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	responsibility of insurance providers										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Ongoing			Medium	Existing	Building Official; Park Hill School Dist.; Park University facility planning	All listed above	Ongoing	Will identify areas for mitigation efforts.		Low	Unknown
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	Addressed by Missouri American Water & CPWSD # 1 of Platte County. Effort is ongoing.										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Ongoing			High	Existing	Dams over 35 regulated by state / MDNR oversight. Under 35 subject to local code.	MDNR; Public Works	Ongoing	Low cost mechanism to increase public safety.		None	None
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	No such effort at this time. None currently planned.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	No such effort at this time. None currently planned.										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	No such effort at this time. None currently planned.										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	No such effort at this time. None currently planned.										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	No such effort at this time. None currently planned.										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			Medium	Existing	Regional discussion and local EM planning	Parkville EM Manager	Ongoing	Low cost mechanism to ensure availability of emergency shelters.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	None planned at this time.										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Not required at this time. No plans for requiring.										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	None completed at this time Still no current plan										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	None completed at this time										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	None completed at this time										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	None completed at this time										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	None completed at this time										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	None completed at this time										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	None completed at this time										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Existing MDNR required inspections for dams over 35.										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	No such program at this time. City visually inspects public detention facilities for signs of needed maintenance. No report to State.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	Agree that regular inspections should take place, but no local effort at this time.										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	No such requirement at this time. Any effort has been voluntary.										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	No lobbying effort in place. Changes have already been enacted.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	No plan in place at this time										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Ongoing			Medium	Existing	For city facilities only -- visual inspection of need and CIP planning	Public Works	Ongoing as funds available	Low cost mechanism to improve dam safety		project based	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	No plan to offer such incentive.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			Medium	Existing	For City facilities only -- for City facilities only	Public Works	Ongoing	Will ensure dams are maintained .		Project based	CIP budget
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	No system in place at this time. None planned.										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Ongoing			High	Existing	Local table top planning exercises	Parkville EM Manager; Dam owners	Ongoing	Low cost mechanism to increase dam safety.		Low	Unknown
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	No requirement at this time. No plan to require such.										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is complete										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is complete										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing. Completed through SPFPD development plan / plat review										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	No such restriction existing or planned at this time. Most homes associations currently disallow. Insurance providers discourage. Regulated per adopted 2006 IBC, IRC and NFC. Most homes associations currently disallow.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	None offered or planned.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Complete			Medium	New	currently under 06 NFC	SPFPD; City Inspectors	2011			NA	Unknown
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Low	Existing	Parks & Rec Dept. mowing & maintenance program; prescribed burns in Nat. Sanc.	Public Works & Nature Sanctuary staff	Ongoing	No/low cost mechanism to increase public safety.		Project based	Annual budget
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing.										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing through SPFPD existing education program.										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is complete through SPFPD GIS mapping updates.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	No municipal Fire Department. Service Provided by Southern Platte Fire Protection District. SPFPDs effort is ongoing. SPFPD currently posts sites and issues notices.										
Severe Thunderstorms													
1. Increase mass notification alert and warning capabilities.													
Utilize Textcaster system for City	2015	Ongoing		Local Plans and Regulations	High	existing	EOP	EM	7/7/1905	Low cost mechanims to increase public aleart and warning.		donated	donated
2. Increase citizen severe thunderstorm preparedness.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Provide public education materials.	2015	Ongoing		Education and Awareness Programs	High	existing	EOP	EM	2015	Citizens better prepared for disasters.	5500	Low	Unknown

Platte City 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Low	New	Civil Defense function within the Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	City General Funds
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Low	New	Civil Defense function within Co	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Medium	General Fund
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		Medium	General Fund
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Low	General Fund
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	While may increase building costs, will lead to greater occupant safety		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	While may increase building costs, will lead to greater occupant safety		Low	General Fund
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		High	General Fund
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Low	General Fund
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Medium	General Fund
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	General Fund
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Medium	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Fund
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Preventing future flooding of properties that have had history of flood damage		High	General Fund
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	General Fund
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will prevent flooding for moderate costs		Medium	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Low	General Fund
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/ or low cost to implement and require little staff support.		Low	General Fund
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Medium	General Fund
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will reduce floodplain vulnerability and increase city greenspace.		Low	General Fund
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	General Fund
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		Low	General Fund
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	General Fund
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing			Low		Civil Defense function within Code of Ordinance	City Codes	Ongoing	While initial cost may be high, will reduce recovery and replacement costs.		Low	General Fund
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		High	General Fund
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will greatly reduce and offset construction costs and limit recovery costs.		Low	General Fund
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will provide legal mechanism to enforce floodplain management.		Low	General Fund
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will reduce future vulnerability to flood.		Low	General Fund
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will provide legal mechanism to enforce floodplain management.		Medium	General Fund
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Free program that can increase floodplain management.		Low	General Funds
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Free program that can increase floodplain management.		Low	General Fund
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	General Fund
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will allow for better assumptions to support mitigation activities.		Low	General Fund
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	General Fund
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	General Fund
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	General Fund
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	General Fund
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Medium	General Fund
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Sharing of data will improve county floodplain management.		Low	General Fund
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will ensure that citizens are prepared real time for flood events.		Low	General Funds
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs, but would have high intial implementation.		Medium	General Fund
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Medium	General Fund
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	General Fund
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Would ensure ADA compliance for emergency shelters.		Medium	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Relatively low cost mechanism to ensure continuity of government operations.		Low	General Fund
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		Low	General Fund
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		Low	General Fund
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Will ensure continued open roadways.		Medium	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			Medium	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			Medium	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	General Fund
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Low	General Fund
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to increase public safety.		Low	General Fund
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to increase public safety.		Low	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to increase public safety.		Low	General Fund
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			Low	New	Civil Defense function within Code of Ordinance	City Codes	Ongoing	No/low cost mechanism to increase public safety.		NA	General Fund
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	Existing	Current city infrustructure	City of Platte City	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Low	City Budget
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Ongoing			Low		Regular review and test by local and MDNR	Public Works	Ongoing	Testing regularly for quality.		Low	City Budget
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	Currently the system has not experienced any drought type condition and yet the city has redundancy built in to its system.										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	This is deferred to MDNR plan as the city has yet to implement a drought plan yet.										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deleted	Unknown as to this capability.										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing	Emergency operations plan and Citizen education events	City of Platte City	Ongoing	To keep citizen aware of city events, and plans.		Low	City Budget
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	Existing	City events and public meetings	City of Platte City	Ongoing	Citizen awareness programs.		Low	City Budget
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	As of this date the city has redundancy plans that have yet to be used but are in play.										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	not applicable										
c. Develop and implement water conservation ordinances.	2010	Deleted	no applicable										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Low	Existing	This is built in to the city future planning needs.	Public Works	Ongoing	Future improvements to current and future expansions.		High	City Budget
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	Existing	SRF with existing water system, ARRA bond issue in 2010 , 2008 waste water, ulta violet upgrade to current system.	City of Platte City	Ongoing	Improvement to overall system quality.		High	City Budget
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing				Existing	current funding stream and any federal grants to help support infrastructure.	Public Works	Ongoing	Quality of water		Low	City Budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Low	Existing	Hazardous mitigation plans	City of Platte City	Ongoing	Update current and future plans		None	N/a
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			Low	Existing	LEOP	Emergency Management	Ongoing	Work with existing buildings to support this issue		Medium	City Budget
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			Low	Existing	County Emergency Management maintains a list	county of Platte	Ongoing	awareness of those less fortunate during heat related issues		Low	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deleted	None of this time of writing										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	power companies have this capability.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			Low	Existing	Platte County LEOP	Platte County EM	Ongoing	This is being updated yearly by county em		None	None

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Platte County EM is working on this with American Red Cross and Salvation Army and others.										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			Low	Existing	Citizen Awareness	City of Platte City	Ongoing	Citizen education events		None	None
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Low	Existing	Platte County has a active CERT and ARES group to augment plans	Platte County EM\	Ongoing	Low cost mechanism to support mitigation strategies for populations vulnerable to heat waves.		Low	Unknown
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deleted	City has this augmented in its budget.										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	City events	City of Platte City	Ongoing	Citizen Education		Low	City Budget
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	city events	City of Platte City	Ongoing	Citizen Education		Low	City Budget
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			Low	Existing	City events and public information related events	City of Platte City	Ongoing	Citizen Education		Low	City Budget
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deleted	none at this time										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	none at this time										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	none at this time										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	Defer to the county planning and zoning group on this issue										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Ongoing			Low	Existing	city inspections	City of Platte City	Ongoing	city inspects current and new construction to make sure the meet city codes.		fee	City Budget
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			Low	Existing	city codes	City of Platte City	Ongoing	current updated city codes that are adopted		None	None
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing			Low	Existing	city codes	City of Platte City	Ongoing	up to date on all current codes		Unknown	City Budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deferred	defer to contractors and builders to follow current city codes										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	dependent upon builder and owner of building to conform to new codes.										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	deferred to the county										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deleted	not applicable to Platte city										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	This would be the insurance companies responsiblity										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Ongoing			Low	Existing	Current city plans and codes	City of Platte City	Ongoing	Identified areas for targeted mitigation efforts.		Low	City Budget
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Ongoing			Low	Existing	City Public works	Public Works	Ongoing	keeping system updated and current		High	City Budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	no dams										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	defer to current building owners for awareness on these issues.										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	citizen awareness										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	defer to those managers/owners										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	to building owners and managers										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	None at this time										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deleted	Not at this time										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	Nothing in the near future										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Idea for future planning.										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deleted	No Dams										
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deleted	No Dams										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deleted	no Dams										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deleted	no Dams										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deleted	No Dams										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deleted	No Dams										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deleted	No Dams										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deleted	No Dams										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deleted	No Dams										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deleted	No Dams										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	No Dams										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	No Dams										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	No Dams										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	No Dams										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	NO Dams										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	No Dams										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	No Dams										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deleted	No Dams										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	No Dams										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	No Dams										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deleted	No Dams										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	Defer to Platte County										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deleted	NO local area inside Platte City that authorize or permit burning of any type.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	NOne for Platte City										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	Platte County EM										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	Platte County EM										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	Platte County										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing			Low	Existing	City events	City of Platte City	Ongoing	citizen awareness programs		Unknown	City Budget
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			Low	Existing	city codes	City of Platte City	Ongoing	current and updated city codes		Unknown	City Budget
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Ongoing			Low	Existing	city codes	City of Platte City	Ongoing	current city codes update for new constuction and rebuilds		Unknown	City Budget
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	No applicable										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing			Low	Existing	City codes	City of Platte City	Ongoing	current and updated codes		Unknown	City Budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Ongoing			Low	Existing	City codes	City of Platte City	Ongoing	reviews and updates to current codes		Unknown	City Budget
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	Not applicable										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Low	Existing	City public works	City of Platte City	Ongoing	city public works		Low	City Budget
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing			Low	Existing	city codes	City of Platte City	Ongoing	Low cost mechanism to reduce risk of wildfires.		Low	unknown
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	defer to Central Platte fire Protection District										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	Defer to Central Platte Fire Protection Distict										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	Defer to Central Platte Fire Protection District										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	Defer to Central Fire Protection District.										
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Deferred	Defer to Central Platte Fire Protection District										
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	Defer to Central Platte Fire Protection District										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Ongoing			Low	Existing	City ordinances are implace	City of Platte City	Ongoing	Ordinance in place for the fourth of July, reduces incidents of wildfires.		None	City Budget
Severe Thunderstorms													
1. Increase citizen preparedness for severe thunderstorms.													
Provide education and awareness	2015			Education and Awareness Programs	Low	existing	Local plans	em	Ongoing	Low cost mechanism to increase public safety.	citizen	Low	City Budget

Platte Woods 2015 Mitigation Strategy *(New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Low	New	EOP	City Codes	Ongoing	Low/no cost mechanism to increase public safety.		Medium	TBD as available.
6. Increase storm recovery capabilities at city hall and other critical facilities.													
Install generator at city hall and other critical facilities.	2015	Ongoing			Low	Existing	EOP	City	TBD as funding available	Will ensure continuity of government operations.		Medium	TBD as available.
Flooding													
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	TBD as available.
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	TBD as available.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	TBD as available.
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			Low	New	Floodplain management	Floodplain management	Ongoing	Stream gauges are relatively cost effective measures to warn of flooding events and implement mitigation measures.		Medium	TBD as available.

Riverside 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Information is made available through the Prepare Metro KC website and other publications on the topic Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		Minimal	public relations budget
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	Existing	when requests for information is received the citizen contact is referred to a trade org. Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		None	None
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	Annual reviews are made to determine suitable sheltering locations. Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		None	None
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Medium	Existing	No additions or retrofitting of city facilities are required. If any modifications to structures are made considerations are given for possible retrofitting are made. Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		None	None
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Ongoing			Medium	Existing	As new projects for city facilities are develops discussions for sheltering are considered. Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		None	None
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Medium	Existing	Riverside does not assess taxes and no tact incentives are offered Reviewed for 2015	community develop director	Ongoing	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		None	None
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	Existing	Members of the fire department, emergency management, codes and community develop network with the community to promote sheltering and safe rooms. Reviewed for 2015	Emergency Management/Operations Support Division	Ongoing	Low/no cost mechanism to increase public safety.		None	None
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	Considerations have been made to adopt ordinances. The proposed MARC writing has been reviewed and no action take as of this date Reviewed for 2015										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Medium	New	This issue has been discussed with the trades and efforts on their part to promote this project. Most do promote this concept. Reviewed for 2015	community develop director	Ongoing	Low/no cost mechanism to increase public safety.		None	None
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			High	Existing	Riverside has adopted the currents additions of the international codes and electrical codes. Codes are updates as needed. Reviewed for 2015	community develop director	Ongoing	Low/no cost mechanism to increase public safety.		unknown	Unknown
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			High	Existing	Reviews are made during the plan review process to determine if a structure meet the features Reviewed for 2015	community develop director	Ongoing	While may increase building costs, will lead to greater occupant safety		unknown	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deferred	no requirements are in place. it is unknown if considerations will be made when new facilities are constructed. Reviewed for 2015										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deferred	Deferred to the utilities that have such Infrastructure Reviewed for 2015										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deferred	No ordinances or regulations are in place for this requirement. It is unknown if considerations are being made by the city. Reviewed for 2015										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No incentives are being offered by the city. Reviewed for 2015										
6. Improve outdoor warning capability													
Add additional outdoor siren as city develops.	2015	Ongoing		Structure and Infrastructure Projects	Low	existing	Mitigation	City	2017-2020	Will ensure continued ability to alert citizens.	Community	Medium	budget
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deferred	all properties have been identified Reviewed for 2015										
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	no programs are in progress. Reviewed for 2015										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	no programs are in progress. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deferred	no programs are in progress. Reviewed for 2015										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Medium	Existing	as new projects are evaluations recommendations are made Reviewed for 2015	Community Development Director	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deferred	no programs are in progress. Reviewed for 2015										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Deferred	no programs are in progress. Reviewed for 2015										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	no programs are in progress. Reviewed for 2015										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Deferred	no programs are in progress. Reviewed for 2015										
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	Portions of the city is protected by the L285 levee project. Those business not protected by the levee are constructed to meet federal flood plain standards for elevation Reviewed for 2015	Community Development Director	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		unknown	unknown
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	no facilities are within the city Reviewed for 2015										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	no programs are in progress. Reviewed for 2015										
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	n/a										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Deferred	no programs are in progress. Most are protected by the L385 levee										
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	no programs are in progress. Most are protected by the L385 levee Reviewed for 2015										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Deferred	no programs are in progress. Most are protected by the L385 levee Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Deferred	except for flash flooding, most flooding area are protected Reviewed for 2015										
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	non are planned Reviewed for 2015										
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	Existing	Riverside has a flood management director who works with the FEMA flood management Reviewed for 2015	Community Development Director	Ongoing	Most data readily available and can be easily imported to identify potential areas for		unknown	unknown
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			High	Existing	Community Development Director implements and manages program Reviewed for 2015	Community Development Director	Ongoing	Free program that can increase floodplain management .		Unknown	Unknown
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	until receipt of program										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	same as last question Reviewed for 2015										
6. Enhance public awareness and education efforts related to flooding.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			Medium	Existing	info available on request Reviewed for 2015	Community Development Director/EMD	Ongoing	No/low cost mechanism to encourage flood preparedness.		Unknown	Unknown
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			Medium	Existing	this is an ongoing project Reviewed for 2015	Community Development Director	Ongoing	No/low cost mechanism to encourage flood preparedness.		Unknown	Unknown
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Complete							1978				
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Complete							2004				
10. Improve citizen preparedness.													
Continue public education programs	2015			Education and Awareness Programs	High	existing	Mitigation	Emergency Mgmt.	Ongoing	Low/no cost mechanism to increase public safety.	Community	Low	budget
11. Improve public alert and warning systems.													
Continue to develop mass notification systems to the community-Upgrade capabilities	2015			Structure and Infrastructure Projects	Medium	existing	Mitigation	Emergency Mgmt.	2017-2020	Low/no cost mechanism to increase public safety.	Community	Low	budget
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			High	New	City Ordinances Chapter 400 require all new construction place underground utilities. Reviewed for 2015	City Codes Director	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Medium	unknown
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	No incentives are being offered by the city.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Deferred to the utility companies for what budgets they have for such projects.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			Medium	Existing	On going assessment with the Platte County Emergency Management with the fore mentioned groups Reviewed for 2015	Platte County Emergency Management	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	This effort is a continuing process. This review is made annually Reviewed for 2015	Emergency Management	Ongoing	Would ensure ADA compliance for emergency shelters.		Medium	None
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	There are no formal adoption of policies are in place. Any new public facility being considered for construction has provisions for emergency power.										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			Medium	Existing	Riverside through several community programs are able to identify those persons who made assistance and referred to public service or volunteer groups for assistance Reviewed for 2015	City of Riverside as a collective	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		None	None
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	MARC and other community services has programs in place that offer such mitigation action. Any requests for services would be referred to those services										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deferred	Unaware of this concept. If development exists Riverside would consider participating										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			High	Existing	Partner with the City of Houston Lake for sand, salt and other materials as need Reviewed for 2015	Riverside Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Unknown	Unknown
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			High	Existing	LEOP is used to determine essential city employees. City operations are either deferred or cancelled during severe winter weather events. Businesses are encouraged to defer or suspend operations during severe winter weather events Reviewed for 2015	Emergency Manager/City Administrator	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		unknown	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			High	Existing	Fire Department and Emergency Management as programs established Reviewed for 2015	Riverside FD/ OEM	Ongoing	No/low cost mechanism to increase public safety.		unknown	PR budgets
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	This is continuous as part of our Storm Ready Status with NWS Reviewed for 2015	Riverside FD/ OEM	Ongoing	No/low cost mechanism to increase public safety.		unknown	PR budgets
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			High	Existing	same as last questions Reviewed for 2015	Riverside FD/ OEM	Ongoing	No/low cost mechanism to increase public safety.		unknown	PR budgets
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			High	Existing	part of our Storm Ready Program with NWS Reviewed for 2015	Riverside FD/ OEM	Ongoing	No/low cost mechanism to increase public safety.		unknown	PR budgets
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	Existing	Review is in progress Reviewed for 2015	Community Development Director	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Unknown	unknown
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	There are no reservoirs in Riverside										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			Low	Existing	No local drought plan is in place at this time the MDP has been reviewed Reviewed for 2015	Community Development Director	Ongoing	Low cost mechanism to support drought response.		Low	unknown
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Low	Existing	no development for a plan has been set Reviewed for 2015	Community Development Director	unknown	Low cost mechanism to support drought response.		Low	unknown
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Low	Existing	staffing will be provided to assist in the planning process Reviewed for 2015	Community Development Director	unknown	Low cost mechanism to support drought response.		Low	Unknown
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing	Information available on city website and brochures at city hall Reviewed for 2015	External Affairs Officer	unknown	Low cost mechanism to increase support water conservation measures.		Low	Unknown
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	Existing	same as last question Reviewed for 2015	External Affairs Officer	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	Unknown
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Low	Existing	MARC and other info is provided Reviewed for 2015	External Affairs Officer	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	No incentives are in place										
c. Develop and implement water conservation ordinances.	2010	Deferred	non are planned										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Medium	Existing	work with MO-American Water Company who owns the water system Reviewed for 2015	Community Development Director	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	no programs are in progress. Reviewed for 2015										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	same as last question Reviewed for 2015										
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			High	Existing	All City facilities are air conditioned and selected buildings are used during times of heat waves as cooling shelters. Reviewed for 2015	Emergency Manager/	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	unknown
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			High	Existing	Emergency Management and fire department survey the city to assure all residents have air conditioning. Public Safety maintains a database of all elderly residents within the city. Reviewed for 2015	Public Safety Divisions	Ongoing	Low cost mechanism to identify mitigation strategies for populations vulnerable to heat waves.		Unknown	Public Safety Pub Ed Budget
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	Other programs exist that offer such programs Reviewed for 2015										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			High	Existing	Heat plans are in place by EOP and MARC heat plan Brochures are available both printed and on the City Website for downloading on citizens response to head emergencies. Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	EM Pub Ed Budget
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Ongoing			High	Existing	Coordinate with MARC and other agencies on their plans Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Ongoing			High	Existing	fees are $1 for 0-12, $3 for 12 and above Reviewed for 2015	Community Center Director	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	City Budget
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Complete							2006				
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Complete							2006				
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			Medium	Existing	on an as needed bases	Emergency Management/External Affairs Officer	Ongoing	Low cost mechanism to increase public safety.		Low	Annual budget account
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			Medium	Existing	use city newsletter, website Reviewed for 2015	External Affairs Officer	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Complete							1AUG09				
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Ongoing			Low	Existing	work with Platte County GIS and other agencies to collect data. Reviewed for 2015	Emergency Management	Ongoing	Data has multiple uses and can benefit across multiple programs.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Ongoing			Low	Existing	same as last question	Emergency Management	Ongoing	Will provide detailed assumptions to guide future mitigation efforts.		Low	Unknown
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	no studies have been initiated Reviewed for 2015										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	no programs are in progress. Reviewed for 2015										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing			High	Existing	As the International Building, Fire and other codes are updated the City updates the codes, Average updates are every three years Reviewed for 2015	Community Development Director/Fire Marshal/City Engineer	Ongoing	Low cost mechanism to increase building durability.		Low	unknown
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing			High	Existing	plan review of new structures done by fire marshal and Codes director Reviewed for 2015	Codes Department	Ongoing	Low cost mechanism to increase building durability.		Low	Unknown
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	no programs are in progress.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	Referred to insurance companies and other group for sources of funds Reviewed for 2015										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Complete							2005				
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	no programs are in progress. Water services are maintained by Missouri American Water Company, a private company Reviewed for 2015										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	no dams are within Riverside Reviewed for 2015										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing			Medium	Existing	during fire safety inspections Reviewed for 2015	Fire department	Ongoing	Low cost mechanism to reduce injury from earthquakes		Low	Unknown
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	no programs are in progress.										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	no programs are in progress. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	no programs are in progress. Reviewed for 2015										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	n/a Reviewed for 2015										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	no programs are in progress. Reviewed for 2015										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	no programs are in progress. Reviewed for 2015										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			High	Existing	generators are recommended on any new construction Reviewed for 2015	Community Development Director	Ongoing	Will ensure continuity of government operations.		Medium	Unknown
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			Low	Existing	Community Development Director and project engineers coordinate with the above groups on two dams up stream of Riverside Reviewed for 2015	Community Development Director	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing			Low	Existing	same as last question along with FEMA Reviewed for 2015	Community Development Director	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing			Low	Existing	same as past questions Reviewed for 2015	Community Development Director	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			Low	Existing	community develop director and EMD will coordinate to develop plans as part of the EOP Reviewed for 2015	Community Development Director/EMD	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	no programs are in progress. Reviewed for 2015										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	no programs are in progress. Reviewed for 2015										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	no programs are in progress. Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	no programs are in progress. Reviewed for 2015										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	no dams in the City of Riverside Reviewed for 2015										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	no dams are projected for the city Reviewed for 2015										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing			Low	Existing	These issues are addressed by the Mayor and Board of Aldermen Reviewed for 2015	Mayor and Board of Aldermen	Ongoing	Will ensure safety of high hazard dams		Low	Unknown
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	No dams in Riverside Reviewed for 2015										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	no programs are in progress. Reviewed for 2015										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	no dams are in Riverside Reviewed for 2015										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	n/a Reviewed for 2015										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	n/a Reviewed for 2015										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deferred	n/a Reviewed for 2015										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deferred	n/a Reviewed for 2015										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	n/a Reviewed for 2015										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Ongoing			Low	Existing	Work with Platte Co EMA Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	no programs are in progress. Reviewed for 2015										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deferred	The City of Riverside does not have any areas within the city that would be prone to wildland fires Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	n/a Reviewed for 2015										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deferred	n/a Reviewed for 2015										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	n/a Reviewed for 2015										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	n/a Reviewed for 2015										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deferred	n/a Reviewed for 2015										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deferred	n/a Reviewed for 2015										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deferred	n/a Reviewed for 2015										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	n/a Reviewed for 2015										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	n/a Reviewed for 2015										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deferred	n/a Reviewed for 2015										
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	n/a Reviewed for 2015										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	n/a Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	n/a Reviewed for 2015										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deferred	n/a Reviewed for 2015										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	n/a Reviewed for 2015										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	n/a Reviewed for 2015										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	n/a Reviewed for 2015										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Deferred	n/a Reviewed for 2015										
6. Reduce the wildland fire threat by regulating outdoor burning.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Deferred	refer to last question on no burning of any kind in the city Reviewed for 2015										
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Deferred	fireworks are allowed to be sold and used in Riverside. Measures are in place in the event of a natural cover fire in the event of a fireworks related issue. Fires stats show minimal losses due to fireworks related fires. Reviewed for 2015										

Tracy 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Improve tornado preparedness													
Install torando outdoor warning siren.	2015	Ongoing			High	New	EOP	City Executive	TBD as funding allows	Will provide warning capability to residents		Medium	TBD as grants available
Construct tornado shelter	2015	Ongoing			High	New	EOP	City Executive	TBD as funding allows	Will provide safe refuge for residents.		High	TBD as grants available
Organize a plan with our community to set up triage in the event of a tornado disaster	2015	Ongoing			High	New	EOP	City Executive	TBD as funding allows	Will ensure faster response and treatment for casualties.		Low	TBD as grants available
1. Improve flooding preparedness													
**Create a plan for funding a levee along Platte River in Tracy	2015	Ongoing			High	New	Floodplain management	City Executive	TBD as funding allows	Low cost mechanism to fund projects.		Low	TBD as grants available
**Design and install a functional levee system	2015	Ongoing			High	New	Floodplain management	City Executive	TBD as funding allows	High cost will offset recovery and cleanup costs from flooding.		High	TBD as grants available
Design and install improvements to city storm sewers.	2015	Ongoing			High	New	Floodplain management	City Executive	TBD as funding allows	High cost will offset recovery and cleanup costs from flooding.		High	TBD as grants available

Weatherby Lake 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Emergency Management and Planning and Zoning Reviewed for 2015	Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.		Unknown	Unknown
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Ongoing			Medium	Existing	Planning and Zoning Reviewed for 2015	Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.		Unknown	Unknown
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			High	Existing	Planning and Zoning Reviewed for 2015	Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			High	Existing	Panning and Zoning Review for 2015	City and Emergency Management	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	no other public buildings owned by the city Reviewed for 2015										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deferred	Nothing in ordinances at this time Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Medium	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Low/no cost mechanism to increase public safety.		Unknown	Unknown
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Deferred	Chapter 500 building codes and regulations Reviewed for 2015										
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed by 2015	Planning and Zoning	Ongoing	Low/no cost mechanism to increase public safety.		Low	Unknown
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			Medium	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	While may increase building costs, will lead to greater occupant safety		Medium	Unknown
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			Medium	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		High	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Medium	Existing	Planning and Zoning Building codes and regulation section 500.020 Reviewed for 2015	Planning and Zoning	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Low	Unknown
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	This is a utilities capabilities if they choose to. reviewed for 2015										
6. Increase public safety alert and warning.													
Develop stronger local community tornado warning systems	2015	Ongoing		Education and Awareness Programs	High	Existing	Community events	Emergency Management	2017	Low/no cost mechanism to increase public safety.	600	Low	budget
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Deferred	no other property in the city is in a flood zone Reviewed for 2015 with possible adoption of current floodplain for 2015										
b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Deferred	none at this time										
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	no flood plain. nothing at this time. Review for 2015										
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deferred	no flood plain. to be reviewed for the new update on the FIRM for 2015 Reviewed for 2015										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement Company Reviewed for 2015	Weatherby Lake Improvement Company	Ongoing	Will prevent flooding for moderate costs		Medium	Unknown
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deferred	The Weatherby Lake Improvement Company will handle this issue.										
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	This would go to the Weatherby Lake Improvement Company.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	Existing	Planning and Zoning Reviewed for 2015	Weatherby Lake Improvement Company	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	Unknown
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Deferred	This is a utilities capabilities if they choose to.										
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Deferred	This is a utilities capabilities if they choose to.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Will greatly reduce and offset construction costs and limit recovery costs.		Medium	Unknown
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Will provide legal mechanism to enforce floodplain management.		Unknown	Unknown
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Will reduce future vulnerability to flood.		Unknown	Unknown
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Weatherby Lake Improvement Company has ownership of this land. Reviewed for 2015										
5. Improve flood hazard assessments and flood mapping.													
a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	Existing	Planning and Zoning through the county Current FIRM maps will show new data Reviewed for 2015	Planning and Zoning	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Unknown	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	Platte County Planning and Zoning Reviewed for 2015										
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Platte County Planning and Zoning Reviewed for 2015										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	Weatherby Lake Improvement Company has ownership of this land. Platte County Planning and Zoning to supply support. Reviewed for 2015										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	Platte County Planning and Zoning Reviewed for 2015										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Insurance Companies	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		Unknown	Unknown
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Deferred	Insurance Company, Weatherby Lake Improvement Company. Reviewed for 2015										
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Deferred	Insurance Company, Emergency Management, and reviewed for 2015										
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Medium	Existing	Platte County Planning and Zoning This being updated for April 2015 Reviewed for 2015	Planning and Zoning & Weatherby Lake Improvement Co	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	Unknown
b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Medium	Existing	Planning and Zoning & Weatherby Lake Improvement Company. Reviewed for 2015	Planning and Zoning	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	Unknown
8. Implement or improve flood warning systems.													
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	Weatherby Lake Improvement Company has ownership of this land.										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Medium	Existing	Emergency Management & Weatherby Lake Improvement Company	Emergency Management	Ongoing	Sharing of data will improve county floodplain management.		Unknown	Unknown
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			Medium	Existing	weather radio / all hazard radio	Weatherby Lake Improvement Co & Emergency Management	Ongoing	Will ensure that citizens are prepared real time for flood events.		Unknown	Unknown
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			Low	Existing	Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Unknown	Unknown
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	This is a utilities capabilities if they choose to. Reviewed for 2015										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	Utilities company. Reviewed for 2015										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Deferred	the City of Weatherby Lake does not have any generators on any our public buildings at this time. Reviewed for 2015										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	Platte County Emergency Management has shelters established throughout the county and updated yearly. Reviewed for 2015	American Red Cross	Ongoing	Would ensure ADA compliance for emergency shelters.		Medium	Unknown
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Platte County emergency Management has a current list of shelters. Reviewed for 2015										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Deferred	Senior services Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Deferred	Utilities company. Reviewed for 2015										
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			Medium	Existing	Public Works Reviewed for 2015	Public Works	Ongoing	Will ensure continued open roadways.		5000	general revenue
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			Medium	Existing	Public Works Reviewed for 2015	Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		6000	general revenue
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			Medium	Existing	Public Works Reviewed for 2015	Public Works	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		8000 to 1000	general revenue
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			Medium	Existing	city government Reviewed for 2015	mayor	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Unknown	general revenue
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			Medium	Existing	Emergency Management, Planning and Zoning Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Unknown	general revenue
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	city government Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		500	general revenue
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			Medium	Existing	city government Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		Unknown	general revenue
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			Medium	Existing	Emergency Management Reviewed for 2015	Emergency Management	Ongoing	No/low cost mechanism to increase public safety.		150	general revenue
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	Existing	Kansas City Water system and the City of Weatherby Lake Reviewed for 2015	Kansas city Water	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Low	Unknown
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deferred	Kansas city water Reviewed for 2015										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	Kansas City Water and the City of Weatherby Lake Reviewed for 2015										
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	Kansas City Water and the City of Weatherby Lake Reviewed for 2015										
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			Low	Existing	City of Weatherby Lake Reviewed for 2015	Weatherby Lake	Ongoing	Low cost mechanism to support drought response.		Low	Unknown
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			Low	Existing	Weatherby Lake and Emergency Management Reviewed for 2015	Weatherby Lake	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	Unknown
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			Low	Existing	City of Weatherby Lake Reviewed for 2015	Weatherby Lake	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	Unknown
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			Low	Existing	City of Weatherby Lake and the Weatherby Lake Improvement Company Reviewed for 2015	City of Weatherby Lake and Weatherby Lake Improvement CO	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	Unknown
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	Kansas City Water and the City of Weatherby Lake Reviewed for 2015										
c. Develop and implement water conservation ordinances.	2010	Deferred	Kansas City Water and the City of Weatherby Lake Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Low	Existing	City of Weatherby Lake	Kansas City	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	Existing	City of Weatherby Lake and the City of Kansas City Reviewed for 2015	Weatherby Lake	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	Unknown
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			Low	Existing	City of Weatherby Lake and City of Kansas City Reviewed for 2015	Weatherby Lake	Ongoing	Low cost measure to offset high construction costs.		Low	Unknown
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Ongoing			Low	Existing	City of Weatherby Lake Reviewed for 2015	Weatherby Lake	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		$300	city budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			Low	Existing	City of Weatherby Lake Reviewed for 2015	Weatherby Lake	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	Unknown
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	Senior Services fund Reviewed for 2015										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	Senior Services fund Reviewed for 2015										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Ongoing			Low	Existing	city of Weatherby Lake Reviewed for 2015	Local utilities	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			Low	Existing	City of Weatherby Lake and Emergency Management Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	County emergency management Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			Low	Existing	City of Weatherby Lake and Emergency Management Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	Unknown
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Low	Existing	City of Weatherby Lake, Police and emergency Management Reviewed for 2015	Emergency Management	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	Unknown
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	City of Weatherby Lake and Emergency Management Reviewed for 2015	Emergency Management	Ongoing			unknown	Unknown
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			Low	Existing	City of Weatherby Lake and Emergency Management Reviewed for 2015	Emergency Management	Ongoing			unknown	Unknown
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deferred	Local news letter Reviewed for 2015										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	Local news letter Reviewed for 2015										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	County emergency management and Planning and Zoning Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	County emergency management and Planning and Zoning Reviewed for 2015										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	County emergency management and Planning and Zoning Reviewed for 2015										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	County emergency management and Planning and Zoning Reviewed for 2015										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			Low	Existing	City of Weatherby Lake and Planning and Zoning Reviewed for 2015	Planning and Zoning	Ongoing	Low cost mechanism to increase building durability.		Low	Unknown
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing			Low	Existing	Planning and Zoning and the city codes and regulations Reviewed for 2015	Planning and Zoning	Ongoing	Low cost mechanism to increase building durability.		Low	Unknown
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing			Low	Existing	Planning and Zoning and city codes and regulations Reviewed for 2015	Planning and Zoning	Ongoing	Low cost mechanism to increase building durability.		Low	Unknown
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	county planning and zoning Reviewed for 2015										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	Insurance companies										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	Insurance companies										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement company Reviewed for 2015	Weatherby Lake Improvement Company	Ongoing	Will ensure dam safety.		Low	Improvement company funds
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deferred	Insurance companies Reviewed for 2015										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing			Low	Existing	Planning and Zoning and city codes and regulations Reviewed for 2015	City of Weatherby Lake	Ongoing	Low cost mechanism to increase earthquake preparedness.		Low	Unknown
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	Insurance companies Reviewed for 2015										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	Insurance companies and builders Reviewed for 2015										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Ongoing			Low	New	Planning and Zoning and city codes and regulations Reviewed for 2015	City of Weatherby Lake	Ongoing	Will reduce potentially extensive recovery costs.		High	Unknown
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	nothing at this time										
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Complete							06/2010				
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement company and EAP Reviewed for 2015	Weatherby Lake Improvement Co & Emergency Management	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement company's EAP Reviewed for 2015	Weatherby Lake Improvement Co & Emergency Management	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			Medium	Existing	LEOP for the city and county, EAP, and city of Weatherby Lake Master Plan with Platte County Master Plan Reviewed for 2015	Weatherby Lake Improvement company	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Complete							06/2010				
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement company Reviewed for 2015	Weatherby Lake Improvement Co & Emergency Management	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing			Medium	Existing	Weatherby Lake Improvement Company and Insurance Companies	Insurance Company and Weatherby Lake Improvement Company	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	Unknown
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Weatherby Lake Improvement Company Reviewed for 2015										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing			Low	Existing	Weatherby Lake Improvement company and EAP Reviewed for 2015	Weatherby Lake Improvement company	Ongoing	Will ensure safety of all dams		5000.00	WLIC Budget

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing			Low	Existing	Weatherby Lake Improvement company	MDNR	Ongoing	Will ensure safety of high hazard dams		5000.00	WLIC Budget
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Complete							06/2010				
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	Weatherby Lake Improvement Company										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	Weatherby Lake Improvement Company Reviewed for 2015										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Ongoing			Low	Existing	Weatherby Lake Improvement company Reviewed for 2015	Weatherby Lake Improvement company	Ongoing	Low cost mechanism to offset costs of repairs, ensuring greater participation.		Low	Unknown
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Ongoing			Low	Existing	Weatherby Lake Improvement company Reviewed for 2015	Weatherby Lake Improvement company	Ongoing	Relatively low cost preventative maintenance programs ensure continued structural integrity of dams.		5000.00	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			Low	Existing	Weatherby Lake Improvement company Reviewed for 2015	Weatherby Lake Improvement company	Ongoing	Relatively low cost preventative maintenance programs ensure continued structural integrity of dams.		5000.00	WLIC Budget
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Weatherby Lake Improvement Company Reviewed for 2015										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	Weatherby Lake Improvement Company Reviewed for 2015										
1. Increase dam safety through Emergency Action Planning													
Work with the Improvement Company to have up to date plans and education and awarness for those down stream of inundation pathways.	2015	Ongoing		Education and Awareness Programs	High	Existing	EOP	WLIC	12/1/2017	Low cost mechanism to increase public safety.	1500	Low	Unknown
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deferred	fire department										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deferred	fire department										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deferred	fire department										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing			Low	Existing	Fire District	fire district	Ongoing	Low cost mechanism to increase fire safety.		Low	Unknown
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			Low	Existing	planning and zoning	planning and zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Ongoing			Low	Existing	planning and zoning	planning and zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Ongoing			Low	Existing	planning and zoning	planning and zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing			Low	Existing	planning and zoning	planning and zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Ongoing			Low	Existing	planning and zoning	planning and zoning	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	fire department										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Low	Existing	Park board	park board	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	fire department										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	fire department										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	fire department										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing			Low	Existing	public works	Public works	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Ongoing			Low	Existing	Fire District	fire district	Ongoing	No/low cost mechanism to increase public safety.		Low	Unknown
Severe Thunderstorms													
1. Increase resilience of government buildings to power outages.													
Obtain a generator for the city hall, maintenance barn and the community center for power failures in the future	2015	Ongoing		Structure and Infrastructure Projects	Medium	new	COOP	City	2017	Ensure continuity of government operations.	600	100000	grants

Weston 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	New	Will work on getting information out through city newsletters and local media.	Administrative Offices & Police	April 2015	Low/no cost mechanism to increase public safety.		$250	General Fund
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	various discussion with city and trade										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	eop	American Red cross	Ongoing	Low/no cost mechanism to increase public safety.		$0	City budget
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Deferred	City hall, fire station has capabilities for emergency beds et. shower availability. Other city building are extreme age and not suited well for emergencies.										
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deferred	working with city government to adopt ordinances to prepare and complete safe rooms and shelters to new and existing buildings.										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Ongoing			Medium	New	Working with Planning & Zoning Commission to develop ordinances to implement tax incentives for construction.	Administrative city	December 2015	Tax incentives could defray otherwise high costs for developing safe rooms and will likely lead to greater acceptance.		$500	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			High	New	city planning and planning and zoning boards.	Board of Alderman and Planning and zoning.	Ongoing	Low/no cost mechanism to increase public safety.		Low	unknown
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Ongoing			High	Existing	for existing as well as new projects.	Board of Alderman and Planning and zoning.	Ongoing	Low/no cost mechanism to increase public safety.		Low	unknown
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			High	Existing	New and existing communication with contractors to implement these actions for safe constructions dealing with these hazards. Order brochures on this topic to disseminate with building permit applications.	Board of Alderman and Planning and Zoning	Ongoing	Low/no cost mechanism to increase public safety.		$250	General Fund
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			High	Existing	Board of Alderman with assistance of the Planning and Zoning board.	Board of Alderman and Planning and zoning	March 2015	Low/no cost mechanism to increase public safety.		Low	unknown
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Ongoing			High	Existing	New and existing buildings included. Updates regularly reviewed.	Board of Alderman and Planning and zoning board.	TBD	While may increase building costs, will lead to greater occupant safety		Medium	unknown
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Ongoing			High	Existing	Board of Alderman and Planning and zoning board.	planning and zoning and Board of Alderman	TBD	While may increase building costs, will lead to greater occupant safety		Low	unknown
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Ongoing			High	Existing	Utility Companies	utility companies	TBD	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		High	utility companies
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							Subdivision regulations require this. 2013				
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	not available through Weston at this time, but has been discussed.										
6. Update emergency sirens within five years.													
Look for grants to purchase updated sirens	2015			Local Plans and Regulations	High	Existing	Through police and city administration	City Police Department and Board of Aldermen	Spring 2017	Would ensure primary outdoor alerting system is functional.		Medium	Unknown
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing					emergency preparedness plan in conjunction with city street and water department	City of Weston	Ongoing	Low cost mechanism to identify r ways to prevent damages to residential properties		Low	City of Weston
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Medium	Existing	emergency preparedness plan in conjunction with city public works department. Working with FEMA/SEMA and DNR to look at funding for mitigation of flooding at local sewer lagoon system.	City of Weston	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	City of Weston is not involved with this process, but would be interested maybe in the future if available funds are available										
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	Floodplain Manager working with local residents on floodplain/floodway areas.	City of Weston	Ongoing	Preventing future flooding of properties that have had history of flood damage		Low	city of Weston
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	Planning & Zoning with Director of Public Works on new subdivisions.	City of Weston and contractors	Ongoing	Will prevent flooding for moderate costs		Medium	City of Weston and contractors
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			Medium	Existing	Park Board and Board of Aldermen to look at flood prone areas for possible park development.	City administration and Park board	December 2015	Will reduce floodplain vulnerability and increase city greenspace.		$500	General Fund
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			Medium	Existing	Board of Alderman and Park Board search for grant opportunities through federal agencies.	Board of Aldermen	December 2015	No/ or low cost to implement and require little staff support.		$500	General Fund
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Medium	Existing	Board of Aldermen and Park Board to research alternatives	City administration	December 2015	Will reduce floodplain vulnerability and increase city greenspace.		$500	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Deferred	Board of Alderman and Public Works Department and Planning and Zoning work and discuss these issues for implementation.										
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			High		New and existing. Accomplished through the emergency preparedness plan, Public Works department by town meeting and classes available through City of Weston	city of Weston	Ongoing	Low cost mechanism to improve floodplain management on local and regional levels.		Low	City of Weston
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	New and existing. Accomplished through the Public Works department per flood plain ordinances and training classes through emergency preparedness.	city of Weston	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		Low	City of Weston
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			High	Existing	New and existing. Accomplished through the Public Works department per flood plain ordinances and training classes through emergency preparedness.	city of Weston	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing			High	Existing	New and existing accomplished through the Public works departmental supervisor.	City of Weston	Ongoing	While initial cost may be high, will reduce recovery and replacement costs.		Low	City of Weston
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deferred	Not available at this time but the Board of Alderman would be interested through possible funding assistance										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			High	New	New and existing. accomplished through the public works department through city ordinances and training to the general public involved in these target areas.	City of Weston and flood plain managers.	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	City of Weston
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deferred	Not available through the city at this time, but through grants or other funding the city would possible entertain this concept.										
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Ongoing			High	Existing	New and existing these are accomplished through the city's ordinances and zoning restrictions.	City of Weston	Ongoing	Will provide legal mechanism to enforce floodplain management.		Low	City of Weston
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Ongoing			High	Existing	New and existing. accomplished through the Public Works department through regular zoning and city ordinances, flood plain managers.	City of Weston	Ongoing	Will reduce future vulnerability to flood.		Low	City of Weston
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deferred	Not available at this time but would be entertain the concept through available funding in the future.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	Existing	New and existing. In place from the flood plain and zoning ordinances.	City of Weston and or flood plain manager.	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	City of Weston
**b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Ongoing			High	Existing	New and existing. In place from the flood plain and zoning ordinances.	City of Weston and or flood plain manager.	Ongoing	Free program that can increase floodplain management .		Low	City of Weston
c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	the city is not aware of this program, but would be interested in possible purchasing with more information										
d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Deferred	city of Weston would be interested in this with more available information to review.										
e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Deferred	City of Weston does not have the HAZUS program, but there is available mapping issued through FEMA flood emergency management.										
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			High	Existing	New and existing Accomplished through the flood plain and building inspector manager.	Public Works, flood plain and building inspector /managers.	Ongoing	Will reduce recovery costs and ensure compliance with NFIP.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness plan, handout materials through all city personnel departments of police, public works and water department.	City of Weston personnel departments of water, public works and police department.	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	City of Weston
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness plan and director and mitigation plan.	City of Weston and emergency preparedness director.	Ongoing	No/low cost mechanism to encourage flood preparedness.		Low	City of Weston
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	New and existing. accomplished through the city's flood plain management and city ordinances and community rating system.	City of Weston	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	City of Weston
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	New and existing through the city public works department director and flood plaining manager.	city public works department director.	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	City of Weston
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Deferred	the city would be interested in this through proper funding availability.										
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			Medium	Existing	Emergency preparedness plan and FEMA/SEMA information.	Emergency preparedness	Ongoing	Sharing of data will improve county floodplain management.		$500	General fund
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			High	Existing	New and existing. Accomplished through the public works, water department and police department	City of Weston department supervisors.	Ongoing	Will ensure that citizens are prepared real time for flood events.		Low	City of Weston
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Ongoing			High	New	city ordinances	utility companies	Ongoing	Would reduce recovery costs and better limit damage/interruption to electrical and communications services.		Low	utility companies
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deferred	not available through the city of Weston, but is being discussed.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deferred	needs to be discussed with utility companies for a joint cooperative operation to enhance the infrastructures.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High	Existing	emergency operation plan with county in place for assistance.	City of Weston and or American red cross.	Ongoing	Low cost mechanism to ensure shelters are available and able to support diverse needs of populations.		Low	unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	emergency operation plan for the city	City of Weston other partner possibilities such as fire department, or church facilities.	Ongoing	Would ensure ADA compliance for emergency shelters.		Medium	unknown
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	in discussions with the Board of Alderman										
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			High	Existing	Emergency preparedness plan. Discussions with senior citizens.	City of Weston	in emergency plan	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		Low	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing			High	Existing	Work with KCP&L and Empire District to help with the elderly, low income and at-risk in the community.	City of Weston	Ongoing	Low cost mechanism to support vulnerable populations access to heating to prevent death/injury from exposure to winter storms.		Low	City of Weston
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing			High	Existing	Street department head plans funding during budget meeting	City of Weston	Ongoing throughout the year and continually updated	Will ensure continued open roadways.		Medium	City of Weston
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Ongoing			High	Existing	other city public works under memorandums of understanding.	City of Weston	Ongoing continually updated through street department	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	City of Weston
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Ongoing			High	Existing	existing assistance and understandings from other local public works departments	City of Weston	Ongoing	Low cost mechanism to cost share and increase availability of sand stockpiles.		Low	city of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. In an effort to reduce the number of people on the roadways during periods of severe winter weather, develop and implement "snow day" plans and policies for non-essential personnel and encourage private sector and non-profit employers in the community to	2010	Ongoing			High	Existing	verbal understanding with employees, but are plans to develop policy to address this issue.	City of Weston	Ongoing	Short-term potential lost productivity will be offset by savings from potential employee injury and also reduce traffic and delays that would otherwise occur.		Low	City of Weston
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
a. Develop and conduct a public education and awareness campaign on properly winterizing homes.	2010	Ongoing			High	Existing	Discussed with public meetings and other public functions. Include information in city newsletters and local media.	City of Weston	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	handout materials through emergency preparedness plan and police departments. Include in city newsletters and local media.	City of Weston	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing			High	Existing	Emergency preparedness plan Weston police department at public functions senior citizen meetings. Include in local media and city newsletters.	City of Weston	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing			High	Existing	through emergency preparedness plan, police department discussed at public functions and senior citizen visits.	City of Weston	Ongoing	No/low cost mechanism to increase public safety.		NA	City of Weston
Drought													
1. Assess the vulnerability of water systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Low	Existing	Work with city public works and water production departments.	City administration	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Unknown	unknown
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Ongoing			High	Existing	emergency operations plan in conjunction with city water plant.	City of Weston.	Ongoing	Relatively low cost mechanism to inform mitigation strategies		Unknown	City of Weston
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			High	Existing	emergency operations plan in conjunction with city water plant.	City of Weston.	Ongoing	Low cost mechanism to support drought response.		Low	City of Weston
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			Medium	Existing	Work with Public Works and Water Production departments to implement plan.	City administration	Ongoing	Low cost mechanism to support drought response.		Low	unknown
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			High	Existing	New and existing. Accomplished through the water production/distribution department heads.	City of Weston water department	Ongoing	Low cost mechanism to support drought response.		Low	City of Weston
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Ongoing			High	Existing	emergency preparedness plan handouts, classes and town meetings. Include information in city newsletters and local media.	City of Weston department heads.	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Ongoing			High	Existing	New and existing. accomplished through water and public works departments by the well head protection plans. Include information in city newsletters and local media.	Water department	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	City of Weston
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Ongoing			High	Existing	New and existing. accomplished through water and public works departments by the well head protection plans.	Water department	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	City of Weston
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Ongoing			High	Existing	New and existing. accomplished through water and public works departments by the well head protection plans.	Water department	Ongoing	Moderately low cost mechanism to increase support water conservation measures.		Low	City of Weston
c. Develop and implement water conservation ordinances.	2010	Ongoing			High	Existing	emergency preparedness plan handouts, classes and town meetings.	City of Weston department heads.	Ongoing	Low cost mechanism to increase support water conservation measures.		Low	City of Weston
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			High	Existing	New and existing. accomplished through city's budget, state and federal grants.	City of Weston	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	City of Weston.
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	New and existing. accomplished through the city bond and improvement money when available.	City of Weston	Ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	City of Weston
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	New and existing, accomplished through state and federal grant monies.	City of Weston	Ongoing	Low cost measure to offset high construction costs.		Low	City of Weston
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Ongoing			High	Existing	New and existing. partnership with West Platte School District several community churches through emergence preparedness partnerships	City of Weston	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			High	Existing	Most city buildings are air conditioned and so are the partnerships with the emergency preparedness plan.	City of Weston	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	City of Weston
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			High	Existing	Accomplished through emergency preparedness plan, police and fire departments through classes or public and senior citizen meetings.	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Ongoing			High	Existing	Accomplished through emergency preparedness plan, police and fire departments through classes or public and senior citizen meetings.	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Ongoing			Medium	Existing	Work with KCP&L to identify elderly, low income and at risk people in community. Establish ways to help with costs.	City administration	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			High	Existing	emergency preparedness plan	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Have adopted the Platte County emergency plan working in conjunction with them										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Ongoing			High	Existing	emergency preparedness plan, police and fire departments community groups such as senior citizens housing and other in need housing projects.	City of Weston	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	City of Weston
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			High	Existing	New and existing. Through the emergency preparedness plan, CERT groups, neighborhood watch.	City of Weston	Ongoing	Low cost mechanism to combat heat wave effects on vulnerable populations and entire community.		Low	City of Weston
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Deferred	There is no public swimming pool in Weston										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	through emergence preparedness plans, local police and fire departments, school or town meetings. Include in city newsletters and local media.	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	New and existing. preparedness hand out through police fire and city departments. Include in city newsletters and local media.	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Ongoing			High	Existing	New and existing. preparedness hand out through police fire and city departments/	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			High	Existing	New and existing. Police department has discussed this with senior citizens homes through emergency preparedness planning	City of Weston	Ongoing	Low cost mechanism to increase public safety.		Low	City of Weston
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	City of Weston is not aware of the HAZUS program, but would wish to benefit through more awareness of this program availability.										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	City not aware of program, but is in association of accomplishing these goals through the emergency preparedness plan.										
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	City of Weston is not aware of HAZUS, but again interested in becoming involved with the process.										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Ongoing			High	Existing	New and existing. accomplished through the IBC year 2000 building codes adopted by ordinance.	City of Weston	Ongoing	Low cost mechanism to increase building durability.		Low	City of Weston
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Ongoing			High	Existing	New and existing. accomplished through building codes for new buildings and public awareness to other infrastructures in our historic downtown area.	City of Weston	Ongoing	Low cost mechanism to increase building durability.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Ongoing			High	Existing	New and existing. Accomplished through regular ordinance.	City of Weston	Ongoing	Low cost mechanism to increase building durability.		Low	City of Weston
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Ongoing			High	Existing	New and existing. accomplish by public awareness information to the public through the regular ordinances, and training classes.	City of Weston	Ongoing	Low cost mechanism to increase building durability.		Low	City of Weston
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	city of Weston does not provide this at this time, but if funding was available to include this it could be an option.										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	Not available at this time by the city.										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	City would be interested in obtaining hand out material to disseminate to the public entities.										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness plan by providing materials and information to the public. Include in city newsletters and local media.	City of Weston	Ongoing	Low cost mechanism to inform citizens about benefits of insurance.		Low	City of Weston
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	The city is in discussion and information with local schools and other facilities.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Ongoing			High	Existing	New and existing. accomplished by water distribution department.	City of Weston Water department	Ongoing	Will keep system updated and current.		High	City of Weston
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	The city of Weston has no dams in its jurisdictional boundaries.										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness director.	City of Weston	Ongoing	Low cost mechanism to increase earthquake preparedness.		Low	City of Weston
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Ongoing			High	Existing	New and existing. Accomplished through town meetings with the emergency preparedness director and other city entities.	City of Weston	Ongoing	Low cost mechanism to increase earthquake preparedness.		Low	City of Weston
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness director and informational materials availability.	City of Weston	Ongoing	Low cost mechanism to increase earthquake preparedness.		Low	City of Weston
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	Not ongoing at this time, but would be interested through funding availability of material information to conduct these classes or training.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Ongoing			High	Existing	New and existing. accomplished through building code ordinance and IBC international codes.	City of Weston	Ongoing	Will reduce potentially extensive recovery costs.		High	City of Weston
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			High	Existing	New and existing. Accomplished through the emergency preparedness plan.	City of Weston	Ongoing	Low cost mechanism to ensure availability of emergency shelters.		Low	City of Weston
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	New and existing, Accomplished through the city department targeting city buildings and public entities for this.	City of Weston	Ongoing	Will ensure continuity of government operations.		Medium	City of Weston
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing			High	Existing	New and existing. Accomplished by the city departments water plant etc. by department of natural resources regulations.	City of Weston	Ongoing	Will ensure continuity of government operations.		Medium	City of Weston
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Deferred	We have no dams located in Weston.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Deferred	Weston has no dams in its city limits.										
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	Weston has no dams in its jurisdiction.										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Deferred	Weston has no dams in its city limits.										
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	Weston is near no dams within its jurisdictional boundaries.										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Deferred	Weston has no dams in its city limits.										
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	Weston has no dams in its city limits.										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	Weston has no dams in the city limits.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deferred	Weston has no dams in their jurisdiction.										
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Deferred	There are no dams located in Weston.										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deferred	There are no dams located in Weston										
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	There are no dams located in Weston.										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deferred	There are no dams located in Weston.										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	There are no dams located in Weston.										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred	there are no dams located in Weston.										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	There are no dams located in Weston.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deferred	There are no dams located in Weston.										
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Deferred	There are no dams located in Weston.										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	There are no dams located in Weston										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	There are no dams located in Weston.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	There are no dams located in Weston.										
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Ongoing			High	Existing	New and existing. emergency preparedness plan and in conjunction with west Platte fire district.	City of Weston/West Platte Fire District.	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		Low	City of Weston/West Platte Fire District.
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Ongoing			High	Existing	New and existing. emergency preparedness plan in conjunction with west Platte fire dist.	City of Weston	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		Low	City of Weston.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Ongoing			High	Existing	Emergency preparedness plans and West Platte fire dist.	City of Weston	Ongoing	Will identify areas for ongoing mitigation efforts at low cost.		Low	City of Weston.
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Ongoing			High	Existing	Accomplished through ongoing town meetings, senior citizens functions with west Platte fire and police department.	City of Weston	Ongoing	Relatively low cost mechanism to increase public safety and reduce recovery costs/losses from wildland fires.		Low	City of Weston
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	this is accomplished through class conducted by west Platte fire district in conjunction with the police department. Include in city newsletters and local media.	City of Weston/ West Platte Fire District.	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston/ West Platte Fire District.
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	New and ongoing. Accomplished through the West Platte Fire District.	West Platte Fire District.	Ongoing	No/low cost mechanism to increase public safety.		Low	West Platte Fire District.
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Ongoing			High	Existing	accomplished through mutual aid agreement, emergency preparedness plans and meetings with the public to instill awareness.	West Platte Fire District.	Ongoing	No/low cost mechanism to increase public safety.		Low	West Platte Fire District
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			High	Existing	verbally communicating with the board of alderman west Platte fire district and police department to accomplish this.	city of Weston	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deferred	no homeowners association, but have discussed with public service entities.										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deferred	No availability through the City of Weston at this time, but would encourage meetings with the city and planning and zoning.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Ongoing			High	Existing	addressed in the emergency preparedness plan and city regulations addressing our fire codes.	City of Weston	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston.
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deferred	Board of Alderman and Planning and Zoning to review and enhance.										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	Board of Alderman are addressing this issue and adopting a burn ordinance which at this time the city does not have.										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Ongoing			Medium	Existing	Weston Park Board work with other agencies such as West Platte Fire, and local property owners.	City administration	Ongoing	No/low cost mechanism to increase public safety.		Low	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Ongoing			Medium	Existing	Include in city newsletters and local media.	City administration	Ongoing	No/low cost mechanism to increase public safety.		Low	unknown
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deferred	City of Weston and West Platte Fire District are working in conjunction to identify and obtain funding.										
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deferred	West Platte Fire District and City of Weston working together to accomplish these goal.										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	West Platte Fire District is actively involved in the training of their personnel.										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing			High	Existing	City of Weston and West Platte Fire District ongoing through mutual aid agreements	West Platte Fire Department/ city emergency preparedness plan	Ongoing	No/low cost mechanism to increase public safety.		Low	City of Weston/West Platte Fire District.
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Ongoing			High	Existing	Board of Aldermen through city codes.	City administration	Ongoing	No/low cost mechanism to increase fire safety and limit damage from wildfires.		Low	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Ongoing			High	Existing	emergency preparedness plan in conjunction to policies and ordinances from the Weston Bend State Park, Division of Natural Resources.	City of Weston and Missouri Department of Natural Resources	Ongoing	No/low cost mechanism to increase fire safety and limit damage from wildfires.		Low	City of Weston and Missouri Department of Natural Resources.
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Ongoing			Medium	Existing	Board of Aldermen with Police Department	City administration	Ongoing	No/low cost mechanism to increase fire safety and limit damage from wildfires.		Low	Unknown

Northland Regional Ambulance District 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase number of available emergency shelters in district.													
Add number of shelters in area	2015	Ongoing		Structure and Infrastructure Projects	Medium	Existing	EOP	County/City	>2 year	Shelters would help decrease loss of life during event, and reduce exposure and medical need after event		Low	Unknown
Flooding													
1. Improve county roads in area to improve ability to respond to calls during flooding and high water from Platte River													
Improve county roads, bridges, levees as needed to reduce impact of flooding	2015	Ongoing		Structure and Infrastructure Projects	Medium	Existing	County based capital improvement planning	county	3 year	Improvements to infrastructure of roads could reduce impact of flooding in area to help improve response times to emergencies and access to several areas in district		High	Unknown
Winter Weather													
1. Improve winter weather response capabilities.													
Addition of specialized equipment to better handle emergency calls in severe winter weather.	2015	Ongoing		Local Plans and Regulations	High	New	Local	Local	1-2 years	Improvements to personal equipment as well as to ambulances and vehicles could increase productivity and safety reducing loss of life		Medium	Unknown
Heat Wave													
1. Cultivate new methods to ensure safety of those without ability to keep themselves/households cool													
Improve awareness and identify need of those without the ability to keep themselves cool	2015	Ongoing		Education and Awareness Programs	High	Existing	County/city	County/city	>1 year	Identifying individuals/families without the ability to keep cool would assist in improving health and decreases loss of life		Low	Unknown
2. Improve planning on cooling centers in district that work with EMS to ensure safety of individuals													
Evaluating and improving heat shelters/cooling centers for the community	2015	Ongoing		Local Plans and Regulations	High	Existing	County/city	County/city	>1year	Evaluating and improving upon cooling centers in place now to maximize effectiveness and need to reduce medical needs and loss of life		Low	Local funding
Severe Thunderstorms													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Improve on current alert systems to notify households in district of severe weather													
Improve alert systems to help warn community of severe weather threat.	2015	Ongoing		Local Plans and Regulations	Low	Existing	county based	county	2 year	Improving on current alert systems could help in loss of life and property during severe weather		Medium	Unknown
Improve education on how to respond to severe weather.	2015	Ongoing		Education and Awareness Programs	Low	New	county/city	County/City	>1 year	Improving education of individuals in community could assist in loss of life, property. As well as use for mitigation of post-severe weather		Low	Unknown
Hazardous Materials													
1. Improve training of employees to better identify, mitigate, and understand hazardous material releases													
Improving on training, identification, mitigation, and PPE of hazardous materials	2015	Ongoing		Local Plans and Regulations	Low	New	Local	Local	1-2 years	Improving knowledge and equipment available to handle these emergencies will better help organization to mitigate these and decrease loss of life and help reduce work injury	35 employees	$10,000	Local funding, Federal grant
Emerging Infectious Diseases													
1. Increase relations and communication with other surrounding communities, jurisdictions, hospitals and health departments to better respond to regional epidemics as they arise													
Increasing training and communication with local agencies (surrounding services, hospitals, health departments) to improve response to epidemics	2015	Ongoing		Local Plans and Regulations	Medium	Existing	Local	Local	1-2 years	Improving these relationships will help provide a more unified response reducing loss of life and increased spread of pathogen		$6,000	Local funding, Federal grant
2. Improve on training and equipment to new emerging disease vectors (Ebola, Measles, Mumps, Influenza)													
2. Improving training and equipment to help combat outbreaks	2015	Ongoing		Local Plans and Regulations	Medium	Existing	Local	Local	1-2 years	Improving training and equipment specific to emerging disease pathogens will help reduce loss of life as well as the health of medical professionals		$10,000	Grants
Mass Transportation Accidents													
1. Solidify relationships with local bus companies/school districts for assistance in mass casualty scenarios, nursing home evacuations, etc.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Solidifying relationships with local bus companies, schools and local governments to bring in needed assistance for mass transit incidents	2015	Ongoing		Local Plans and Regulations	High	Existing	Local/City/County	Local/City/County	1-2 years	Having these relationships in place will improve emergency response to mass transit accidents reducing loss of life and time on task		$5,000	Local funding, Federal grant
2. Work with surrounding agencies to ensure mutual aid agreements to respond to mass transportation accidents													
Work with local agencies, ensure mutual aid agreements, run drills to practice situations	2015	Ongoing		Local Plans and Regulations	High	Existing	Local/City/County	Local/City/County	1-2 years	Working on these relationships as well as training events will improve responses and reduce loss of life, time on task.		$6,000	Local funding, Federal grant
Transboundary Animal Disease Outbreak													
1. Improve TAD preparedness.													
Add additional training to staff and other healthcare providers to identify and help treat FAD	2015	Ongoing		Local Plans and Regulations	Low	New	Local/City/County	Local/City/County	1-2 years	Training and education to healthcare staff will help in responses to FAD		$2,000	Local funding, Federal grant
Terrorism													
1. Improve Terrorism preparedness.													
1. Continually work with other local public service agencies to plan, train, and upgrade current policies and practices as terrorism advances	2015	Ongoing		Local Plans and Regulations	Medium	Existing	Local/City/County	Local/City/County	continuing	Proper preparation and education of all responders at all levels together will help in any mitigation to a disaster spawned by terrorism		$20,000	Local funding, Federal grant

West Platte Fire Protection District 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase tornado preparedness.													
Provide education and awareness materials.	2015	Ongoing		Education and Awareness Programs	High	existing	LEOP	Fire	2015	Low cost mechanism to increase public safety.	5000	$1,000	budget
Construct community tornado safe room.		Ongoing			High	existing	LEOP	Fire	2017	Will provide tornado safety for residents.		High	budget
Severe Thunderstorms													
1. Increase severe thunderstorm preparedness.													
Provide education and awareness materials.	2015	Ongoing		Education and Awareness Programs	High	existing	LEOP	Fire	2015	Low cost mechanism to increase public safety.	5000	$1,000	budget

Ray County 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium	Existing	Emergency response plans for the county	Ray County Commission	ongoing	Low/no cost mechanism to increase public safety.		unknown	County Revenue
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	Not available										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Ongoing			Medium	Existing	Local Emergency response plans	Emergency Management Director	ongoing	Low/no cost mechanism to increase public safety.		unknown	County Revenue
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Medium	Existing	Building and codes enforcement. (Reviewed 2015)	emergency management director	ongoing	Public building occupants protected from tornadoes/high winds.		TBD by project	County revenue
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Deleted	County has no policy in place (Updated 2015)										
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deleted	No incentive policy in place (Updated 2015)										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Ongoing			Medium	Existing	Public education and awareness programs. (Reviewed 2015)	EMD	ongoing	Businesses will develop safe rooms.		unknown	county revenue
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deleted	county will not force construction (Updated 2015)										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Ongoing			Medium	Existing	Building codes enforcement	Planning and Zoning	Ongoing	Buildings built to code.		unknown	County revenue
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Medium	Existing	Building codes enforcement (Reviewed 2015)	planning and zoning	Ongoing	Low/no cost mechanism to increase public safety.		unknown	County Revenue
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	County does not have the ability to enforce private utility mitigation measures. (Updated 2015)										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Deleted	County does not have the ability to enforce private utility mitigation measures. (Updated 2015)										
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	County does not have the ability to enforce private utility mitigation measures. (Updated 2015)										
6. Increase the public's awareness and understanding of weather conditions that can produce tornadoes and steps that can be taken to keep safe during a tornado.													
Explore options for the distribution of weather radios.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Ray County Commissioners	2017	low/no cost way to communicate information about hazardous conditions to residents so that they can take action to protect themselves.	Unknown	low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Work with the National Weather Services to explore options for hosting Storm Spotter Training in Ray County.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Ray County Commissioners	2017	low/no cost way to educate the public about the hazards of tornadoes so that they know what to do.	Unknown	low	Unknown
7. Encourage community partners to update/maintain policies regarding outdoor activities.													
Encourage schools and sports leagues to review their policies regarding outdoor activities when hazardous conditions are present.	2015	Ongoing		Local Plans and Regulations	High	Existing	School policies and Sports League policies	Ray County Commissioners	2017	low cost way of addressing the safety of those people that are engaged in outdoor activities	unknown	low	Not applicable
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			High	Existing	Flood plane regulations (reviewed for 2015)	Planning and Zoning	Ongoing	Bridge project reduced cost of damage to properties.		Project dependent	As available
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			High	Existing	Flood plain management through the county. Re-evaluated in 2015. Kenney Creek project completed in 2012.	Planning and Zoning	Ongoing	Repetitive loss properties are able to be mitigated with minimal financial impact to landowner.		Defined by project	As available
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Floodplain management programs, both county and city. Re-evaluated for 2015.	Planning and Zoning	Ongoing	Repetitive loss properties eliminated and payouts minimized.		0	0
d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Deleted	No incentive programs available in the county (re-evaluated 2015).										
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Deleted	No plans to develop open spaces. Updated 2015.										
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Deleted	at this time, the county is not doing this. Updated 2015										
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Medium	New	Planning and zoning.	Planning and zoning.	Ongoing as projects are available	Increased public space and minimize development in floodplains.		TBD by project	TBD by project
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			Medium	New	Planning and zoning	Planning and zoning	Ongoing as available	Wildlife habitats sustained, future losses avoided.		TBD by project	TBD by project
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			Medium	New	Floodplain management program	Planning and zoning	Ongoing	Collaboration on ideas to improve floodplain mitigation.		No cost	N/a
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	advise all new builders of the flood plain codes and have them comply (Reviewed 2015)	planning and zoning	Ongoing	Requires cooperation of landowners to implement, but ultimately beneficial as will greatly reduce recovery costs and insurance rates.		Low	unknown
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			High	Existing	have spoke with local EMD from the cities and have spoke with them in regards to this item	local EMDs	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	unknown
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Deleted	No significant RLP in unincorporated parts of county (updated 2015)										
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			High	Existing	we are working with the core of engineers on several areas of the county (Updated 2015)	county commission	Ongoing	While initial cost is high, will reduce recovery and replacement costs.		Medium	unknown
f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Deleted	No incentive programs available in the county (updated 2015).										
4. Discourage new development in floodplains and flood-prone areas.													
a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Deleted	Current ordinance does not prohibit development in flood plains. (Updated 2015)										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Deleted	county is not discouraging new buildings in flood plain areas										
c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Deleted	county is not discouraging new construction with in the county (Updated 2015)										
5. Improve flood hazard assessments and flood mapping.													
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			High	Existing	Flood plain management program	Planning and zoning	Periodically updated	County has latest flood plain info to focus on flood plain issues.		TBD by extent of project	General revenue
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			High	Existing	flood plain management had done this years ago with in the county after 1993 flood (updated 2015)	planning and zoning	Ongoing	Latest available data		unknown	unknown
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			High	Existing	we always advise new construction of homes and business of flood plain areas with in the county (reviewed 2015)	planning and zoning	Ongoing	Homeowners are protected against potential losses.		0	N/a
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	Existing	Flood plain management	Planning and zoning	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	N/a
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	Existing	Flood plain management program	Planning and zoning	Ongoing, as new maps available	Supports floodplain management		No cost	N/a
8. Implement or improve flood warning systems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Determine the need for stream gauges in waterways without flood warning systems or additional stream gauges in waterways with flood warning systems already in-place.	2010	Ongoing			High	Existing	still working on this item for county (Reviewed 2015)Rivers have stream gauges	Planning and zoning	Ongoing	Flood warning allows for mitigation measures to be implemented as available.		0	0
f. Explore water flow management strategies to prevent flooding.	2015	Ongoing			High	Existing	Flood plain management program	Planning and zoning	Ongoing	Supports floodplain management		No cost	N/a
Winter Weather													
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Ongoing			High	Existing	working with the EMDs in each city with in the county	local EMDs	Ongoing	Low/no cost mechanism to increase public safety.		Low	unknown
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			High	Existing	currently working towards this	EMD	Ongoing	Low/no cost mechanism to increase public safety.		Medium	unknown
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing			High	Existing	Emergency Management Programs	County Commission	Ongoing as needed	Partnerships help defray costs and allow residents to be protected from winter weather exposure.		TBD by project	TBD

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Work with utility providers to develop and implement programs to reduce, eliminate or defer home heating costs for elderly, low income and at-risk people in the community.	2010	Ongoing			High	Existing			Ongoing	Low/no cost mechanism to increase public safety.		Low	County Commission Fund
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Complete							2015	Stockpiles of salt/sand help ensure roads are maintained and open.			
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Complete							2015				
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			Medium	Existing	Water district management plans (Updated 2015)	Water district	Ongoing	Ensures local municipalities have adequate water supply.		0	0
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	County not utilizing. (Updated 2015)										
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Ongoing			High	Existing	Water district management/ emergency operations plan	County commission/planning and zoning	2017	Development of a local drought plan will allow for emergency response to coordinate efforts to minimize impacts of drought.		No cost	N/a
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Ongoing			High	Existing	Water district management/ emergency operations plan	County commission/planning and zoning	2017	Development of a local drought plan will allow for emergency response to coordinate efforts to minimize impacts of drought.		No cost	N/a
c. Working with MARC, develop drought plans and water conservation programs.	2010	Ongoing			High	Existing	Emergency operations plan	EMD/ County commission	2020	Low cost mechanism to support drought response		Low	TBD
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deferred	Deferred until funding or regional initiative available (updated 2015).										
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deferred	Deferred until funding or regional initiative available (updated 2015).										
4. Encourage water conservation efforts by commercial, industrial and private water users.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deferred	Deferred until funding or regional initiative available. Will be continuing discussions with MARC to find opportunities to implement. (Updated 2015)										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deferred	no										
c. Develop and implement water conservation ordinances.	2010	Deleted	Municipal responsibility. (Updated 2015)										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Ongoing			Medium		county lets each city take care of their systems	cities	ongoing	Targeted and phased improvements will improve efficiency and reduce future recovery and replacement costs.		High	cities
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deleted	Municipal responsibility (Updated 2015).										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Ongoing			High	Existing	Water district improvement plans (Updated 2015)	Planning and zoning	ongoing	Low cost mechanism to offset costs.		Low	unknown
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as “heat emergency shelters" in the event of a heat wave.	2010	Ongoing			High	Existing	EMD Emergency Management Book	EMD	Ongoing	Would provide a community alternative to reduce deaths/injuries related to heat wave.		Low	Unknown
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Ongoing			High	Existing	Expansion of Eagleton Center USDA/MoDot	Commissioners	ongoing	Eagleton can house more people		unknown at this time	unknown at this time
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Ongoing			High	Existing	Health Department/Churches/Businesses	Commissioners	Ongoing	faster response time		Low	Unknown
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deferred	loss of funding										
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deferred	loss of funding										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Ongoing			High	Existing	Working with local EMDs in each town to assist in this operation / Health Department, Salvation Army, Local Hospitals and Eagleton Center	EMD	Ongoing	Low cost mechanism to increase public safety.		Low	Unknown
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	loss of funding										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	loss of funding										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Deferred	loss of funding										
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	loss of funding										
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Deferred	loss of funding										
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deferred	loss of funding										
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Deferred	loss of funding										
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
c. Adopt the most current edition of a model building code to address structural and architectural issues related to seismic events.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
d. Work with trade organizations to inform builders and developers of construction techniques and materials that may minimize earthquake damage to residential and commercial structures.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
a. Provide information to government and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, heavy furniture and other objects that can cause injuries and/or block exits if they topple due to seismic activity.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Ongoing			Medium	Existing	Emergency operations plan	EMD	Ongoing as projects available	Evacuees from New Madrid Seismic Zone are provided adequate shelter.		TBD by project	TBD by project
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing			Medium	Existing	Emergency Operations Plan/ COOP	EMD/ County Commission	Ongoing	Critical services/facilities are able to continue operations.		TBD by project	TBD by project
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deleted	Re-evaluation of vulnerability analysis determined threat from the hazard was insignificant to implement mitigation action (Updated 2015).										
Dam Failures													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			High	Existing	Emergency operations plan	EMD	Ongoing	Awareness of dam hazards		Unknown	General fund
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Ongoing			High	Existing	still working toward this	MDNR and USACE	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	no funds available at this time
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	EMD	EMD	Ongoing	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	no funds available
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	local public education effects	EMD	2020	Low cost mechanism to pre-plan and assess mitigation strategies for dam failures.		Low	unknown
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	no funding										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Deleted	County does not require (Updated 2015)										
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Deleted	lack of consensus (updated 2015)										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deleted	lack of consensus (updated 2015)										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Deleted	Dams in Ray County do not meet these requirements (Updated 2015)										
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deleted	Dams in Ray County do not meet these requirements (Updated 2015)										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deleted	Dams in Ray County do not meet these requirements (Updated 2015)										
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deleted	Dams in Ray County do not meet these requirements (Updated 2015)										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Deleted	There are no county owned dams. (Updated 2015)										
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deleted	No recreational areas in dam failure pathways. (Updated 2015).										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deleted	Insignificant threat of dam failure in the county (Updated 2015)										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deleted	Insignificant threat of dam failure in the county (Updated 2015)										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Deleted	unknown										
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Ongoing			High	Existing	working with local fire departments on this issue	county commissioners	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	county does not use this item										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	no funding										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deleted	no funding										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deleted	no funding										
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deleted	no funding										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Deleted	unknown										
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Deleted	N/A										
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	N/A										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deleted	lack of consensus										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deleted	N/A										
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Ongoing			Low	Existing	refer to local fire departments to handle burn permits	local fire department	Ongoing	Low cost mechanism to increase public safety.		Low	Local fire departments
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deleted	lack of consensus										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	no funding										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Deleted	no funding										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deleted	no funding										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deleted	no funding										
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Ongoing			Medium	Existing	county leaves this option for the local fire departments with in the county	local fire departments	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Ongoing			Medium	Existing	local fire departments	local fire departments	Ongoing	Low cost mechanism to increase public safety.		Low	unknown
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Ongoing			High	Existing	local fire departments and districts	local and fire districts departments	ongoing	Low cost mechanism to increase public safety.		Low	unknown
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Ongoing			High	Existing	depends on weather conditions	local and fire districts	ongoing	Low cost mechanism to increase public safety.		Low	unknown
Severe Thunderstorms													
1. Increase the public's awareness and understanding about the hazards associated with severe thunderstorms including lightning and high winds.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Explore options for the distribution of weather radios.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Ray County Commissioners	2017	low/no cost way to communicate information about hazardous conditions to residents so that they can take action to protect themselves.	Unknown	low	Unknown
Work with the National Weather Services to explore options for hosting Storm Spotter Training in Ray County.	2015	Ongoing		Education and Awareness Programs	High	New	Explain	Ray County Commissioners	2017	low/no cost way to educate the public about the hazards of severe thunderstorms so that they know what to do.	Unknown	low	Unknown
Encourage cities to post "When the thunder rolls" signs for parks and play areas.	2015	Ongoing		Education and Awareness Programs	Medium	Existing	Explain	Ray County Commissioners	2018	low cost way of reminding public to take shelter in case of a severe thunderstorm	Unknown	low	Ray County budget
2. Encourage community partners to update/maintain policies regarding outdoor activities.													
Encourage schools and sports leagues to review their policies regarding outdoor activities when hazardous conditions are present.	2015	Ongoing		Local Plans and Regulations	High	Existing	School policies and Sports League policies	Ray County Commissioners	2017	low cost way of addressing the safety of those people that are engaged in outdoor activities	unknown	low	Not applicable
Levee Failures													
1. Explore ways of maximizing the effectiveness of levee districts to monitor and maintain the levees.													
Educate residents living in flood plain areas near levees on the importance of forming a viable levee district and the importance of maintenance fees.	2015	Ongoing		Education and Awareness Programs	High	Existing	Explain	Ray County Commissioners	2017	low cost way of ensuring the		Low	Unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Work to strengthen and broaden existing levee districts to ensure that they have tools available to maintain the levees.	2015	Ongoing		Local Plans and Regulations	High	Existing	Levee District Policies and Organizational structure	Ray County Commissioners	2017	Low cost mechanism to increase public safety.		Low	Unknown

Richmond 2015 Mitigation Strategy (*New Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Tornado													
6. Ensure that systems are in place to communicate tornado warnings.													
Maintain tornado warning systems to be able to communicate effectively to the public when there is a tornado warning.	2015	Ongoing		Structure and Infrastructure Projects	High	Existing	Local Emergency Operations Plan	City of Richmond Fire Dept	Explain	low cost method of communicating need to seek shelter to stay safe	6000	low	Richmond City Budget
7. Update plans to ensure that current resources and information is included for quick and effective response to a tornado.													
Update the Local Emergency Operations Plan to include current shelter and city staff contact information .	2015	Ongoing		Local Plans and Regulations	Medium	Existing	Local Emergency Operations Plan	City of Richmond Fire Dept	Explain	Being able to access resources (shelters, staff, etc) in a timely manner may help prevent further injury from a tornado and possibly save lives.	unknown	low	Richmond City Budget
8. Educate and raise awareness about the variety of roles and responsibilities needed before and after a tornado.													
Provide opportunities like workshops and exercises to inform city staff and volunteers about the difference roles and responsibilities needed after a tornado.	2015	Ongoing		Education and Awareness Programs	Medium	New	Local Emergency Operations Plan	City of Richmond Fire Dept	Explain	Trained staff and volunteers will be able to assume roles and responsibilities more quickly.	unknown	low	Richmond City Budget
Flooding													
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Will prevent flooding for moderate costs		Medium	Richmond City Budget
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Will greatly reduce and offset construction costs and limit recovery costs.		Medium	Richmond City Budget
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Richmond City Budget
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Most data readily available and can be easily imported to identify potential areas for increased mitigation efforts.		Low	Richmond City Budget
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Will allow for better assumptions to support mitigation activities.		Low	Richmond City Budget
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Will ensure reduced insurance rates for homeowners and businesses while controlling recovery costs.		Low	Richmond City Budget
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			Low	New	Floodplain management	Community Development	Ongoing	Having and maintaining most current FIRM map editions will allow for most accurate review of floodplain management.		Low	Richmond City Budget
Severe Thunderstorms													
1. Increase public awareness and understanding about the hazards associated with thunderstorms such as lightning and high winds.													
Provide the public with information about keeping safe during a thunderstorm and ways to protect property from damage during severe thunderstorms.	2015	Ongoing		Education and Awareness Programs	High	New	Local Emergency Operations Plan	City of Richmond Fire Dept	Ongoing	low cost way of increasing safety for public and protecting property from hazards associated with Severe Thunderstorms	Unknown	low	Richmond City Budget

Kansas City 2015 Mitigation Strategy *(Continuing Plan Participant, NFIP Participant)*

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Civil Disorder													
1. Decrease the possibility of civil disorder thus mitigating any effects													
Increase interaction with public and civic groups	2015	Ongoing		Education and Awareness Programs	high	both	Internal Kansas City Health Dept. mechanism	KCHD / Aim 4 Peace	Ongoing	low cost per capita	thousands	low (<$10k)	DOJ Grant Funds
Enhance public awareness of violence prevention	2015	Ongoing		Education and Awareness Programs	high	both	Internal Kansas City Health Dept. mechanism	KCHD / Aim 4 Peace	Ongoing	low cost per capita	456k+	med ($10k - $100k)	DOJ Grant Funds
2. Improve the capabilities of the Police Department to allow 1st Amendment rights while mitigating the effects of civil disorder through providing public safety, security and protecting property													
Enhance police capability to respond to civil disorder through improvements in technology	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding sources to enhance police capability to respond to civil disorder through improvements in technology	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Identify and conduct training courses and exercises to mitigate acts of civil disorder	2015	Ongoing		Education and Awareness Programs	high	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	medium cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Research and implement latest technology and best practices to monitor and communicate with local public and civic groups through social media to ensure safe public protests.	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Research and implement latest technology to enhance surveillance capabilities to monitor and ensure public safety	2015	Ongoing		Structure and Infrastructure Projects	high	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	high cost per capita	456k+	high (>$100k)	sources unidentified at this time
3. Improve the EOC capabilities to monitor incidents of civil disorder and mitigate the loss of life and property.													
Upgrade and enhance surveillance technology and systems	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Local Emergency Ops Plan	OEM	Ongoing	high cost per capita	456k+	high (>$100k)	General Fund
Develop, implement, and conduct training programs for personnel assigned to monitor surveillance systems	2015	Ongoing		Education and Awareness Programs	medium	new	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
4. Mitigate aviation facilities as targets of and prevent or reduce any damage as a result of civil disorder													
Improve and upgrade surveillance equipment to identify possible threats to aviation facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	high cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve and upgrade illumination of exterior areas of aviation facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	2019	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Provide new and improve existing hard barriers protecting aviation facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	2019	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research and identify improved security features to protect from and mitigate damage to aviation facilities as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify funding sources to research, identify, and implement improved security features to protect from and mitigate damage to aviation as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Upgrade and enhance barrier capability to deter any heavy damage to aviation facilities and the airfield	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Enhance and upgrade surveillance and detection systems to prevent intrusion and monitor activity in and around aviation facilities.	2015	Ongoing		Structure and Infrastructure Projects		both	Internal Aviation mechanisms	Aviation	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Enhance and upgrade capability to communicate and provide instructions to personnel, visitors, and those engaged in the acts of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	low	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
5. Improve the capabilities of Aviation Department personnel to mitigate damage from civil disorder													
Identify and conduct training for personnel to mitigate or prevent damage from civil disorder	2015	Ongoing		Education and Awareness Programs	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
6. Increase awareness of personnel in recognizing and mitigating potential incidents of civil disorder													
Identify and conduct training and exercise for personnel in identifying and responding to acts of civil disruption	2015	Ongoing		Education and Awareness Programs	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
7. Mitigate public facilities as targets of and prevent or reduce any damage as a result of civil disorder													
Improve and upgrade surveillance equipment to identify possible threats to public facilities	2015	Ongoing		Structure and Infrastructure Projects	high	both	Information Technology and Public Works partnering with General Services	General Services	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve and upgrade illumination of exterior areas of public facilities	2015	Ongoing		Structure and Infrastructure Projects	high	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Provide new and improve existing hard barriers protecting public facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research and identify improved security features to protect from and mitigate damage to public facilities as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	high	both	General Services internal mechanisms	General Services	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding sources to research, identify, and implement improved security features to protect from and mitigate damage to public facilities as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	high	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
8. Improve capability to monitor and provide situational awareness of public gatherings to prevent or mitigate the potential for civil disorder													
Improve and upgrade visual surveillance capabilities and provide safeguards for the assets	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Research and implement enhanced operational methods and technology to utilize improved visual surveillance capabilities most effectively	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve and upgrade illumination of streets and right of ways	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Ensure illumination sources for streets are not hampered by arboreal growth	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
9. Mitigate or prevent any damage as a result of civil disorder to public and recreational areas and facilities													
Improve and upgrade surveillance equipment to identify possible threats to public facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve and upgrade illumination of exterior areas of public facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Research and identify improved security features to protect from and mitigate damage to public facilities as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding sources to research, identify, and implement improved security measures to protect from and mitigate damage to public facilities as a result of civil disorder	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Cyber Disruption													
1. Improve Police Department's capability to monitor, prevent, and respond to cyber disruptions and cyber terrorism.													
Enhance and upgrade capability to collect and analyze data from varied sources in order to maintain global and local situational awareness in order to prevent or mitigate any acts of cyber terrorism.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Identify funding source to enhance and upgrade capability to collect, analyze, and monitor social media to maintain global and local situational awareness.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify funding source to improve operational capabilities to prevent cyber attacks.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Work with local partners to increase situational awareness and reporting of suspicious activity.	2015	Ongoing		Education and Awareness Programs	medium	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify resources to allow personnel to receive training to improve operational capabilities.	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Identify and conduct in-house training courses for personnel to enhance operational capabilities.	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Collaborate with Federal, State, and other agencies to support and enhance TEW operational capabilities.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
2. Increase public awareness of cyber security to increase resiliency and mitigate potential for cyber disruption and cyber terrorism													
Enhance public awareness to report suspicious activity through public education.	2015	Ongoing		Education and Awareness Programs	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Provide public information materials and disseminate information through various social media avenues to increase public resiliency to cyber attacks and identity theft	2015	Ongoing			low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
3. Ensure EOC operability during incidents of cyber disruption to assist in mitigating further losses													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research and utilize technological advancements in communications	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Upgrade and enhance redundant communication systems	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Local Emergency Ops Plan	OEM	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Upgrade and enhance existing network systems to increase resiliency to cyber disruptions	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Office of Emergency Management with IT	OEM	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
4, Enhance Aviation Department's ability to prevent or mitigate any damage from cyber disruption													
Research and implement advances technology and procedures to detect and prevent cyber intrusion	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify and conduct training and exercise for personnel in cyber security	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Improve and increase redundancy and external disaster recovery sites to mitigate any damage from cyber disruption	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
5. Increase awareness for personnel regarding the threat and damage to increase resiliency against of cyber disruption and cyber terrorism													
Identify and conduct training and exercises to increase awareness regarding the threat and damage of cyber disruption and cyber terrorism	2015	Ongoing		Education and Awareness Programs	high	both	IT partnering with other agencies/departments	Information Technology	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
6. Improve resiliency of city cyber systems and networks to cyber attacks													
Research and implement alternative procedures and technology to improve cyber security.	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Implement, improve, and enhance redundant equipment and systems to mitigate any cyber disruption	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Upgrade and improve current secondary communications capabilities to ensure continued operations during and disruptions to the cyber network	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
7. Improve resiliency of the Water Department and mitigate damage from cyber disruptions													
Identify and conduct training and exercise for information technology personnel in the Water Services Dept. in monitoring cyber threats and terrorism	2015	Ongoing		Education and Awareness Programs	medium	existing	Internal Water Services mechanisms	Water Service	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Enhance and increase monitoring of cyber threats and terrorism to water systems	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Improve and ensure operational function of mechanical overrides in the event of cyber disruption	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Dam Failures													
1. Improve hazard assessment information for dams across the Kansas City metropolitan area.													
a. Work with MDNR's Water Resources Program and USACE to determine which dams in Cass, Clay, Jackson, Platte and Ray counties have had inundation studies, inundation pathway maps and emergency action plans developed.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	Utility Funds
b. Using the latest information from the NID, MDNR's inventory of dams and other sources, develop GIS layers and maps indicating the locations, inundation pathways and hazard potential of known dams within the Kansas City metropolitan area.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	Water Service Dept,Office of Emergency Management, Other
c. Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure.	2010	Deferred	n/a										
d. Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	Water Service Dept,Office of Emergency Management,
2. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities.													
a. Work with MDNR and USACE to conduct a public education campaign to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams.	2010	Deferred	This strategy has not been addressed.										
b. Collect and disseminate public education materials that address dam safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	Water Service Dept,Office of Emergency Management, Other

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Provide property owners in or near the inundation pathways of dams with information on dam safety, preparedness and mitigation activities.	2010	Deferred	This strategy has not been addressed.										
d. Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures, particularly those that are more than 50 years old.	2010	Deferred	This strategy has not been addressed.										
3. Reduce the potential for dam failures by enhancing inspection efforts.													
a. For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results of these inspections to MDNR.	2010	Ongoing			High	Existing	City Planning and Development, Water Services Dept.	City Planning Development, Water Service Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	City Planning Development, Water Service Dept.
b. Adopt codes or ordinances requiring permits, engineering studies and safety certifications prior to the construction of new dams.	2010	Ongoing			High	New	City Planning and Development, Water Services Dept.	City Planning Development, Water Service Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	City Planning Development, Water Service Dept.
c. Encourage the state to provide MDNR's Water Resources Program with funding necessary to regularly inspect all significant and high hazard dams in the state.	2010	Ongoing			High	Existing	City Planning and Development, Water Services Dept.	City Planning Development, Water Service Dept.	on-going	low cost per capita	456k+	low (<$10k)	City Planning Development, Water Service Dept.
d. Adopt local ordinances and/or state laws requiring all dam owners do develop emergency action plans for their dams and provide local public safety agencies with copies of these plans.	2010	Deferred	The States DNR is working with private dam owners on emergency action plans.										
4. Reduce the potential for dam failures by adding to the number of dams regulated by the state.													
a. Contact representatives in the state legislature to propose changes in state law lowering the height limit for regulated dams to 25 feet on those holding back 50 acres or more of water.	2010	Ongoing			High	Existing	City Planning and Development, Water Services Dept.	City Planning Development, Water Service Dept.	2014	low cost per capita	456k+	low (<$10k)	City Planning Development, Water Service Dept.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Revise existing dam safety laws and/or regulations to add all high hazard dams to the list of regulated dams, regardless of dam height and reservoir storage capacity, until the hazard potential of these dams can be downgraded.	2010	Deferred	Strategy not addressed at this time.										
5. Improve the structural integrity of dams to reduce the threat of dam failures.													
a. Identify and pursue grants and/or low interest loans to repair or improve dams.	2010	Deferred			High	Existing	City Planning and Development, Water Services Dept.	City Planning Development, Water Service Dept.	Deferred				Water Service Dept, USGS, Other
b. Encourage dam owners to repair or upgrade their dams, particularly those that are more than 50 years old, by offering them a reduction in property taxes or similar financial incentive.	2010	Deferred	Strategy not addressed at this time.										
c. Budget for regular repairs and improvements to dams, particularly those that are publicly owned.	2010	Ongoing			Medium	Existing	The Storm water Engineering Group, of the City's Water Services Department, handles funding and repairs for 5 small dam structures that have come under City control.	Storm water Engineering Group / Water Services Department	Ongoing	high cost per capita	456k+	Approx. 3 Million $ p/ year	N/A
d. Develop and implement codes and ordinances requiring minimum site and construction standards for dams.	2010	Complete							6/19/86				
6. Improve warning and evacuation systems and procedures in the event of dam failure.													
a. Where feasible, add outdoor warning sirens to campgrounds and other recreational areas downstream from dams.	2010	Deferred	The City has no specific warning system designed for dam failure(s). The City has an extensive flood warning system that consists of 75 sites in the City's 318 square miles. The sites are designed to cover flooding in streams but would pick up water flow and would alarm from a dam failure event.										
b. Work with dam owners, particularly USACE, emergency management and other public safety agencies to develop and conduct emergency response exercises.	2010	Deferred	Strategy not addressed at this time.										
c. Adopt policies, codes or ordinances discouraging development in the vicinity of dam inundation zones.	2010	Deferred	Strategy not addressed.										
7. Improve the EOC capability to monitor and mitigate potential dam failures													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Develop a contact list for agencies/individuals involved with dam operations	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Water Department, OEM, and other organizations	Water Dept., OEM	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Coordinate with Water Dept., dam stakeholders, and other groups associated with dam operations	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Water Department, OEM, and other organizations	Water Dept., OEM	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
8. Ensure continued operability of dam to prevent failure and resulting damage to the KCI facilities.													
Enhance environmental control and erosion prevention to maintain the integrity of the KCI dam	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	high cost per capita	456k+	high (>$100k)	sources unidentified at this time
9. Improve hazard assessment information for dams within Kansas City, MO													
Work with MDNR's Water Resources program and USACE to determine which dams in the Kansas City regional area have had inundation studies, inundation pathway maps, and emergency action plans developed	2015	Ongoing		Structure and Infrastructure Projects	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	low (<$10k)	Utility funds
Using the latest information from the NID, MDNR's inventory of dams, and other resources, develop GIS layers and maps indicating the locations, inundation pathways, and hazard potential of known dams within the Kansas City metropolitan area.	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Obtain assessed valuation data and population figures for areas in the vicinity of dam inundation pathways so that enhanced vulnerability assessments may be conducted describing the number of lives and amount of property at risk from dam failure	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Include maps and information from inundation studies and dam emergency action plans in local emergency operations and land use plans	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify and estimate the height of all dams within the Kansas City metropolitan area	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Prioritize by GIS the size and volume of the dams within the Kansas City metropolitan area under normal and full volume conditions	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
10. Enhance public awareness of the hazards associated with dam failures, as well as mitigation and preparedness activities													
Work with partners to conduct public education campaigns to inform citizens living near the inundation pathways of dams of the need to be familiar with the emergency action plans for these dams	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Collect and disseminate public education materials to property owners near on in inundation pathways of dams that address dam safety, preparedness, and mitigation activities	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Conduct a public education campaign to inform dam owners and citizens living near the inundation pathways of dams about the need to properly maintain and upgrade these structures - particularly those that are more than 50 years old	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
11. Reduce the potential for dam failures by enhancing inspection efforts													
For dams not regulated by the state, encourage dam owners to inspect their dams at least annually and submit the results to MDNR	2015	Ongoing		Local Plans and Regulations	high	existing	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Adopt codes or ordinances requiring permits, engineering studies, and safety certifications prior to the construction of new dams	2015	Ongoing		Local Plans and Regulations	high	new	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Adopt local ordinances and/or state laws requiring all dam owners to develop emergency action plans for their dams and provide local public safety agencies with copies of these plans	2015	Ongoing		Local Plans and Regulations	high	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
12. Improve the structural integrity of dams to reduce the threat of dam failures													
Identify and pursue grants to repair or improve dams	2015	Ongoing		Structure and Infrastructure Projects	high	existing	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Encourage dam owners to repair or upgrade their dams, particularly those that are more 50 years old, by offering them a reduction in local taxes or similar financial incentive	2015	Ongoing		Local Plans and Regulations	high	existing	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Mandate for regular repairs and improvements to dams within the Kansas City metropolitan area owned by the city and privately	2015	Ongoing		Structure and Infrastructure Projects	high	existing	State of Missouri with City Planning & Development and Water Services	Missouri, City Planning & Development, Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Develop and implement codes and ordinances requiring minimum site and construction standards for dams	2015	Ongoing		Local Plans and Regulations	high	new	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	2017	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
13. Improve warning and evacuation systems and procedures in the event of dam failure													
Where feasible, add and maintain outdoor warning systems to campgrounds and other recreational areas downstream from dams	2015	Ongoing		Education and Awareness Programs	high	existing	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	hundreds	high (>$100k)	USGS & other
Adopt policies, codes, or ordinances to discourage development in the vicinity of dam inundation zones	2015	Ongoing		Local Plans and Regulations	high	new	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	2017	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Drought													
1. Assess the vulnerability of water systems.													
a. Conduct an assessment of the vulnerability and water use demand of local water systems by utilizing the procedures in the Missouri Drought Plan.	2010	Ongoing			High	New	Water Services Dept., National Weather Service Forecast, Dam release plan.		2019	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
b. Partner with MDNR (Public Drinking Water and Water Resources Programs) and USDA to use USDA's Reservoir Operation Study (RESOP) computer program to determine the performance capacity of local reservoirs.	2010	Deleted	No need for the plan, other methods are available.							unknown			
2. Ensure plans and procedures addressing local drought response, drought mitigation and long-term water planning are developed.													
a. Review the Missouri Drought Plan, as well as local drought plans available from MDNR, and develop a local drought plan.	2010	Deferred	No serious issues in recent years, also a lack of funding and need for a plan.							unknown			
b. Develop local procedures implementing the provisions of the Missouri Drought Plan.	2010	Deferred	No need to implement.							unknown			
c. Working with MARC, develop drought plans and water conservation programs.	2010	Deleted	No need to work with MARC on drought plans										
3. Enhance public awareness of drought, drought mitigation, state and local drought response actions and water conservation measures.													
a. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.	2010	Deleted	Plan is already in public attention through the Green Campaign										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Collect and disseminate public education materials that address water conservation techniques and strategies, particularly those addressing agricultural drought mitigation and management.	2010	Deleted	Plan is already in the publics attention through Green Campaign.										
4. Encourage water conservation efforts by commercial, industrial and private water users.													
a. Develop and implement a program to encourage voluntary water conservation.	2010	Deleted	Plan is already in publics attention via Green Campaign										
b. Offer economic incentives to encourage water conservation, e.g., through modification of water rate structures.	2010	Deleted	Plan is already in publics attention via Green Campaign										
c. Develop and implement water conservation ordinances.	2010	Deleted	Plan is not needed										
5. Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.													
a. Budget for infrastructure improvements to municipal water systems.	2010	Deferred	Action is covered by water demand issues and fire protection										
b. Develop and approve bond measures to fund improvements to municipal and/or water district water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Action is covered by water demand issues and fire protection										
c. Identify and apply for state and federal grants to improve water treatment plants, transmission systems, water mains and related infrastructure.	2010	Deferred	Action is covered by water demand issues and fire protection										
6. Increase public awareness on procedures to mitigate the effects of drought													
Include drought information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Research and utilize social media to share drought and safety information	2015	Ongoing		Education and Awareness Programs	low	existing	Internal OEM mechanisms	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Provide drought preparedness information to public and private individuals and organizations	2015	Ongoing		Education and Awareness Programs	low	both	Internal OEM mechanisms	OEM	Ongoing	low cost per capita	456k+	med ($10k - $100k)	General Fund
7. Obtain an informed assessment of water consumption within the City of Kansas City, MO to identify areas of improved conservation													
Research and identify methods to track water usage within public buildings	2015	Ongoing		Structure and Infrastructure Projects	low	both	Water Services partnering with General Services	General Services	2020	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding sources to identify and implement methods to track water usage within public buildings	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	2020	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
8. Reduce water consumption and increase water conservation efforts													
Utilize best management practices in watering techniques and management for landscaping to reduce water need and consumption	2015	Ongoing		Structure and Infrastructure Projects	low	both	Parks and Recreation partnering with General Services	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Research and implement water conservation technologies for new and existing public facilities	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding sources to research best management practices in watering techniques and management for landscaping to reduce water need and consumption	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify funding sources to research water conservation technologies to reduce water need and consumption.	2015	Ongoing		Education and Awareness Programs	low	both	Water Services partnering with General Services	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
9. Increase resiliency and mitigate any effects of drought on public and recreational areas and facilities													
Implement procedures to increase the use of native species for landscaping purposes	2015	Ongoing		Natural Systems Protection	low	new	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Research and implement the capabilities of Kansas City, MO's fountains to pump and recirculate water	2015	Ongoing		Structure and Infrastructure Projects	low	existing	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
10. Improve resiliency to and mitigate damage from prolonged periods of drought													
Develop and implement a plan to mitigate and respond to drought	2015	Ongoing		Local Plans and Regulations	medium	existing	Coordinate Water Services with Office of Emergency Management and other departments	Water Services	2017	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Earthquake													
1. Improve technical analysis of earthquake hazards and enhance earthquake vulnerability and risk assessment for the Kansas City metropolitan area.													
a. Purchase HAZUS software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Deferred	Pending funds										
b. Coordinate the collection of demographic, economic, geologic and other data required by the HAZUS software program.	2010	Deferred	pending funds										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Conduct an in-depth earthquake risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from seismic activity and further assist in prioritizing mitigation activities and assessing the adequacy of current land use policies, building codes and other measures related to earthquake mitigation.	2010	Deferred	pending funds										
2. Review and update building codes to improve seismic safety standards for new or renovated buildings, especially critical facilities.													
a. Determine the levels of seismic forces that structures must be designed to withstand.	2010	Deferred	pending funds										
b. Require the use of tempered or shatter-resistant glass in the windows of new public facilities and private facilities where large numbers of people may congregate (i.e., day care centers). Retrofit existing facilities with similar materials.	2010	Deferred	Pending funds; certain requirements met for other reasons.										
3. Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.													
a. Explore options for including seismic retrofitting in existing programs, such as low-income housing, insurance reimbursements and pre- and post-disaster repairs.	2010	Deferred	Pending funds										
b. Provide information to property owners, small businesses and community organizations on sources of funds (low interest loans, grants, etc.) that may be used for seismic retrofit projects.	2010	Deferred	Pending funds										
4. Encourage the purchase of earthquake hazard insurance.													
a. Provide earthquake insurance information to Kansas City metropolitan area residents.	2010	Deferred	Pending funds										
b. Work with insurance companies and organizations, such as the Missouri Insurance Coalition and Missouri Insurance Information Service, to produce and distribute earthquake insurance information.	2010	Deferred	Pending funds										
5. Encourage seismic strength evaluations of critical facilities and potentially at-risk structures in the Kansas City metropolitan area to identify vulnerabilities and bring these structures up to current seismic standards.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Develop an inventory of critical facilities, schools, universities and other public facilities that do not meet current seismic standards.	2010	Deferred	Pending funds										
b. Encourage water providers to replace old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement.	2010	Deferred	Pending funds										
c. Encourage owners of significant and high hazard dams to ensure these structures meet current seismic standards.	2010	Deferred	Pending funds										
6. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses and public facilities.													
government and school facility	2010	Deferred	Pending funds										
b. Encourage facility managers, business owners and teachers to review FEMA's earthquake mitigation guidebook entitled, "Reducing the Risks of Nonstructural Earthquake Damage".	2010	Deferred	Pending funds										
c. Encourage homeowners and renters to use the IBHS publications, "Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit" and "Protect Your Home Against Earthquake Damage," for practical and economic earthquake protection	2010	Deferred	Pending funds										
d. Partner with other stakeholders to provide earthquake retrofitting classes for homeowners, renters, building professionals and contractors.	2010	Deferred	Pending funds										
e. Target development located in potentially unstable soils or sloping terrain for education and retrofitting resources.	2010	Deferred	Pending funds										
7. Ensure local governments and human services agencies are aware of facilities across the Kansas City metropolitan area with generators or emergency power that can be used as shelters in the event of an earthquake.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory structurally sound (and meeting current seismic standards, if possible) public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of a damaging earthquake.	2010	Deferred	Pending funds										
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Deferred	Pending funds										
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Deferred	Pending funds										
8. Increase public awareness on procedures to mitigate the effects of earthquake													
Include earthquake information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Research and utilize social media to share earthquake safety information	2015	Ongoing		Education and Awareness Programs	low	existing	Internal OEM mechanisms	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Provide earthquake preparedness information to public and private individuals and organizations	2015	Ongoing		Education and Awareness Programs	medium	existing	Internal OEM mechanisms	OEM	Ongoing	low cost per capita	456k+	med ($10k - $100k)	General Fund
Encourage participation of city personnel and public in national events such as the annual Great Shakeout Drill	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	3500+	low (<$10k)	General Fund
9. Enhance EOC capabilities to mitigate loss of life through assisting local, regional, state, and federal agencies in sheltering evacuees from earthquake afflicted areas													
Enhance mass care capabilities to shelter evacuees from areas affected by earthquake	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Partnerships between OEM and volunteer organizations	OEM	Ongoing	medium cost per capita	tens of thousands	high (>$100k)	General Fund
Develop and enhance relationships with mass care coordinating agencies	2015	Ongoing		Local Plans and Regulations	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	tens of thousands	low (<$10k)	General Fund
Implement, coordinate, and conduct shelter management training to local volunteers	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	thousands	low (<$10k)	General Fund
10. Improve the capabilities of urban search and rescue teams to reduce the loss of life in collapsed building techniques													
Identify funding sources to enhance the operational capabilities of urban search and rescue teams in conducting collapsed building search and rescues	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify and conduct training courses and exercises in collapsed building search and rescue techniques	2015	Ongoing		Education and Awareness Programs	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Improve the capabilities of search and rescue teams through providing equipment and other means to conduct collapsed building search and rescues	2015	Ongoing		Structure and Infrastructure Projects	medium		internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
11. Increase the resiliency of public facilities to mitigate damage from earthquakes													
Identify and conduct training courses for best practices and latest code requirements to ensure proper building techniques to mitigate damage from earthquakes	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify funding sources to conduct training courses for best practices and latest code requirements to ensure proper building techniques to mitigate damage from earthquakes	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
12. Improve the resiliency and mitigate the effects of earthquakes on the cybernetic infrastructure													
Improve and enhance the resiliency of locations and conduits comprising the cyberinfrastructure	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal mechanism within IT	Information Technology	Ongoing	medium cost per capita	456k+	high (>$100k)	sources unidentified at this time
Emerging Infectious Diseases													
1. Improve capabilities of the Health Department to mitigate the number of infected													
Identify and conduct training and exercises on identification, containment, and treatment for Health personnel	2015	Ongoing		Education and Awareness Programs	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER	KCHD	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Partner with hospitals, other health agencies, emergency management agencies, non-profit and voluntary organizations active in disaster groups to share information	2015	Ongoing		Structure and Infrastructure Projects	high	both	Hosp Sub Comm/KCVOAD/PH Sub Comm/ MRCKC/OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Identify funding resources for training and exercises on identification, containment, and treatment for Health personnel	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responder Comm/ MARCER/ T&E Sub Comm	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	CDC/PHP/CRI/ UASI/RSOC
2. Increase public resiliency theough awareness of health and disease related issues													
Collect and disseminate public education materials that address infectious disease prevention	2015	Ongoing		Education and Awareness Programs	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/MARCER/RAPIO	KCHD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds/MARC
Utilize various methods of social media to inform and educate the public regarding infectious diseases	2015	Ongoing		Education and Awareness Programs	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/RAPIO	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/MARC

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding resources for mechanisms to disseminate information to the public regarding protection against emerging infectious diseases	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/RAPIO	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/MARC
3. Increase community resilience to emerging infectious diseases													
Provide immunization for community against emerging infectious diseases	2015	Ongoing		Structure and Infrastructure Projects	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER	KCHD	Ongoing	high cost per capita	456k+	high (>$100k)	PHP/ CRI/ Levee Funds/ Core PH Funds/CDC
Identify and conduct training and exercises on efficient methods for immunization dissemination	2015	Ongoing		Education and Awareness Programs	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ T&E Sub Comm	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	CDC/PHP/CRI/ UASI/RSOC
Identify funding resources for training and exercises on efficient methods for immunization dissemination	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/RAPIO	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/MARC
4. Improve Police Department's resiliency and response capabilities during an infectious disease out-break.													
Identify funding source to provide enhance and ensure operational ability through protection of resources from infection.	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify and conduct training courses and exercises to ensure personnel awareness to the hazards of infectious disease and prevention.	2015	Ongoing		Education and Awareness Programs	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
5. Enhance awareness of personnel and tenants of procedures to mitigate and prevent the effects of infectious diseases													
Identify and conduct training for personnel to identify and mitigate effects from infectious diseases	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
Disseminate and share information with personnel, tenants, and other agencies regarding emerging infectious diseases	2015	Ongoing		Education and Awareness Programs	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
6. Ensure Aviation Department resiliency to emerging infectious diseases through personnel awareness of and response													
Identify and conduct training of personnel to detect and report clinical signs of emerging infectious diseases	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Coordinate with local, state, and federal health agencies to enhance situational awareness of emerging infectious diseases	2015	Ongoing		Local Plans and Regulations	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Research and provide proper protection equipment and procedures to mitigate the potential effects of emerging infectious diseases.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
7. Create environments within public facilities that mitigate the spread of infection													
Research and implement sanitation methods within public facilities (such as utilizing UV lighting) to help prevent the spread of disease	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Research and utilize methods of air purification within public facilities to mitigate the spread of airborne illnesses	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	medium cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify funding sources to research implement sanitation methods within public facilities (such as utilizing UV lighting) to help prevent the spread of disease	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify funding sources to research and utilize methods of air purification within public facilities to mitigate the spread of airborne illnesses	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
8. Mitigate the disruption to services by increasing personnel resiliency to emerging infectious diseases													
Research and implement alternative operational methods for performing information technology services from alternate locations	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal mechanism within IT	Information Technology	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
9. Increase the capability of Water Services to mitigate the loss of life through improving detection, handling, and treatment waterborne infectious diseases													
Identify and conduct training and exercise for laboratory personnel in testing water samples for waterborne diseases	2015	Ongoing		Education and Awareness Programs	low	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Research and implement current testing practices and techniques for detecting waterborne diseases	2015	Ongoing		Education and Awareness Programs	low	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Ensure testing laboratory maintains EPA certification	2015	Ongoing		Local Plans and Regulations	low	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456	low (<$10k)	sources unidentified at this time
Flooding													
1. Examine repetitive flood loss properties in each county and determine feasible and practical mitigation options.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**a. Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options.	2010	Ongoing			Low	Existing	Water Services Dept.	Water Service Dept.	Ongoing	Reduces costs of property damage due to flooding by working with owners to implement specific mitigation strategies to protect property	hundreds	low (<$10k)	PIAC, Storm Utility Funds
**b. Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties.	2010	Ongoing			Low	Existing	City Planning and Development, Neighborhoods and Housing Services, Water Services Dept.	City Planning and Development, Neighborhood and Housing Services	Ongoing	Reduces repetitive property damage on properties prone to flooding	hundreds	N/A	N/A
**c. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Water Services Dept.	Water Services Dept.	exact competion date unknown at this time	Reduces public cost of property damage due to repetitive flood loss of the same properties in flood prone ares.	unknown	potentially high ($100k+)	PIAC,Water Service Dept,Other
**d. With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2010	Ongoing			High	Existing	City Planning and Development, Neighborhood and Housing Services	City Planning and Development	Ongoing	Reduces the repeptitve cost of property damage due to flooding by encouraging property owners to mitigate flood damage to their property.	456k+	low (<$10k)	sources unidentified at this time
2. Integrate flood mitigation strategies with projects and activities designed to (1) protect, restore or enhance ecosystems and the environment and/or (2) create recreational opportunities for the community.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Consider the construction of detention basins, small lakes and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding.	2010	Ongoing			High	Existing	Water Policies and Ordinances, Watershed Act	Water Service Dept.& Parks and Recreation	exact competion date unknown at this time	Reduces the cost of ecosystem and environmental restorations.	hundreds	potentially high ($100k+)	PIAC,Water Service Dept,Other
b. In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood-prone property for use as open space or park land.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	Reduces costs of property repair by using flood-prone land as open space parks	hundreds	potentially high ($100k+)	PIAC, Water Services Dept., Parks and Recreation
c. Identify funding sources for the acquisition of flood-prone land for environmental, recreational and flood mitigation uses.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	Ongoing	Cost of flood-prone land restoration will be reduced through the use of other funding sources	hundreds	low (<$10k)	PIAC,Water Service Dept., Parks & Recreation Dept.
d. Consider alternative uses for floodplains and flood-prone areas, such as sports fields, parks, wildlife habitats, etc.	2010	Ongoing			High	Existing	Water Services Dept., Stream Buffer Ordinance, Flood Plane Management Ordinance	Water Service Dept.	Ongoing	Damages to property will be lessened by using land designs that are more resistant to flood-prone ares	hundreds	low (<$10k)	PIAC,Water Service Dept., Parks & Recreation Dept.
e. Work with area environmental groups, property owners and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2010	Ongoing			High	Existing	Water Services Dept., Stream Buffer Ordinance, Flood Plane Management Ordinance	Water Service Dept.	Ongoing	Natural ecosystems and wildlife habitats will suffer less interuptions and damages due to flooding	hundreds	low (<$10k)	PIAC,Water Service Dept., Parks & Recreation Dept.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
f. Develop partnerships between regional emergency management, floodplain management and environmental groups to educate one another and the public of the benefits of collaboration and identify specific programs and activities that can be developed and implemented jointly.	2010	Ongoing			High	Existing	Water Services Dept., Office of Emergency Management	Water Service Dept.,	Ongoing	Partnerships and shared experience will reduce the risk of damages to the public and natural ecosystems.	hundreds	low (<$10k)	Water Service Dept,Office of Emergency Management, Other
3. Reduce flood-related damage to public, residential and commercial property in flood-prone areas through structural and nonstructural retrofits or removal of property.													
a. Encourage homeowners and businesses in flood-prone areas to elevate mechanical systems (i.e., furnaces, hot water heaters, electrical panels, etc.).	2010	Ongoing			High	Existing	City Planning & Development	City Planning & Development	Ongoing	Reduces the cost of property damage to public, residential and commercial property in flood-prone areas.	thousands	low (<$10k)	City Planning and Development
b. Encourage water and wastewater districts to elevate vulnerable equipment, electrical controls and other equipment at wastewater treatment plants, potable water treatment plants and pumping stations.	2010	Ongoing			High	Existing	City Planning Development	City Planning Development	Ongoing	City Planning Development	thousands	low (<$10k)	City Planning Development
c. Encourage utility providers to assess their facilities, distribution systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability.	2010	Ongoing			High	Existing	City Planning & Development	City Planning & Development	Ongoing	Reduces the risk to general public by ensuring reliable utility services	hundreds	low (<$10k)	City Planning Development
d. As funding allows, repetitive flood loss properties and structures will be targeted for buyout.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept., Other	Ongoing	Reduces the cost of repetitive damages through the structural and nonstructural retrofits and removal of structures on flood-prone property.	hundreds	potentially high ($100k+)	PIAC,Water Service Dept., Other

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
e. Elevate public facilities in flood-prone areas. Encourage home owners and businesses to elevate their structures.	2010	Ongoing			High	Existing	All Departments	unknown	Ongoing	Reduce flood-related damage to property by elevating structures above flood planes.	hundreds	potentially high ($100k+)	All departments
**f. Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood-prone areas.	2010	Ongoing			High	Existing	Water Services Dept.	Water Service Dept.	on-going	Reduce flood damage to property by encourging home and business owners to employ flood mitigation strategies to their structures.	thousands	low (<$10k)	Water Service Dept.
4. Discourage new development in floodplains and flood-prone areas.													
**a. Adopt ordinances prohibiting residential and commercial development in flood plains or flood-prone areas.	2010	Complete							2014				
**b. Develop or amend comprehensive and/or land use plans to specifically address development in flood-prone areas and recommend strategies for decreasing the jurisdiction's vulnerability to flooding.	2010	Complete							2014				
**c. Levy fees on new residential, commercial and infrastructure development in floodplains or flood-prone areas to finance flood mitigation, preparedness, response and recovery actions.	2010	Complete							2014				
5. Improve flood hazard assessments and flood mapping.													
**a. Obtain parcel data (assessed valuation and other information) for flood boundary areas and enhance vulnerability assessments for these areas.	2010	Ongoing			High	New	Water Services Dept. & FEMA Modelling	Water Service Dept.	2017	low cost per capita	thousands	med ($10k - $100k)	Other, Water Service Dept.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner with FEMA in the Cooperating Technical Partners (CTP) Program to increase local involvement in, and ownership of, the flood mapping process.	2010	Deferred	As funding sources allow										
**c. Purchase HAZUS-Flood software from FEMA, possibly in conjunction with other local or regional stakeholders.	2010	Ongoing			High	New	Water Services Dept.	Water Service Dept.	2017	Improve flood mitigation abilities and reduce property damage in flood-prone areas through the use of flood mapping software.	456k+	med ($10k - $100k)	Water Service Dept.
**d. Coordinate the collection of demographic, economic, watershed, land use and other data required by the HAZUS-Flood software program and/or GIS systems.	2010	Ongoing			High	New	Water Services Dept.	Water Service Dept.	2017	low cost per capita	456k+	low (<$10k)	Water Service Dept.
**e. Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding.	2010	Ongoing			High	New	Water Services Dept.	Water Service Dept.	2017	Early detection of high risk flood zones will help reduce public risk and property damage through early warnings.	456k+	med ($10k - $100k)	Water Service Dept.
6. Enhance public awareness and education efforts related to flooding.													
a. Encourage home owners and businesses to purchase flood insurance.	2010	Ongoing			High	New	Water Services Dept., Office of Emergency Management	Office of Emergency Management, Water Service Dept.	Ongoing	Reduces the burden of repair costs to home and business owners through the use of flood insurance funds.	456k+	low (<$10k)	Water Services Dept., Office of Emergency Management

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Obtain brochures and related publications on flood mitigation, preparedness, response and recovery from FEMA, SEMA, the American Red Cross and other organizations and provide them to home owners and businesses in flood-prone areas.	2010	Ongoing			High	New	Office of Emergency Management, Water Services Dept.	Office of Emergency Management, Water Service Dept.	Ongoing	Reduces risk to home owners and business owners in flood-prone areas through flood mititgation education.	456k+	med ($10k - $100k)	Office of Emergency Management, Water Service Dept.
c. Partner with emergency services, public health, human services organizations, appropriate state and federal agencies and the business community to conduct special public education events, such as a Flood Mitigation and Preparedness Workshop.	2010	Ongoing			High	New	Office of Emergency Management	Office of Emergency Management	Ongoing	Reduce the danger of flooding to the public through education efforts	456k+	low (<$10k)	Office of Emergency Management ,Other
7. Participate in, and ensure compliance with, flood mitigation and floodplain management programs.													
**a. Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS).	2010	Ongoing			High	New	Water Services Dept., City Planning and Development	Water Service Dept.& City Planning & Development	Ongoing	low cost per capita	456k+	$20K	Water Service Dept., City Planning Development
**b. Obtain the latest copies of flood insurance rate maps (FIRMs), floodplain maps and similar documents.	2010	Ongoing			High	New	Water Services Dept., City Planning and Development	Water Service Dept.& City Planning & Development	Ongoing	low cost per capita	456k+	low (<$10k)	Water Service Dept., City Planning Development
8. Implement or improve flood warning systems.													
b. Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions.	2010	Ongoing			High	New	Water Services Dept.	Water Service Dept.	Ongoing	Share data on flood warning systems to help improve system performance provide early warning for public.	thousands	low (<$10k)	Water Service Dept.

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public.	2010	Ongoing			High	New	Water Services Dept.	Water Service Dept.	Ongoing	Quick analysis of flood warning system information will help the public to prepare and help reduce the threat floods pose to the public	456k+	low (<$10k)	Water Service Dept.
9. Increase public awareness of health and disease related issues associated with flood waters													
Collect and disseminate public education materials that address health and disease issues associated with flood waters	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ KC Water Services/ City Communications	KCHD/ Water Services/ City Communications	Ongoing	low cost per capita	456k+	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Water Services/ City Communications
Utilize various methods of social media to inform and educate the public regarding health and disease issues associated with flood waters	2015	Ongoing		Education and Awareness Programs	low	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/RAPIO/ City Communications	KCHD/ Water Services/ City Communications	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Water Services/ City Communications
Identify funding resources for mechanisms to disseminate information to the public regarding protection against health and disease issues associated with flood waters	2015	Ongoing		Education and Awareness Programs	low	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/RAPIO/ City Communications	KCHD/ Water Services/ City Communications	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Water Services/ City Communications
10. Enhance the capabilities of city departments with flood response duties to mitigate damage from floods													
Coordinate the city-wide flood barricade task force and update the SOP annually	2015	Ongoing		Education and Awareness Programs	high	existing	Flood barricade Task Force SOP	OEM	Ongoing	low cost per capita	thousands	low (<$10k)	General Fund
11. Increase public awareness on procedures to mitigate damage from flooding													
**Include flood and NFIP information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	med ($10k - $100k)	General Fund
Research and utilize social media to share weather forecasts and flood safety information	2015	Ongoing		Education and Awareness Programs	medium	both	Internal OEM mechanisms	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
12. Enhance the EOC capability to monitor and mitigate flood conditions													
Upgrade and enhance the surveillance capability of the EOC to monitor flood conditions	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Local Emergency Ops Plan	OEM	Ongoing	med cost per capita	456k+	potentially high ($100k+)	sources unidentified at this time
13. Improve the capabilities of water rescue teams to mitigate loss of life													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding sources to enhance the operational capabilities of water rescue teams in conducting rescues in flood waters	2015	Ongoing		Structure and Infrastructure Projects	high	both	internal with KCFD	KCFD	Ongoing	med cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Identify and conduct training courses and exercises for water rescues in flood waters	2015	Ongoing		Education and Awareness Programs	high	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Improve the capabilities of water rescue teams through providing equipment and other means to conduct flood water rescues	2015	Ongoing		Structure and Infrastructure Projects	high	both	internal with KCFD	KCFD	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
14. Improve the capability of the Aviation Department to mitigate the damage from flooding													
Enhance and upgrade equipment and protocols to respond to and mitigate the damage from flooding	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	hundreds	high (>$100k)	sources unidentified at this time
Identify alternate staging and evacuation areas for personnel and equipment in the event of flooding	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	2019	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
15. Examine repetitive flood loss properties within Kansas City, MO and determine feasible and practical mitigation options													
**With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2015	Ongoing		Structure and Infrastructure Projects	medium	both	City Planning and Development with Neighborhoods and Housing Services	City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
**Ensure adherence to practices and requirements outlined in the Regulated Stream Management ordinance adopted in 2011	2015	Ongoing		Structure and Infrastructure Projects	medium	both	confirm adherence to the Regulated Stream Management ordinance	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
16. Reduce flood related damage to public, residential, and commercial property in flood prone areas through structural and non-structural retrofits or removal of property													
Encourage homeowners and businesses in flood prone areas to elevate mechanical systems	2015	Ongoing		Structure and Infrastructure Projects	medium	both	City Planning and Development	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Encourage water and wastewater districts to elevate vulnerable equipment at wastewater treatment plans, potable water treatment plants, and pumping stations	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Partnerships with City Planning and Development and other agencies	City Planning and Development	Ongoing	med cost per capita	thousands	potentially high ($100k+)	sources unidentified at this time
Encourage utility providers to assess their facilities and infrastructure for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Partnerships with City Planning and Development and other agencies	City Planning and Development	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
17. Mitigate flooding damage to public facilities													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research the feasibility of installing water pumping equipment in public facilities to reduce the damage from minor flooding	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	2018	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Implement flood damage mitigation mechanisms such as water pumping equipment	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	exact competion date unknown at this time	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify funding sources to implement flood damage mitigation mechanisms such as water pumping equipment	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	exact competion date unknown at this time	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
18. Improve and enhance the capability to respond to and mitigate damage from flooding incidents													
Identify funding sources and replace damaged barriers to prevent traffic through high water areas thus mitigating the loss of life.	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
19. Integrate flood mitigation strategies with projects and activities designed to protect, enhance, or restore ecosystems and the environment													
Work with area environmental groups and other stakeholders to develop and implement flood mitigation strategies that promote the sustainability and/or restoration of wildlife and fish habitats	2015	Ongoing		Natural Systems Protection	medium	both	Public works with other stakeholders	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
20. Examine repetitive flood loss properties and determine feasible and practical mitigation options													
**Work with owners of repetitive flood loss properties to identify feasible mitigation strategies and potential opportunities; determine property owners' interest in specific mitigation options	2015	Ongoing		Local Plans and Regulations	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
**Identify potential funding opportunities to implement mitigation options for repetitive flood loss properties	2015	Ongoing		Local Plans and Regulations	low	existing	Neighborhoods & Housing Services, City Planning & Development, and Water Services partnership	Water Services, City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
**As funding allows, repetitive flood loss properties and structures will be targeted for buyout	2015	Ongoing		Local Plans and Regulations	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	high per capita cost	hundreds	high (>$100k)	PIAC, other
With stakeholders, explore incentive options to encourage property owners to take action to prevent or reduce future flood losses	2015	Ongoing		Local Plans and Regulations	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
21. Integrate flood mitigation strategies with projects and activities designed to protect, restore, or enhance ecosystems and the environment and/or create recreational opportunities for the community.													
Consider the construction of detention basins, small lakes, and greenways or riparian corridors in areas of new development to channel and catch storm water, thereby reducing the likelihood of flooding	2015	Ongoing		Natural Systems Protection	high	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	high per capita cost	thousands	high (>$100k)	PIAC, other
In concert with existing comprehensive and land use plans, develop a strategy for acquiring flood prone property for use as open space or park land	2015	Ongoing		Natural Systems Protection	medium	both	Internal Water Services mechanisms	Water Services	Ongoing	high cost per capita	thousands	high (>$100k)	PIAC, other
Identify funding sources for the acquisition of flood prone land of environmental, recreational, and flood mitigation uses	2015	Ongoing		Natural Systems Protection	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	PIAC, other
Consider alternative uses for floodplains and flood prone areas that have less impact from flooding	2015	Ongoing		Natural Systems Protection	medium	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	PIAC, other
Work with area environmental groups and other stakeholders to develop and implement flood mitigation strategies that also promote the restoration and/or sustainability of fish and wildlife habitats	2015	Ongoing		Natural Systems Protection	high	both	Public Works partnering with Water Services	Water Services, Public Works	Ongoing	low cost per capita	thousands	low (<$10k)	PIAC, other
Develop partnerships between emergency management, floodplain management, and environmental groups to provide education regarding the benefits of collaboration	2015	Ongoing		Education and Awareness Programs	medium	both	Office of Emergency Management partnering with Water Services	Water Services, Office of Emergency Management	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify specific programs and activities that can be developed and implement with stakeholders	2015	Ongoing		Education and Awareness Programs	medium	both	Office of Emergency Management partnering with Water Services	Water Services, Office of Emergency Management	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
22. Reduce flood related damage to public and private property in flood prone areas through structural and nonstructural retrofits or removal of property													
Encourage residents in flood prone areas to elevate mechanical systems	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	City Planning and Development	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Encourage water and wastewater districts to elevate vulnerable equipment at water and wastewater facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	City Planning and Development	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Encourage Utility providers to assess their facilities, distributions systems, etc. for vulnerability to flooding and, if necessary, retrofit or modify them to decrease vulnerability	2015	Ongoing		Structure and Infrastructure Projects	medium	both	City Planning and Development	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
As funding allows, repetitive flood loss properties and structures will be targeted for buyout	2015	Ongoing		Local Plans and Regulations	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	high per capita cost	thousands	high (>$100k)	PIAC, other
Elevate public facilities in flood prone areas and encourage private sector facilities to do likewise	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	exact competion date unknown at this time	high per capita cost	hundreds	high (>$100k)	sources unidentified at this time
Identify incentives to offer home owners and businesses to remove or retrofit their structures in flood prone areas	2015	Ongoing		Structure and Infrastructure Projects	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
23. Discourage new development in floodplain and flood prone areas													
**Levy fees on new residential, commercial, and infrastructure development in floodplains or flood prone areas to finance flood mitigation, preparedness, response, and recovery actions	2015	Ongoing		Local Plans and Regulations	medium	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
24. Improve flood hazard assessments and flood mapping													
**Obtain parcel data for flood boundary areas and enhance vulnerability assessments for these areas	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Water Services mechanisms	Water Services	2017	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
**Coordinate the collection of demographics, economic, watershed, land use, and other data required by the HAZUS-Flood software program and/or GIS systems	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
**Conduct an in-depth flood risk analysis utilizing HAZUS data and create detailed maps based on GIS technology to identify areas at risk from flooding	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	2017	low cost per capita	456k+	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
**Using city, state, and federal products develop, analyze, and prioritize flood risk, severity, and frequency for structures, land/parcels, and roads/RoWs. Continuously improve with 3 key phases of development by: 1) Regulatory Floodplain Areas, 2) Non-Regulatory Floodplain Areas with hydraulic monitoring, and 3) Upstream Hydrology Areas with stream accumulation pats for flow accumulation and risk.	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	2017	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Develop and regularly update a mitigation list for structures, land/parcels, and roads/RoWs with a ranking for these based on depth, severity, and frequency of flooding. Provide to SEMA/FEMA through their mitigation tracker if they update the tracker to accept large datasets vs. individual manual data entry.	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
**Work to develop these map, data, and list products for GIS tools for direct use by public and private needs to fulfill multiple needs for information to aid flood mitigation	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
**Using city, state, and federal products complete the modernization of city regulatory and non-regulatory floodplains and adopt by the three phases outlined in Action #4 over time	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	exact competion date unknown at this time	high per capita cost	thousands	high (>$100k)	sources unidentified at this time
Update City Stream Buffers based on new regulatory and non-regulatory products' 1% severity or better	2015	Ongoing		Local Plans and Regulations	high	new	Internal Water Services mechanisms	Water Services	changes with regulation updates	high per capita cost	thousands	high (>$100k)	sources unidentified at this time
Use products that classify, identify, and weigh community flood risks and the technological tools developed for them to improve regulation and information sharing to get enhanced mitigation, improvements, and future developments.	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	cost varies based on changing technology	456k+	cost varies based on changing technology	sources unidentified at this time
25. Enhance public awareness and education efforts related to flooding													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Encourage home owners and businesses to purchase flood insurance	2015	Ongoing		Education and Awareness Programs	medium	both	Office of Emergency Management partnering with Water Services	Water Services, Office of Emergency Management	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Obtain brochures and related publications on flood mitigation, preparedness, response, and recovery from federal, state, and other organizations and provide them to those residing in flood prone areas	2015	Ongoing		Education and Awareness Programs	low	both	Office of Emergency Management	Office of Emergency Management	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
26. Participate in and ensure compliance with flood mitigation and floodplain management programs													
**Participate in the National Flood Insurance Program (NFIP) and Community Rating System (CRS)	2015	Ongoing		Local Plans and Regulations	high	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
**Obtain the latest copies of the flood insurance rate maps (FIRMs), floodplain maps, and similar documents	2015	Ongoing		Education and Awareness Programs	high	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
27. Implement or improve flood warning systems													
Determine the need for stream gauges in waterways currently lacking flood warning systems or additional stream gauges in waterways with flood warning systems already in place	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Work with local governments and other stakeholders to share data from flood warning systems in multiple jurisdictions	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Develop and implement procedures to quickly analyze and disseminate information from flood warning systems to the public	2015	Ongoing		Education and Awareness Programs	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Food Contamination													
1. Improve the Health Department's capability to ensure food safety and mitigate effects from diseased food animals													
Identify and conduct training and exercises on identification, containment, and treatment for Health personnel with regard to food safety and food borne illnesses related to zoonotic diseases	2015	Ongoing		Education and Awareness Programs	low	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm/ T&E Sub Comm	KCHD/ Animal Control	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify funding resources for training and exercises on identification, containment, and treatment for Health personnel with regard to food safety and food borne illnesses related to zoonotic diseases	2015	Ongoing		Education and Awareness Programs	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm/ T&E Sub Comm	KCHD/ Animal Control	Ongoing	low cost per capita	thousands	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/Animal Control

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Improve the capability to ensure food safety through providing equipment and other means to conduct inspections, improve sanitation, and identify food borne illness	2015	Ongoing		Structure and Infrastructure Projects	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/	KCHD	Ongoing	low cost per capita	thousands	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds/
Identify funding sources to enhance the capabilities of the Health Department conduct inspections, improve sanitation, and identify food borne illness	2015	Ongoing		Structure and Infrastructure Projects	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/	KCHD	Ongoing	low cost per capita	thousands	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/
Transboundary Animal Disease Outbreak													
1. Improve capabilities of the Health Department to mitigate the effects of zoonotic diseases													
Identify and conduct training and exercises on identification, containment, and treatment for Health personnel	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Animal Control/ KCVMA	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
Partner with hospitals, other health agencies, emergency management agencies, non-profit and voluntary organizations active in disaster groups to share information	2015	Ongoing		Education and Awareness Programs	medium	both	Hosp Sub Comm/KCVOAD/PH Sub Comm/ MRCKC/OEM/ KCVMA	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
Identify funding resources for training and exercises on identification, containment, and treatment for Health personnel	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/Animal Control/ KCVMA	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
Identify methods for tracking zoonotic diseases within animal and human populations	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders / MARCER/ Animal Control/ KCVAM	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
Identify funding resources for the tracking of zoonotic diseases	2015	Ongoing		Education and Awareness Programs	low	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Animal Control/ KCVMA	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
Partner with hospitals, other health agencies, and animal control and welfare agencies to track zoonotic diseases	2015	Ongoing		Education and Awareness Programs	low	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Animal Control/ KCVMA	KCHD/ Animal Control	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control
2. Increase public awareness of health, disease, and food safety related issues associated with zoonotic diseases													
Collect and disseminate public education materials that address health, disease, and food safety related issues associated with zoonotic diseases	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications/ RAPIO	KCHD/ City Communications	Ongoing	low cost per capita	456k+	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control City Communications

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Utilize various methods of mass and social media to inform and educate the public regarding health, disease, and food safety related issues associated with zoonotic diseases	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications	KCHD/ City Communications	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ City Communications
Identify funding resources for mechanisms to disseminate information to the public regarding health, disease, and food safety related issues associated with zoonotic diseases	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications	KCHD/ City Communications	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ Animal Control/ Animal Control
3. Improve Police Department's resiliency and response capabilities during a foreign animal disease out-break.													
Research and implement latest technology and best practices to ensure the health and well being of equine, canine, and other animal units	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
4. Enhance the capabilities of animal control to respond to and mitigate the spread of animal diseases													
Research and implement enhancements, the latest technology, and best practices to enhance the capabilities of animal control to respond to and mitigate the spread of animal diseases	2015	Ongoing		Education and Awareness Programs	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training courses in identification, detection, response, and handling of diseased animals	2015	Ongoing		Education and Awareness Programs	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
5. Enhance Aviation Department's ability to identify and respond to foreign animal disease outbreaks													
Identify and conduct training of personnel to identify diseased animals and collect and handle biological samples for testing.	2015	Ongoing		Education and Awareness Programs	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
6. Prevent the spread of the zoonotic disease via transmission from animal carcasses													
Replace current incinerator with one having a greater capacity for bio disposal and increased bio-security in loading carcasses into the equipment.	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding sources to replace current incinerator with one having a greater capacity for bio disposal and increased bio-security in loading carcasses into the equipment.	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
7. Improve capability and enhance safety in responding to animal diseases to mitigate damage													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Upgrade and improve carcass disposal equipment to mitigate chance of infection to personnel	2015	Ongoing		Structure and Infrastructure Projects	low	both	Public works with other stakeholders	Public Works	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training for personnel in safe and efficient carcass removal and disposal	2015	Ongoing		Education and Awareness Programs	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Hazardous Materials													
1. Improve the hazardous material capabilities of the Health Department's to mitigate loss of life													
Identify funding sources to enhance the hazardous material operational capabilities of the Health Department	2015	Ongoing		Structure and Infrastructure Projects	medium	both	PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Identify training and exercises to enhance the hazardous material operational capabilities of the Health Department	2015	Ongoing		Education and Awareness Programs	medium	both	PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm/ T&E Sub Comm	KCHD	Ongoing	low cost per capita	250	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds
2. Increase the Police Department's resiliency to and improve their ability to respond to hazardous material releases.													
Identify funding source to upgrade, enhance, and provide personal protective equipment in order to ensure scene securing operations.	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Improve the hazardous material response capabilities of Bomb and Arson units to respond hazardous materials	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify and conduct training to improve the capability of the Bomb and Arson units to respond to hazardous materials	2015	Ongoing		Education and Awareness Programs		both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
3. Increase whole community resiliency through public awareness of hazardous material issues and safety													
Work with local and regional partners to disseminate information to the public regarding shelter in place procedures, hazardous material safety, and other hazardous material issues.	2015	Ongoing		Education and Awareness Programs	medium	both	external partnerships and internal with KCFD	KCMO OEM, KCFD, KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify funding resources for mechanisms to disseminate information to the public regarding shelter in place procedures, hazardous material safety, and other hazardous material issues.	2015	Ongoing		Education and Awareness Programs	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify and conduct training courses to educate businesses and facilities in managing, handling, storing, and disposing of hazardous materials	2015	Ongoing		Education and Awareness Programs	high	both	external partnerships and internal with KCFD	KC-OEQ, KCFD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
4. Improve hazardous materials and facilities assessment for Kansas City communities													
Work with local and regional partners to identify, assess, and map facilities in the selling, production, storage, or distribution of hazardous materials	2015	Ongoing		Local Plans and Regulations	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
5. Improve the ability of the fire department to mitigate hazardous material incidents													
Identify funding sources to enhance the hazardous material operational capabilities of fire departments	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify and conduct training courses and exercises in hazardous material response	2015	Ongoing		Education and Awareness Programs	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Improve the hazardous material response capabilities through providing equipment and other means to conduct hazardous material response operations	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
6. Mitigate hazardous material contamination of surrounding environment													
Identify and upgrade hazardous material detection sensors along fuel supply lines	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
7. Improve public facilities' ability to mitigate any damage and loss of life from hazardous material releases													
Research and install technology to detect hazardous material release and isolate the public facility from contaminants	2015	Ongoing		Structure and Infrastructure Projects	high	both	General Services internal mechanisms	General Services	2018	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify funding sources to research and install technology to detect hazardous material release and isolate the public facility from contaminants	2015	Ongoing		Structure and Infrastructure Projects	high	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
8. Increase KCMO's resiliency through personnel awareness of hazardous material issues and safety													
Identify and conduct training courses for Kansas City, MO personnel in identifying and knowing what to do in case of interaction with hazardous materials	2015	Ongoing		Education and Awareness Programs	high	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
9. Improve and upgrade hazardous material storage to ensure proper containment mitigating the chance of spills or leakage													
Research and implement the latest technology in hazardous material storage	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Upgrade and enhance current hazardous material storage capabilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify and conduct training for personnel in safe and efficient storage of hazardous materials	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
10. Ensure water supplies are resilient to or damage is mitigated from hazardous material releases													
Increase the number of wells that are isolated from contamination from hazardous material releases	2015	Ongoing		Structure and Infrastructure Projects	high	new	Internal Water Services mechanisms	Water Services	2017	high per capita cost	456k+	high (>$100k)	sources unidentified at this time
Ensure facilities involved with hazardous materials are not located in or over floodplains	2015	Ongoing		Structure and Infrastructure Projects	high	both	City Planning & Development partnering with Water Services	Water Services, City Planning and Development	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Increase the redundancy capabilities through additional facilities to collect, process, and pump water	2015	Ongoing		Structure and Infrastructure Projects	high	new	Internal Water Services mechanisms	Water Services	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Install equipment to detect hazardous materials on water intakes that automatically shut down intake pumps	2015	Ongoing		Structure and Infrastructure Projects	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Heat Wave													
1. Ensure local governments and human services agencies are aware of air conditioned facilities across the Kansas City metropolitan area that can be used as shelters in the event of a heat wave.													
a. Partner with MARC, local public health agencies, emergency management agencies, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that are air conditioned and can be used as "heat emergency shelters" in the event of a heat wave.	2010	Ongoing			High	Existing	The City's 12 Community Centers, managed by the Parks and Recreation Department, are used as cooling centers during heat waves.	KCMO Parks and Recreation Department	Ongoing	low cost per capita	456k+	N/A	N/A
b. Retrofit otherwise suitable existing facilities with air conditioning systems and designate them as shelters for use during heat waves.	2010	Deferred	Strategy not addressed at this time.										
2. Ensure at-risk, low income and elderly residents have adequate air conditioning (or fans) and ventilation in their homes.													
a. Identify at-risk, low income and elderly residents and develop a database and map (or GIS layers) of their places of residence.	2010	Deferred	At risk populations are identified but maps are not developed as a mitigation strategy at this time.										
b. Partner with community service organizations and area businesses to provide air conditioners and/or fans to at-risk groups, low income residents and the elderly.	2010	Deleted	Strategy not addressed at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Work with utility providers to develop and implement programs to reduce, eliminate or defer air conditioning costs for elderly, low income and at-risk people in the community.	2010	Deleted	These programs are offered and administered by local utilities.										
3. Ensure programs and procedures to mitigate, prepare for and respond to heat waves are developed and implemented.													
a. Develop local heat emergency plans or heat wave annexes to local emergency operations plans.	2010	Deleted	There are specific plans to address individual mitigation strategies.										
b. Consider developing a regional heat emergency plan for the greater Kansas City metropolitan area.	2010	Deferred	Kansas City has worked with MARC on developing an Integrated Warning Team (IWT) to deal with heat emergencies.										
c. Partner with public safety agencies, local public health agencies and community groups to develop a program to regularly check on elderly, low income and at-risk people in the community during heat waves.	2010	Deferred	Strategy not addressed at this time.										
d. Work with community groups to sponsor a program to encourage people to think of those who require special assistance (this effort can be incorporated into Neighborhood Watch, CERT or similar programs).	2010	Ongoing			Medium	Existing	The City has a CERT trainer who addresses this issue in training.	Office of Emergency Management	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
e. Temporarily reduce or eliminate fees for public swimming pools during extended periods of extreme heat and humidity.	2010	Complete							2000				
4. Enhance public awareness of the hazards associated with heat waves, precautionary measures and area heat wave mitigation and preparedness activities.													
a. Collect and disseminate public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			High		Parks and Recreation Dept. disseminates information on free swimming hours at City owned pools and spray grounds.	Parks and Recreation Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
b. Provide vulnerable populations with public education materials that address heat wave safety, preparedness and mitigation activities.	2010	Ongoing			High	Existing	Office of Emergency Management?	Office of Emergency Management?	Ongoing	low cost per capita	tens of thousands	med ($10k - $100k)	sources unidentified at this time
c. Work with the media to publish special newspaper sections or conduct periodic broadcasts with emergency information on extreme heat.	2010	Deleted	Strategy not addressed at this time.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Develop and conduct a public education and awareness campaign on properly weather stripping homes.	2010	Ongoing			Medium	Existing	The City's Housing and Community Development Dept. has a Home Weatherization Program that provides free energy efficiency improvements to existing structures. Improvements include weather stripping, caulking, insulation, door and window repair, and repair or replacement of furnaces and hot water heaters.	Housing and Community Development Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	City General Funds/ Regional Funds
5. Increase whole community resiliency through public awareness on health issues related to excessive and prolonged heat incidents													
Partner with National Weather Service, media services, social media services, other health agencies, non-profit organizations, non-governmental agencies, and local emergency managers to disseminate information to the public regarding health issues related to heat waves	2015	Ongoing		Education and Awareness Programs	high	both	PH Sub Comm/ Env PH Sub Comm/OEM/ National Weather Service/ KCVOAD/ RAPIO/ City Communications	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	City General Funds/ Regional Funds
Identify funding resources for mechanisms to disseminate information to the public regarding health issues related to heat waves	2015	Ongoing		Education and Awareness Programs	medium	both	PH Sub Comm/ Env PH Sub Comm/OEM/ National Weather Service/ KCVOAD/	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	Levee Funds
Research and identify mechanisms to improve and increase the efficiency of disseminating information to the public regarding health issues related to heat waves	2015	Ongoing		Education and Awareness Programs	medium	both	PH Sub Comm/ Env PH Sub Comm/OEM/ National Weather Service/ KCVOAD/ RAPIO/ City Communications	none identified	Ongoing	low cost per capita	456k+	low (<$10k)	Levee Funds
6. Improve community resiliency to and mitigate health related issues from excessive and prolonged heat incidents													
Participate in urban planning to improve communities' resistance to excessive heat through various mechanisms such as increase foliage coverage, reflective building roofs, etc.	2015	Ongoing		Local Plans and Regulations	medium	both	Public Health/ National Weather Service/ MARC	none identified	Ongoing	low cost per capita	456k+	low (<$10k)	City General Funds/ Regional Funds
Research and identify improved methods that enhance communities' resistance to excessive heat through various mechanisms, procedures, and planning.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Public Health/ National Weather Service/ MARC	none identified	Ongoing	low cost per capita	456k+	low (<$10k)	ongoing

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding resources for mechanisms to improve methods that enhance communities' resistance to excessive heat through various mechanisms, procedures, and planning.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	PH Sub Comm/ Env PH Sub Comm/OEM/ National Weather Service/ KCVOAD	none identified	Ongoing	low cost per capita	456k+	low (<$10k)	City General Funds/ Regional Funds
7. Improve local and regional capabilities to reduce the number of deaths related to excessive and prolonged heat incidents													
Partner with local health agencies, local medical examiners, hospitals, and emergency medical services to track heat related deaths and injuries	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	Levee Funds
Research and identify mechanisms to improve the efficiency of tracking and relating to partners information regarding heat related deaths and injuries	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	Levee Funds
Identify and provide training to emergency medical services, hospitals, medical examiners, and other personnel to accurately report heat related deaths and illnesses	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ OEM	KCHD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	Levee Funds
Identify funding resources to provide training to health department personnel, emergency medical service personnel, human resource departments, city agencies and departments, and work crews to prevent, recognize, identify, and provide treatment for heat related health issues	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ City Departments/ City Safety/ OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	City General Funds
Identify funding resources for mechanisms to provide training to emergency medical services, hospitals, medical examiners, and other personnel to accurately report heat related deaths and illnesses	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ City Departments/ City Safety/ OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	Levee Funds
Identify and provide training to health department personnel, emergency medical service personnel, human resource departments, city agencies and departments, and work crews to prevent, recognize, identify, and provide treatment for heat related health issues	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ City Departments/ City Safety/ OEM	KCHD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	City General Funds

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding resources to provide training to health department personnel, emergency medical service personnel, human resource departments, city agencies and departments, and work crews to prevent, recognize, identify, and provide treatment for heat related health issues	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Jackson County Med Ex/ City Departments/ City Safety/ OEM	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	City General Funds
Identify and provide training to school personnel, athletic clubs, and other private entities operating in non-climate controlled conditions to prevent, recognize, identify, and provide treatment for heat related health issues	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications/ RAPIO	none identified	Ongoing	low cost per capita	456k+	med ($10k - $100k)	Levee Funds
Identify funding resources to provide training to school personnel, athletic clubs, and other private entities operating in non-climate controlled conditions to prevent, recognize, identify, and provide treatment for heat related health issues	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications/ RAPIO	none identified	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Research and identify mechanisms and equipment to provide climate controlled on-site medical facilities to provide rapid treatment for heat related complications to mitigate potential deaths from excessive heat incidents	2015	Ongoing		Education and Awareness Programs	low	both	Internal Kansas City Health Dept. mechanism	KCHD	2020	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding resources to research, identify, and procure mechanisms and equipment to provide climate controlled on-site medical facilities to provide rapid treatment for heat related complications to mitigate potential deaths from excessive heat	2015	Ongoing		Education and Awareness Programs	low	both	Internal Kansas City Health Dept. mechanism	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
8. Improve Police Department's ability to mitigate the effects of heat on officers in order to maintain operational ability during heat waves.													
Identify and conduct training courses to mitigate adverse effects of excessive heat on officers.	2015	Ongoing		Education and Awareness Programs	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	2300+	low (<$10k)	sources unidentified at this time
Identify funding source to ensure facility climate control capabilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	2300+	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding source to ensure sustainability vehicle operational abilities during excessive heat waves.	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	2300+	low (<$10k)	sources unidentified at this time
9. Ensure at-risk, low income, and elderly residents have adequate capability to maintain climate temperatures in their homes during heat waves.													
Identify funding sources to provide materials and labor to assist at-risk, low income, and elderly residents with improving their residence's capability to maintain climate control during heat waves	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
Partner with community service organizations to provide materials and volunteer labor to assist at-risk, low income, and elderly residents with improving their residence's capability to maintain climate control during heat waves	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
10. Increase personnel and tenant awareness on health issues related to excessive and prolonged heat incidents													
Conduct training and disseminate information to personnel and tenants on mitigating the effects of prolonged heat	2015	Ongoing		Education and Awareness Programs	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
Conduct training and disseminate information on identifying symptoms of heat injuries	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
Ensure outdoor crews have adequate personal protection to mitigate the effects of prolonged heat	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Ensure personnel and tenants are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
11. Improve aviation facilities' resistance to excessive heat to reduce energy consumption for climate control within the facilities													
Research and implement best practices for building methods to prevent heat absorption and mitigate heat damage	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	hundreds	high (>$100k)	sources unidentified at this time
12. Improve public facilities' resistance to excessive heat to reduce energy consumption for climate control within the facilities													
Research and implement best practices for building methods to prevent heat absorption and mitigate heat damage	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify funding sources to implement best practices for building methods to prevent heat absorption and mitigate heat damage	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Encourage the use of best practices and architectural procedures as outlined in the LEED certification process	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Partnerships with City Planning and Development and other agencies	City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
13. Increase the city's resiliency to heat waves in outdoor locations													
Research and implement landscaping techniques to provide resistance from sunlight during critical hours	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Identify funding sources to Research and implement landscaping techniques to provide resistance from sunlight during critical hours	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
14. Mitigate and prevent additional harmful effects of heat waves													
Update and implement best practices outlined in ozone policies to mitigate any additional harmful effects from ozone producing activities	2015	Ongoing		Natural Systems Protection	low	new	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
15. Increase personnel awareness on health issues related to excessive and prolonged heat incidents													
Conduct training and disseminate information to personnel on mitigating the effects of prolonged heat	2015	Ongoing		Education and Awareness Programs	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Conduct training and disseminate information on identifying symptoms of heat injuries	2015	Ongoing		Education and Awareness Programs	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Ensure outdoor crews have adequate personal protection to mitigate the effects of prolonged heat	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Ensure personnel are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Landslides													
1. Ensure protection from and mitigate damage related to landslides													
Ensure protective measures that prevent landslides are adequately maintained and upgraded to mitigate the chance of landslides	2015	Ongoing		Natural Systems Protection	low	both	Internal mechanisms of Public Works	Public Works	Ongoing	high cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify and record retaining walls constructed throughout the city	2015	Ongoing		Natural Systems Protection	low	both	Internal mechanisms of Public Works	Public Works	2019	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training for personnel to conduct inspections of retaining walls and other measures designed to prevent or mitigate the effects of landslides	2015	Ongoing		Education and Awareness Programs	low	both	Internal mechanisms of Public Works	Public Works	2019	low cost per capita	thousands	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Levee Failure													
1. Improve the capability of the Aviation Department to mitigate the damage from flooding due to levee failure													
Enhance and upgrade equipment and protocols to respond to and mitigate the damage from flooding from levee failure	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify alternate staging and evacuation areas for personnel and equipment in the event of flooding from levee failure	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	2019	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
2. Ensure levee requirements and integrity are maintained to prevent damage from levee failure													
Identify and conduct training for levee inspectors	2015	Ongoing		Education and Awareness Programs	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Perform inspections and assessments of levees and levee systems to track deficiencies and prevent levee failure	2015	Ongoing		Structure and Infrastructure Projects	high	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Coordinate with US Army Corps of Engineers to ensure best practices and operations are utilized to maintain levees	2015	Ongoing		Local Plans and Regulations	medium	existing	Water Services partnering with USACE	Water Services, USACE	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Mass Transportation Accidents													
1. Improve the capabilities of the police department in the area of mass transportation accidents in order to further mitigate any damage or loss of life from the incident													
Identify and conduct training of the police department to respond to mass transportation accidents.	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify funding sources to enhance the capabilities of the police department to investigate mass transportation accidents.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
2. Improve the capabilities of the fire department to mitigate damage or loss of life in the area of Mass Transportation Accidents													
Identify funding sources to enhance the capabilities of fire departments to respond to mass transportation accidents.	2015	Ongoing		Education and Awareness Programs	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Identify and conduct training courses and exercises in mass transportation accident response for the fire department	2015	Ongoing		Education and Awareness Programs	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
3. Enhance Aviation Department's capability to respond to mass transportation accidents to mitigate any resulting damage													
Identify and conduct training and exercises in mass transportation accident response for the Aviation Department	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research and implement improvements to the Aviation Department's capabilities to respond to mass transportation accidents through improved equipment and procedures	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	thousands	high (>$100k)	sources unidentified at this time
4. Ensure safe operation of the urban mass transportation systems to mitigate any potential mass transportation accidents													
Research, develop, and implement safety and security protocols to mitigate the potential for and results of mass transportation accidents	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	thousands	high (>$100k)	sources unidentified at this time
Develop and implement reporting protocols to ensure situation awareness is maintained concerning operation and maintenance of mass transportation systems	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Terrorism													
1. Improve the bioterrorism capabilities of the Health Department to decrease or prevent the effects from biological weapons													
Identify funding sources to enhance the bioterrorism operational capabilities of the Health Department	2015	Ongoing		Structure and Infrastructure Projects	high	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ Env PH Sub Comm/ City Communications	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Identify training and exercises to enhance the bioterrorism operational capabilities of the Health Department	2015	Ongoing		Education and Awareness Programs	high	both	PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm/ T&E Sub Comm	KCHD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Partner with hospitals, emergency medical systems, local area health departments, and Terrorism Early Warning team to enhance monitoring of bioterrorist activities and surge in victims from biological agents	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ KCTEW	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds
2. Increase community resistance to bioterrorism, biological agents, and contamination													
Identify methods to increase community resistance to biological weapons and contaminants	2015	Ongoing		Structure and Infrastructure Projects	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ KCTEW	KCHD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	PHP/ CRI/ Levee Funds/ Core PH Funds
Identify funding sources to enhance community resistance to biological weapons and contaminant	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ Env PH Sub Comm	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds
3. Improve Police Department's ability to monitor, prevent, and respond to terrorist groups to mitigate the potential for and damage from terrorist attacks.													
Improve the hazardous material response capabilities of Bomb and Arson units to respond hazardous materials	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify and conduct training to improve the capability of the Bomb and Arson units to respond to hazardous materials	2015	Ongoing		Education and Awareness Programs		both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training exercises for acts of terrorism	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Ensure Police Department is trained and prepared to handle the scene of the attack for the first 48 hours after incident	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify funding to create a waterborne unit to conduct surveillance and security of waterways.	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Police Dept. partnering with other agencies/depts.	Police Dept.	2019	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Conduct research in methods to create and provide operational capabilities for a waterborne unit.	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Police Dept. partnering with other agencies/depts.	Police Dept.	2019	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify funding sources to enhance the capabilities of the Law Enforcement Resource Center	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
4. Enhance capabilities of the EOC and OEM to mitigate acts of terrorism													
Coordinate information sharing with police department, TEW, and other local, state, and federal agencies to maintain situational awareness.	2015	Ongoing		Education and Awareness Programs	medium	both	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Upgrade and enhance surveillance technology and systems	2015	Ongoing		Education and Awareness Programs	medium	existing	Office of Emergency Management partnering with IT	OEM	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Develop, implement, and conduct training programs for personnel assigned to monitor surveillance systems	2015	Ongoing		Education and Awareness Programs	medium	new	Internal OEM mechanism	OEM	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
5. Improve the capabilities of the fire department in the area of terrorism													
Identify funding sources to enhance the CBRNE capabilities of fire departments	2015	Ongoing		Structure and Infrastructure Projects	low	both	internal within KCFD	KCFD	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Identify and conduct training courses and exercises in CBRNE response	2015	Ongoing		Education and Awareness Programs	low	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Improve the CBRNE capabilities through providing equipment and other means to conduct collapsed building search and rescues	2015	Ongoing		Structure and Infrastructure Projects	low	both	internal within KCFD	KCFD	Ongoing	high cost per capita	456k+	high (>$100k)	sources unidentified at this time
6. Mitigate aviation facilities as targets of and prevent or reduce any damage as a result of acts of terrorism													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Improve and upgrade surveillance techniques to identify possible threats to aviation facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Improve and upgrade illumination of exterior areas of aviation facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	2019	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Research and identify improved security features to protect from and mitigate damage to aviation facilities as a result of acts of terrorism	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Identify funding sources to research, identify, and implement improved security features to protect from and mitigate damage to aviation as a result of acts of terrorism	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Upgrade and enhance barrier capability to deter any heavy damage to aviation facilities and the airfield	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Enhance and upgrade surveillance and detection systems to prevent intrusion and monitor activity in and around aviation facilities.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Enhance and upgrade capability to communicate and provide instructions to personnel, visitors, and those engaged in the acts of terrorism	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
7. Improve Aviation Department's situational awareness of potential acts of terrorism to prevent or mitigate the effects													
Coordinate with local, state, and federal health agencies to enhance situational awareness of potential acts of terrorism	2015	Ongoing		Education and Awareness Programs	medium	both	Aviation partnering with other agencies	Aviation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
8. Improve capability to monitor and provide situational awareness to prevent or mitigate of acts of terrorism													
Improve and upgrade visual surveillance capabilities and provide safeguards for the assets	2015	Ongoing		Structure and Infrastructure Projects	medium	both	IT partnering with other agencies/departments	Information Technology	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Research and implement enhanced operational methods and technology to utilize improved visual surveillance capabilities most effectively	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
9. Mitigate or prevent any damage as a result of terrorist acts to public and recreational areas and facilities													
Provide new and improve existing hard barriers protecting public facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Improve and upgrade surveillance equipment to identify possible threats to public and recreational facilities	2015	Ongoing		Structure and Infrastructure Projects	low	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve and upgrade illumination of exterior areas of public and recreational facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Research and identify improved security features to protect from and mitigate damage to public and recreational facilities as a result of terrorist acts	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify funding sources to research, identify, and implement improved security measures to protect from and mitigate damage to public and recreational facilities as a result of terrorist acts	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
Identify and conduct training for personnel to recognizes signs of and report active and potential terrorist activity	2015	Ongoing		Education and Awareness Programs	low	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
10. To ensure the safety of water supplies and mitigate any damage from acts of terrorism													
Install equipment to detect hazardous materials on water intakes that automatically shut down intake pumps	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Install new and improve existing barriers to protect Water Services facilities from acts of terrorism	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Improve surveillance capabilities of Water Services facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Severe Thunderstorms													
1. Improve Police Department's ability to mitigate losse of life through maintaining operational ability during severe weather.													
Identify funding source to provide best protection and highest visibility in order to ensure operation ability.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	2300+	low (<$10k)	sources unidentified at this time
Work with Regional National Weather Service to provide Storm Spotter training to officers.	2015	Ongoing		Education and Awareness Programs	medium	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	low cost per capita	456k+	low (<$10k)	budget
2. Increase public awareness on mitigating the damage from thunderstorms													
Include weather information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Utilize social media to share forecasts and thunderstorm safety information	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Conduct high wind refuge inspections for businesses	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	tens of thousands	low (<$10k)	General Fund
3. Maintain and improve relationships with meteorologists and media to increase whole community resiliency to damage from severe thunderstorms													
Participate in the Integrated Warning Team coordinated by NWS	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
Maintain Storm Ready Community designation and Weather Ready Nation Ambassador status	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
4. Encourage building practices and the use of materials that reduce the damaging effects of severe thunderstorms													
Adopt current edition of building codes to address structural and architectural issues related to severe thunderstorms	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Codes and ordinances	City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
5. Implement procedures to mitigate the damage caused by severe thunderstorms													
Ensure personnel and tenants are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
6. Increase the resiliency of public facilities from damage incurred from severe thunderstorms													
Provide protection to public facilities from high winds, lightning and hail to mitigate any damage that might be caused.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	med cost per capita	tens of thousands	high (>$100k)	sources unidentified at this time
Research best practices and building code requirements in providing protection to public facilities from high winds, lightning and hail to mitigate any damage that might be caused.	2015	Ongoing		Education and Awareness Programs	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
Identify funding sources to provide protection to public facilities from high winds, lightning and hail to mitigate any damage that might be caused.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
7. Enhance personnel awareness to the personal dangers inherent with severe thunderstorms and mitigate any damage from the related hazards													
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding sources for training and information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
8. Mitigate or prevent the disruption of cyber networks, structures, and conduits as a result of damage from severe thunderstorms													
Research and implement enhanced operational methods, hardware, systems, and technology to mitigate cyber disruption from the effects of severe thunderstorms.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
9. Mitigate or prevent damage and loss of life as a result of severe thunderstorms to public and recreational areas and facilities													
Ensure compliance with best practices and building codes related to mitigating damage from severe thunderstorms	2015	Ongoing		Local Plans and Regulations	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
10. Ensure adequate measures are taken to mitigate any damage from severe thunderstorms													
Develop and maintain mitigation programs to the reduce the volume of debris that can cause damage during high winds resulting from severe thunderstorms	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
11. Increase personnel awareness of safety measures and mitigation actions to take in response to severe thunderstorms													
Ensure personnel are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
12. Improve and upgrade public works department's capability to mitigate the damage caused by severe thunderstorms													
Enhance and upgrade the capability to remove debris resulting from severe thunderstorm damage	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	high per capita cost	456k+	high (>$100k)	sources unidentified at this time
13. Improve the capability of Water Services to operate and be protected from the effects of severe thunderstorms													
Implement and improve the capability of Water Service facilities to be protected from lightning strikes and damage	2015	Ongoing		Structure and Infrastructure Projects	low	existing	Internal Water Services mechanisms	Water Services	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
Implement and upgrade back-up and redundant power sources to maintain Water Services operability during severe thunderstorms	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Tornado													
1. Increase public awareness and understanding the benefits of "safe rooms."													
a. Develop, distribute informational materials on safe rooms.	2010	Ongoing			Medium		The City's Office of Emergency Management distributes materials and information to the public through its CERT training efforts.	Office of Emergency Management	Ongoing	low cost per capita	456k+	$30k	Grants

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
b. Partner w/ trade orgs. to conduct safe room workshops.	2010	Deferred	Trade groups have not been identified. The City is using CERT training conducted through its Office of Emergency Management as its workshops.										
2. Ensure public facilities have shelters to accommodate staff and visitors during tornadoes/ nat. hazards.													
a. Assess existing facilities for shelter suitability. Mark clearly and inform visitors/employees of locations.	2010	Deleted	Strategy not implemented.										
b. Retrofit or add shelters to existing public facilities with inadequate protection from tornadoes and high wind.	2010	Ongoing			Medium	New	General Services internal mechanisms	General Services	exact competion date unknown at this time	high per capita cost	thousands	$1m per site	sources unidentified at this time
c. Consider adopting policies requiring incorporation of safe rooms/shelters in new public facility construction.	2010	Complete							1/1/2012				
3. Encourage construction of community tornado shelters in office complexes, factories, apt complexes, schools mobile home parks, stadiums, and other large population congregation centers.													
a. Offer residential/ commercial builders/developers tax incentives to construct safe rooms/community shelters in new public facilities.	2010	Deleted	Tax incentives not needed to encourage developers to recommend this best practice to their customers.										
b. Work with chambers of commerce, school districts, corporations, etc. to promote benefits of safe rooms.	2010	Deleted	Strategy not addressed at this time.										
c. Consider adopting ordinances or regs requiring the construction of tornado shelters in new buildings where people live, work or congregate.	2010	Deleted	Strategy not addressed at this time.										
4. Encourage building practices and the use of materials that reduce the damaging effects of tornadoes.													
a. Work w/ trade orgs to inform builders/ developers of construction techniques and materials that may minimize tornado/ high wind damage to residential/ commercial structures.	2010	Deleted	Builders and developers are aware of construction techniques and materials that minimize damage from high winds and tornadoes.										
b. Adopt current edition of a model building code to address structural and architectural issues related to tornadoes and high wind events.	2010	Ongoing			Medium	New	Changes to codes are adopted annually	Private	Ongoing	no cost to adopt for high benefit	n/a	no associated cost	N/A

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
c. Review and enhance (if necessary) regulations related to design and installation of architectural features on buildings to minimize the creation of windborne debris.	2010	Deleted	Strategy not addressed at this time										
d. Require the use of tempered or shatter-resistant glass in the windows of new public/private facilities where large numbers of people may congregate. Retrofit existing facilities.	2010	Deleted	No funding available.										
5. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of tornadoes and high winds.													
a. Anchor or strengthen above-ground transmission lines, poles and similar structures.	2010	Deleted	Utility companies employ best practice engineering methods to protect their infrastructure.										
b. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							1/1/2006				
c. Offer financial or other incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	Strategy not addressed at this time.										
6. Improve Police Department's ability to conduct operations to mitigate loss of life and damage to property													
Identify funding source to provide best protection and highest visibility in order to ensure operation ability.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	low	budget
Work with Regional National Weather Service to provide Storm Spotter training to officers.	2015	Ongoing		Education and Awareness Programs	medium	both	Police Dept. partnering with other agencies/depts.	Police Dept.	Ongoing	low cost per capita	hundreds	low	N/A
7. Increase public awareness on mitigating the damage from tornados													
Include tornado information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	high	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low	General Fund
Utilize social media to share weather forecasts and tornado safety information	2015	Ongoing		Education and Awareness Programs	high	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low	General Fund
Conduct high wind refuge inspections for businesses	2015	Ongoing		Education and Awareness Programs	high	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	hundreds	low	General Fund
Upgrade, enhance, and expand capabilities to warn public and private individuals, agencies, and business of imminent tornado threats	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	high per capita cost	456k+	high	General Fund
8. Maintain and improve relationships with meteorologists and media for increased whole community resiliency													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Participate in the Integrated Warning Team coordinated by NWS	2015	Ongoing		Education and Awareness Programs	high	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low	General Fund
9. Improve the capabilities of urban search and rescue teams in collapsed building techniques to mitigate loss of life													
Identify funding sources to enhance the operational capabilities of urban search and rescue teams in conducting collapsed building search and rescues	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	low	General Fund
Identify and conduct training courses and exercises in collapsed building search and rescue techniques	2015	Ongoing		Education and Awareness Programs	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	med ($10k)	sources unidentified at this time
Improve the capabilities of search and rescue teams through providing equipment and other means to conduct collapsed building search and rescues	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internal with KCFD	KCFD	Ongoing	med cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
10. Improve and enhance personnel resiliency to damage from tornados													
Identify and implement enhanced procedures and improve facilities to provide adequate protection of personnel and tenants from the damage of tornados	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	3500+	high (millions)	sources unidentified at this time
Ensure personnel and tenants are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	high	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
11. Encourage building practices and the use of materials that reduce the damaging effects of tornados													
Adopt current edition of building codes to address structural and architectural issues related to tornados and high wind events	2015	Ongoing		Structure and Infrastructure Projects	medium	new	Codes and ordinances	City Planning and Development	Ongoing	low cost per capita	456k+	low (<$10k)	N/A
12. Enhance Aviation Department's capability to protect from and respond to damage resulting from tornadic activity													
Ensure personnel and tenants are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Research and implement improvements to the Aviation Department's capabilities to respond to damage caused by tornados through improved equipment and procedures	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	hundreds	high (>$100k)	sources unidentified at this time
13. Enhance personnel awareness to the personal dangers inherent with tornados and mitigate any damage from the related hazards													
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding sources for training and information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	medium	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
14. Mitigate or prevent the disruption of cyber networks, structures, and conduits as a result of damage from tornados													
Research and implement enhanced operational methods, hardware, systems, and technology to mitigate cyber disruption from the effects of tornados	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
15. Mitigate damage and loss of life as a result of tornados to public and recreational areas and facilities													
Build in or designate high wind refuge areas within recreational facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	high per capita cost	thousands	high (millions)	sources unidentified at this time
Identify and conduct training for personnel on tornado procedures	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	med cost per capita	3500+	med ($10k - $100k)	sources unidentified at this time
Ensure tornado warning systems and protocols are available for recreational personnel at facilities	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	med cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
16. Increase personnel awareness of safety measures and mitigation actions to take in response to tornados													
Develop and maintain mitigation programs the reduce the volume of debris that can cause damage during high winds resulting from tornados	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	med cost per capita	tonnage (hundreds)	potentially high ($100k+)	sources unidentified at this time
Ensure personnel are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
17. Ensure adequate measures are taken to mitigate any damage from tornados													
Develop and maintain mitigation programs the reduce the volume of debris that can cause damage during high winds resulting from tornados	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	med cost per capita	456k+	high (>$100k)	sources unidentified at this time
18. Improve and upgrade public works department's capability to respond to damage caused by tornados													
Enhance and upgrade the capability to remove debris resulting from tornado damage	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	med cost per capita	tonnage (hundreds)	potentially high ($100k+)	sources unidentified at this time
Wildland Fires													
1. Improve wildland fire hazard assessment information for communities across the Kansas City metropolitan area.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use the Firewise risk analysis methodology and hazard ranking criteria from NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition, to assess the wildland fire threat for specific communities across the Kansas City metropolitan area and compile the results.	2010	Complete							11/01/2013				
b. Work with local fire departments, state and federal agencies (e.g., Missouri Department of Conservation, Missouri Department of Natural Resources and the Natural Resources Conservation Service) to identify areas in each community subject to wildland fires and depict them on maps or include them on GIS layers.	2010	Deleted	Low incidents of wildland fires within the KCMO area has negated the necessity to work with other agencies to identify the areas.										
c. Include maps and information from community-based wildland fire hazard assessments in local emergency operations and land use plans.	2010	Deleted	Low incident and diminished wildland area has negated the necessity of this action.										
2. Enhance public awareness of wildland fire mitigation and preparedness activities.													
a. Work with fire departments/fire protection districts to conduct a public education campaign to inform citizens across the region, especially those in rural areas, of the benefits of creating a defensible space around their homes and other structures on their property.	2010	Deleted	The low risk of wildland fires due to few areas of wildland interface areas has negated the importance of the action.										
b. Collect and disseminate public education materials that address wildland fire safety, preparedness and mitigation activities.	2010	Deleted	The low risk of wildland fires due to few areas of wildland interface areas has negated the importance of the action.										
c. Provide homeowners in rural and/or urban-wildland interface areas with information on wildland fire safety, preparedness and mitigation activities.	2010	Deleted	The low risk of wildland fires due to few areas of wildland interface areas has negated the importance of the action.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Partner with fire departments/fire protection districts and community groups to conduct special public education events, such as a Fire Safety and Awareness Day.	2010	Deleted	Funding not available.										
3. Encourage building practices and the use of materials that reduce the damaging effects of fire.													
a. Adopt ordinances or building code modifications prohibiting the use of highly flammable materials, e.g., wood shakes, in the construction of roofs on new homes.	2010	Ongoing			Low	New	City Council adopts the latest IBC & IRBC.	City Council	Ongoing as the International Building Codes change.	Decreased damage to structures; life safety due to increased time before structure is completely engulfed in flames.	456k+	unknown	sources unidentified at this time
b. Work with homeowners associations to eliminate the requirement for wood shake roofs from subdivision covenants and allow retrofits of roofs made of fire resistant materials.	2010	Complete							checking				
c. Consider financial incentives, e.g., property tax reductions, etc., to encourage the use of fire resistant materials (tile roofs, etc.) in the construction of homes or commercial structures.	2010	Deleted	Building practices are covered under codes - incentives not needed.										
d. Adopt the most current editions of model fire and building codes to address structural and architectural issues related to fire safety and prevention.	2010	Deferred	obtain from CPD										
e. Review and, if necessary, enhance regulations related to the design and installation of architectural features on structures to minimize their susceptibility to fire (e.g., enclosing soffits, reducing the overhang of bay windows, etc.), especially in rural and/or urban-wildland interface areas.	2010	Deleted	Codes Changed frequently in response to the many issues							reduced property damage; life safety from decrease in time for building to be completely engulfed			
4. Encourage implementation of wildland fire mitigation practices that also aid in the restoration or enhancement of natural areas and ecosystems.													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
a. Use thinning and prescribed burning to reduce the build-up of vegetation and organic surface litter and debris in woodlands and other natural areas.	2010	Deferred	parks and recreation; FD provides permits										
b. To reduce the risk of wildland fires in parks, campgrounds and publicly-owned natural areas, encourage the clearing of brush, debris and other potentially hazardous vegetation (especially dry and dead vegetation) as a part of routine landscaping and grounds maintenance.	2010	Deferred	Parks & Recreation										
c. Provide homeowners with educational materials that address the hazard mitigation and ecological benefits of clearing brush, debris and organic surface litter from their property.	2010	Deleted	The low risk of wildland fires due to few areas of wildland interface areas has negated the importance of the action.										
5. Improve the wildland firefighting capabilities of area fire departments and fire protection districts, particularly those in rural areas.													
a. Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire protection districts; assist fire agencies with the development of grant applications.	2010	Ongoing			Medium	New	This action is handled both locally and regionally through the RHSCC	Fire Dept.	Ongoing as new funding sources are identified	Increasing the fire departments capabilities reduces response time resulting in decreased loss of life and property.	456k+	unknown	sources unidentified at this time
b. Conduct seminars or workshops to educate fire service personnel about the full range of grants and related financial assistance available from the state and federal governments (e.g., U.S. Fire Administration Assistance to Firefighters Grant Program).	2010	Deleted	KCMO does not host these events.										
c. Identify training opportunities, and conduct training courses and exercises focusing on wildland firefighting.	2010	Deferred	Funding sources were not available for this time frame.										

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
d. Identify and inventory alternative water resources for fire departments and fire protection districts, map their locations and determine appropriate methods for accessing these water resources.	2010	Complete							2010				
6. Reduce the wildland fire threat by regulating outdoor burning.													
a. Adopt ordinances prohibiting the burning of brush and yard debris without a permit.	2010	Complete							24768				
b. Prohibit burning, use of campfires in parks and similar activities during weather conditions conducive to wildland fires (i.e., extended periods of high heat, high winds and low humidity).	2010	Complete							24768	prevent accidental fires from outlined activities			
c. Adopt ordinances prohibiting or regulating the use of fireworks.	2010	Complete							1970s				
7. Encourage building practices and the use of materials that reduce the damaging effects of fire													
Adopt building code modifications prohibiting the use of highly flammable materials in the construction of roofs on new homes or replacing roofs on existing homes	2015	Ongoing		Local Plans and Regulations	low	both	conducted through codes, code enforcement, and legislation	Code Enforcement, City Council	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
8. Improve the wildland firefighting capabilities of the fire department to mitigate loss of life and property damage													
Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments.	2015	Ongoing		Local Plans and Regulations	medium	both	internal with KCFD	KCFD	Ongoing	low cost per capita	tens of thousands	low (<$10k)	sources unidentified at this time
Identify training opportunities and conduct training courses and exercises focusing on wildland firefighting.	2015	Ongoing		Education and Awareness Programs	low	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	tens of thousands	med ($10k - $100k)	sources unidentified at this time
Identify and inventory alternative water resources for the fire departments, map their locations, and determine appropriate methods for utilizing these water resources.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
9. Mitigate or prevent damage due to wildland fires													
Research and implement improvements to the Aviation Department's capabilities to respond to wildland fires through improved equipment and procedures	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding to enhance the capability of preventing wildland fires through improved procedures, technology, and methods	2015	Ongoing		Structure and Infrastructure Projects	low	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify and conduct training for personnel on improved procedures, technology, and methods for enhancing the capability of preventing wildland fires	2015	Ongoing		Education and Awareness Programs	low	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Winter Weather													
1. Encourage electric and telecommunications utilities to protect their existing infrastructure from the effects of severe winter weather.													
a. Adopt ordinances or regulations requiring the underground placement of new electric and telecommunications transmission lines.	2010	Complete							11-7-96				
b. Offer incentives to utility providers to replace existing above-ground utility lines with underground utility lines.	2010	Deleted	Incentives not within the scope of Kansas City, MO.										
c. Budget for the incremental replacement of existing above-ground utility lines with underground utility lines.	2010	Deleted	Missouri Gas Energy Budget not within the scope of Kansas City, MO.										
2. Ensure local governments and human services agencies are aware of facilities across the Kansas City area with generators or emergency power that can be used as shelters in the event of severe winter weather.													
a. Partner with MARC, the American Red Cross, Salvation Army and other stakeholders to inventory public, private and non-profit facilities that have generators or emergency power and can be used as shelters in the event of severe winter weather.	2010	Complete							2012				
b. Retrofit otherwise suitable existing facilities with generators for emergency power.	2010	Ongoing		Structure and Infrastructure Projects	Medium	Existing	In partnership with MARC and other stakeholders.	Neighborhood and Community Services Dept.	2015	high cost per capita	hundreds	high (>$100k)	grant and budget funding
c. Consider the adoption of policies requiring generators or other emergency power systems in the construction of new public facilities.	2010	Ongoing		Structure and Infrastructure Projects	Medium	Existing	The Model Building Code has been adopted by the City at the recommendation of City Planning and Development	City Planning and Development Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	N/A
3. Ensure at-risk, low income and elderly residents have adequate heat in their homes.													
a. Partner with community service organizations to provide materials and volunteer labor to assist at-risk groups, low income residents and the elderly with winterizing their homes.	2010	Ongoing		Structure and Infrastructure Projects	Medium	Existing	Neighborhoods and Community Services Dept.	Neighborhoods and Community Services Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	N/A

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
4. Since traffic accidents account for 70% of injuries related to ice and snow, develop and implement programs to improve road conditions and protect motorists during severe winter weather													
a. Budget for the stockpiling of sand, salt and other materials necessary to reduce or eliminate ice on roadways and improve road conditions.	2010	Ongoing		Structure and Infrastructure Projects	Medium	Existing	Public Works Department, OMB, City Managers Office, City Council, and budget approval	Public Works Department	Ongoing	high cost per capital	456k+	$3M Annually	General Fund
b. Work with area local governments and MARC to develop a regional "pool" of sand, salt and other materials necessary to reduce or eliminate ice on roadways.	2010	Deleted	No plans to complete project, local governments have refused offers to participate										
c. Partner with area local governments to establish a mutual aid system for sand, salt and other materials and their delivery resources (i.e., trucks, crews, etc.).	2010	Deleted	No formal agreements have been made.										
5. Enhance public awareness of severe winter weather mitigation and preparedness activities.													
b. Collect and disseminate public education materials that address winter weather safety, preparedness and mitigation activities.	2010	Ongoing		Education and Awareness Programs	Medium	New and Existing	The KCMO Health Departments website contains information and tips on a number of winter safety preparedness topics and mitigation activities.	Health Department	Updates are Ongoing	low cost per capita	456k+	low (<$10k)	N/A
c. Provide vulnerable populations with winter weather safety, preparedness and mitigation information.	2010	Ongoing		Education and Awareness Programs	Medium	Existing	The KCMO Health Departments website has information on weather safety, preparedness and mitigation steps for vulnerable populations.	Health Department	Updates are Ongoing	low cost per capita	thousands	low (<$10k)	N/A
d. Partner with emergency services, public health and community groups to conduct special public education events, such as a Severe Winter Weather Awareness Day.	2010	Ongoing		Education and Awareness Programs	High	Existing	Severe Weather Awareness Week is an annual program with a number of events. In 2009 Severe Weather Awareness Week for Missouri and Kansas was held between March 9-13. SEMA, MARC, the City's Office of Emergency Management, and the LEPC are all involved.	Office of Emergency Management	Ongoing	low cost per capita	456k+	low (<$10k)	N/A
6. Increase public awareness on health issues related to severe winter weather and cold temperatures													
Collect and disseminate public education materials that address winter weather safety, preparedness, and mitigation activities	2015	Ongoing		Education and Awareness Programs	medium	both	APIC/ Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ National Weather Service	KCHD	Ongoing	unknown	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ City Communications
Utilize various methods of mass and social media to inform and educate the public regarding winter weather safety, preparedness, and mitigation activities	2015	Ongoing		Education and Awareness Programs	medium	both	Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ National Weather Service/ City Communications	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ City Communications

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify funding resources for mechanisms to disseminate information to the public regarding winter weather safety, preparedness, and mitigation activities	2015	Ongoing		Education and Awareness Programs	medium	both	Hosp Sub Comm/ PH Sub Comm/ First Responders/ MARCER/ National Weather Service	KCHD	Ongoing	low cost per capita	456k+	low (<$10k)	PHP/ CRI/ Levee Funds/ Core PH Funds/ City Communications
7. Improve Police Department's ability to maintain operational ability during severe winter weather to assist with mitigating loss of life .													
Identify and conduct training courses to mitigate adverse effects of severe winter weather on officers.	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Identify funding in order to conduct training in emergency vehicle operation during ice and snow.	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Identify funding in order to provide winter weather related protective equipment for officers	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Police Dept. mechanism	Police Dept.	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
8. Ensure at-risk, low income, and elderly residents have adequate capability to heat their homes in the winter													
Identify funding sources to provide materials and labor to assist at-risk, low income, and elderly residents with improving their residence's capability to maintain climate control during cold weather	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
Partner with community service organizations to provide materials and volunteer labor to assist at-risk, low income, and elderly residents with improving their residence's capability to maintain climate control during cold weather	2015	Ongoing		Structure and Infrastructure Projects	medium	both	internally through Neighborhoods and Housing Services mechanisms	Neighborhoods and Housing Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
9. Increase public awareness on mitigating the effects and damage from severe weather													
Include winter weather information in preparedness outreach and campaigns	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	med ($10k - $100k)	General Fund
Research and utilize social media to share weather forecasts & winter safety information	2015	Ongoing		Education and Awareness Programs	medium	existing	Local Emergency Ops Plan	OEM	Ongoing	low cost per capita	456k+	low (<$10k)	General Fund
10. Improve Aviation Department's capability to mitigate the damage from severe winter storms													
Research and upgrade operations and technology to improve capability to mitigate the damage from ice and snow	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	hundreds	high (>$100k)	sources unidentified at this time
Provide and upgrade redundant systems to ensure continued operation during severe winter weather	2015	Ongoing		Structure and Infrastructure Projects	high	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	hundreds	high (>$100k)	sources unidentified at this time
11. Ensure city departments and human services agencies are aware of facilities with generators or emergency power that can be used as shelters in the event of severe winter weather													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Consider the adoption of policies requiring emergency power systems in the construction of new public facilities	2015	Ongoing		Structure and Infrastructure Projects	medium	new	confirm adherence to the Model Building Code adopted by the City	City Planning and Development	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
12. Increase personnel and tenant awareness on health issues related to severe winter weather													
Conduct training and disseminate information to personnel and tenants on mitigating the effects of severe winter weather	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Conduct training and disseminate information on identifying symptoms of prolonged exposure to cold	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
Ensure outdoor crews have adequate personal protection to mitigate the effects of prolonged cold	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Ensure personnel and tenants are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
13. Improve Aviation Department's capability to mitigate the damage from severe winter storms													
Research and upgrade operations and technology to improve capability to mitigate the damage from ice and snow	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Provide and upgrade redundant systems to ensure continued operation during severe winter weather	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Aviation mechanisms	Aviation	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
14. Improve public facilities' resistance to heat loss to reduce energy consumption for climate control within the facilities													
Research and implement best practices for building methods to prevent heat loss and mitigate damage to excessive cold temperatures	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	med cost per capita	thousands	high (>$100k)	sources unidentified at this time
Identify funding sources to implement best practices for building methods to prevent heat loss and mitigate damage to excessive cold temperatures	2015	Ongoing		Structure and Infrastructure Projects	low	both	General Services internal mechanisms	General Services	Ongoing	low cost per capita	thousands	low (<$10k)	sources unidentified at this time
15. Improve the capability to respond to the effects and mitigate the damage from severe winter storms													
Implement and enhance locating equipment upon snow/ice removal equipment to maximize efficient utilization and enhance operational capability	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
16. Ensure the Parks and Recreation Department has the capacity to respond to winter related issues													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Enhance the capability to respond to winter related issues such as snow accumulation and ice	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	thousands	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training for personnel to respond to winter related issues such as snow and ice removal	2015	Ongoing		Education and Awareness Programs	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
17. Mitigate possible public injury resulting from winter ice sports													
Identify and implement enhanced methods of conducting testing of ice thickness on various lakes and ponds	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	hundreds	med ($10k - $100k)	sources unidentified at this time
Disseminate information to the public on the danger of bodies of water unsuitable for conducting ice sports	2015	Ongoing		Education and Awareness Programs	medium	existing	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	med ($10k - $100k)	sources unidentified at this time
Identify and conduct training for personnel to enhance the capabilities of detecting ice thickness/safety of various lakes and ponds for ice sports	2015	Ongoing		Education and Awareness Programs	medium	existing	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	low cost per capita	456k+	low (<$10k)	sources unidentified at this time
18. Increase personnel awareness on health issues related to excessive and extreme cold													
Conduct training and disseminate information to personnel on mitigating the effects of extreme cold	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
Conduct training and disseminate information on identifying and treating cold related injuries	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	3500+	low (<$10k)	sources unidentified at this time
Ensure outdoor crews have adequate personal protection to mitigate the effects of prolonged or severe cold	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	low cost per capita	hundreds	low (<$10k)	sources unidentified at this time
19. Improve the capability of Water Services to operate and be protected from the effects of severe winter weather													
Implement and upgrade back-up and redundant power sources to maintain Water Services operability during severe winter weather	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal Water Services mechanisms	Water Services	Ongoing	low cost per capita	456k+	high (>$100k)	sources unidentified at this time
Conduct training and provide information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	unknown	unknown	unknown	unknown	unknown
Identify funding sources for training and information for personnel regarding the inherent dangers of and maintaining safety during a tornado	2015	Ongoing		Education and Awareness Programs	low	both	General Services internal mechanisms	General Services	unknown	unknown	unknown	unknown	unknown
8. Mitigate or prevent the disruption of cyber networks, structures, and conduits as a result of damage from severe thunderstorms													

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Research and implement enhanced operational methods, hardware, systems, and technology to mitigate cyber disruption from the effects of severe thunderstorms.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanism within IT	Information Technology	Ongoing	unknown	unknown	unknown	unknown
9. Mitigate or prevent damage and loss of life as a result of severe thunderstorms to public and recreational areas and facilities													
Ensure compliance with best practices and building codes related to mitigating damage from severe thunderstorms	2015	Ongoing		Local Plans and Regulations	medium	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	unknown	unknown	unknown	unknown
10. Ensure adequate measures are taken to mitigate any damage from severe thunderstorms													
Develop and maintain mitigation programs to the reduce the volume of debris that can cause damage during high winds resulting from severe thunderstorms	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	unknown	unknown	unknown	unknown
11. Increase personnel awareness of safety measures and mitigation actions to take in response to severe thunderstorms													
Ensure personnel are adequately informed regarding potential weather conditions	2015	Ongoing		Education and Awareness Programs	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	unknown	unknown	unknown	unknown
12. Improve and upgrade public works department's capability to respond to damage caused by severe thunderstorms													
Enhance and upgrade the capability to remove debris resulting from severe thunderstorm damage	2015	Ongoing		Structure and Infrastructure Projects	medium	both	Internal mechanisms of Public Works	Public Works	Ongoing	unknown	unknown	unknown	unknown
13. Improve the capability of Water Services to operate and be protected from the effects of severe thunderstorms													
Implement and improve the capability of Water Service facilities to be protected from lightning strikes and damage	2015	Ongoing		Structure and Infrastructure Projects	low	existing	Internal Water Services mechanisms	Water Services	Ongoing	unknown	unknown	unknown	unknown
Implement and upgrade back-up and redundant power sources to maintain Water Services operability during severe thunderstorms	2015	Ongoing		Structure and Infrastructure Projects	medium	existing	Internal Water Services mechanisms	Water Services	Ongoing	unknown	unknown	unknown	unknown
Wildland Fires													
1. Encourage building practices and the use of materials that reduce the damaging effects of fire													
Adopt building code modifications prohibiting the use of highly flammable materials in the construction of roofs on new homes or replacing roofs on existing homes	2015	Ongoing		Local Plans and Regulations	low	both	conducted through codes, code enforcement, and legislation	Code Enforcement, City Council	Ongoing	unknown	unknown	unknown	unknown
2. Improve the wildland firefighting capabilities of the fire department													
Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments.	2015	Ongoing		Local Plans and Regulations	medium	both	internal with KCFD	KCFD	Ongoing	unknown	unknown	unknown	unknown

Mitigation Goals and Action Steps	Plan Year	Status of Project	Status Explanation	Type of Mitigation Activity (2015)	Priority	Applies to Community Assets (New/Existing)	Existing Local Planning Mechanism through which the action was/will be implemented	Primary Agency Responsible for Implementation / Administration	Date for Completion	Cost / Benefit Review	Target Capacity (2015)	Estimated Cost ($)	Funding Source
Identify training opportunities and conduct training courses and exercises focusing on wildland firefighting.	2015	Ongoing		Education and Awareness Programs	low	both	external partnerships and internal with KCFD	KCFD	Ongoing	unknown	unknown	unknown	unknown
Identify and inventory alternative water resources for the fire departments, map their locations, and determine appropriate methods for utilizing these water resources.	2015	Ongoing		Structure and Infrastructure Projects	medium	both	external partnerships and internal with KCFD	KCFD	Ongoing	unknown	unknown	unknown	unknown
3. Mitigate or prevent damage due to wildland fires													
Research and implement improvements to the Aviation Department's capabilities to respond to wildland fires through improved equipment and procedures	2015	Ongoing		Structure and Infrastructure Projects	low	both	Internal Aviation mechanisms	Aviation	Ongoing	unknown	unknown	unknown	unknown
Identify funding to enhance the capability of preventing wildland fires through improved procedures, technology, and methods	2015	Ongoing		Structure and Infrastructure Projects	low	both	Parks and Recreation partnering with other agencies/depts.	Parks and Recreation	Ongoing	unknown	unknown	unknown	unknown
Identify and conduct training for personnel on improved procedures, technology, and methods for enhancing the capability of preventing wildland fires	2015	Ongoing		Education and Awareness Programs	low	both	Internal Parks and Recreations mechanisms	Parks and Recreation	Ongoing	unknown	unknown	unknown	unknown

Attachment 5.3: School Mitigation Strategies

Archie R-V School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Severe Wather													
1. Educate Board of Education, district, staff, parents, patrons and students about the necessity of severe weather planning at school and home.													
Disseminate information to patrons based upon survey information, Meet with school personnel regarding school district safety and emergency preparedness. Initiate ongoing information dissemination and awareness for the dsitrict's staff, parents and patrons during	2010											Complete	
2. Disseminate information to Board of Education, district sstaff, paretns, patrons and students regarding the threat of severe weather and preventative measures that can be taken to mitigate the hazards associated with severe weather.													
	2010											Complete	
Tornadoes													
1. Goal Statement Educate Board of Education, district staff, parents, patrons and students about the necessity of severe weather planning at school and at home.													
Action Statement Educate Parents and patrons regarding sever storm saftey.	2010	High	Emergency Preparedness Plan	Board of Education	Ongoing	Cost is negligible, benefit is saving of life	1000	$0	Local	Education and Awareness Programs	Existing	Ongoing	
Educate parents, patrons regarding severe storm safety	2010	High	Emergency Preparedness Plan	Board of Education	Ongoing	Cost is negligible, benefit is saving of life	1000	$0	Local	Education and Awareness Programs	Existing	Ongoing	
Intruder													
1. Prevent access of intruder into buildings of school campus and train faculty and staff in reacting to threat of intruder/active shooter.													
Installation of remote access exterior to district campus	2015	High	Emergency Preparedness Plan	Local Board of Education	Ongoing	Minimize the loss of life and property damage	Students, Faculty and Staff	$10,000	Local Budget	Local Plans and Regulations	Existing	Ongoing	
Annual Inservice	2015	High	Emergency Preparedness Plan	Local Board of Education	Yearly/Ongoing	Minimize the loss of life and property damage	Students, Faculty and Staff	$0	Local Budget	Local Plans and Regulations	Select	Ongoing	

Blue Springs R-IV School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Improve student safety from natural and man made hazards													
Construct storm shelters	2010	High	Budget and SEMA/FEMA Tornado Safe Room Grant Program	Blue Springs School District/SEMA/ FEMA	2015	Costs of constructing storm shelters would be high but the benefits outweigh the cost when increased student and community safety is considered.	1600	High - $3 Million	School District Budget and possible Federal Grant	Structure and Infrastructure Projects	Existing	Ongoing	
Implement tornado readiness procedures	2010	High	Curriculum and Standard Procedures of School District	Blue Springs School District	ongoing	Low cost method of ensuring the safety of students, staff and community.		Low	School District Budget	Local Plans and Regulations	Existing	Ongoing	
Establish Community Reaction Leadership Team to address severe weather and other hazards	2010	High	School District Administration Policies	Blue Springs School District	ongoing	low cost method for reviewing hazard related procedures and considering how procedures and hazard related informaiton with be communicated to the public		Low - staff time	School District Budget	Local Plans and Regulations	New	Ongoing	
Establish, maintain and communicate an effective crisis management plan.	2010	High	School District Administration Procedures	Blue Springs School District	ongoing	Development of a crisis management plan and providing training around that plan can make the difference between an orderly response to an event and a chaotic response which might result in an increased number of deaths or injuries.		Low - staff time	School District Budget	Local Plans and Regulations	Existing	Ongoing	
Retrofit/construct new school district buildings with tornado safety features.	2015	High	Master Facility Plan	BSSD/FEMA	3 yrs	Protect students and patrons in case of tornadic weather.	800	$6.6M	Local/Federal 75/25%	Structure and Infrastructure Projects	New	Ongoing	
2. Communicate effective crisis management plans.													
Regularly update and test crisis management plans.	2015	High	Long Rane Strategic Communications P	BSSD	ongoing	High payback, low cost	14,700 students 2,000 staff Parents	$,4000 annually	BSSD	Local Plans and Regulations	Existing	Ongoing	
Intruder													
1. Improve student safety from natural and man made hazards													

Conduct additional drills related to active shooter/intruder.	2010	High	School District Operational Procedures	Blue Springs School District	ongoing	Additional drills focusing on options for dealing with an active shooter have the potential to be a low cost approach to increasing awareness and saving lives.		Low	School District Budget	Education and Awareness Programs	Existing	Ongoing	
Establish, maintain and communicate an effective crisis management plan.	2010	High	School District Administration Procedures	Blue Springs School District	ongoing	Development of a crisis management plan and providing training around that plan can make the difference between an orderly response to an event and a chaotic response which might result in an increased number of deaths or injuries.		Low - staff time	School District Budget	Local Plans and Regulations	Existing	Ongoing	
Establish Community Reaction Leadership Team to address severe weather and other hazards	2010	High	Curriculum and Standard Procedures of School District	Blue Springs School District	ongoing	Low cost method of ensuring the safety of students, staff and community.		Low	School District Budget	Local Plans and Regulations	Existing	Ongoing	
Install security systems and other tareget hardening measures to minimize the threat of intruders in any new facilities.	2015	High	Integrated Security Plan	BSSD	3-5 years	High payback, low cost	new students	$50,000 (ea)	BSSD	Structure and Infrastructure Projects	New	Ongoing	

Fort Osage R-I School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Intruder													
1. The Fort Osage R1 School District will revise, distribute, and implement building safety and emergency plans													
Train staff in the understanding of NIMS	2010											Comlete	The State of Missouri uses a school emergency planning portal (now called Missouri 1Plan) which host best practice emergency planning templates, site mapping and other critical emergency response information and is adding training, risk assessment and other modules to ensure schools have the best tools possible to support their emergency planning efforts.
2. The Fort Osage R1 School District will revise, distribute, and implement building safety and emergency plans													
Distribute Go Kits and easily identifiable emergency responder apparel to key district staff responsible for responding t an incident.	2010											Deleted	The resources were directed to other safety related purchases asccociated with building access software a visitor management system, and security cameras.
Train staff in the understanding of NIMS	2010	High	Key staff mamebers complete online courses in ICS 100 and 700	District Safety Coordinator	Annually	Empower all staff to respond appropriatel y to emergency situation.	5000 students and 800 staff members	$0	N/A	Education and Awareness Programs	Existing	Ongoing	
4. The district will provide training to staff using the Run, Hide Fight priniciples developed by the US Dept of Homeland Security													
Driils conducted throught the school year	2015	High	District and building levels teams	Fort Osage School District	Ongoing	Explanation	Explain	$0	N/A	Local Plans and Regulations	Existing	Ongoing	
Tornadoes													
1. The district will insure staff and students conduct tornado drills during the school year.													
Increase the capacity for communicating the potential of tornadic activity in a timelier manner.	2015	High	District and building levels teams	Fort Osage School District	Ongoing	Explanation	Early notification	$0	N/A	Local Plans and Regulations	Existing	Ongoing	
2. Continuity of Services													
Develop and institute a disaster recovery plan for continuity of student and business services	2015	High	District and building levels teams	Fort Osage School District	Ongoing	Explanation	Resiliency	$500,000	Operational funds or bond sale	Structure and Infrastructure Projects	New	Ongoing	
Severe Thunderstorms													
1. The district will insures staff and students conduct server wearher drills during the school year.													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Increase capacity for commuication	2015	High	Disrict Administration	Fort Osage School District	Ongoing	Explanation	Rapid notification	$200,000	Sale of bonds or use of designated operating funds	Structure and Infrastructure Projects	Existing	Ongoing	
2. Continuity of Services													
Contunity of services	2015	High	District administration	Fort Osage School District	Ongoing	Explanation	Maintenance	$500,000	Sale of bonds or use of designated operating funds	Local Plans and Regulations	New	Ongoing	
Severe Winter Weather													
1. The district will develop strategies for insuring the safety of staff and students during severe winter weather													
Increase the capacity for communicating the potential of severe winter weather in a timelier manner.	2015	High	District and building levels teams	Fort Osage School District	Ongoing	Explanation	Early notification	$0	Explain	Local Plans and Regulations	Existing	Ongoing	
2. Continuity of Services													
Develop and institute a disaster recovery plan for continuity of student and business services	2015	High	District and building levels teams	Fort Osage School District	Ongoing	Explanation	Resiliency	$500,000	Operational funds or bond sale	Structure and Infrastructure Projects	New	Ongoing	

Kansas City Public School District, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Safety procedures have been updated for SY15 to increase safety using new recommendations. Increase Safety Drill particpation and evaluate for effectiveness													
Review and implement safety drills and evaluate them for effectiveness	2015	High	KCPS implements the safety drills and updates them as needed per mandated requirements or logistical need	KCPS Safety and Security in conjunction with Risk Management	Safety drills are placed on a monthly calendar for execution. Reported drills are reviewed regularly with Principals and School Leadership	The only cost is the salaried manpower to evaluate the execution of the drill. The benefit is unmeasurable for the protection of life	Safety drills impact the entire student body and all staff population for KCPS. Additionally any visiting or neighboring parties may also be included.	Emergency Guideline booklets used for the execution of safety drills may be updated every three years and can cost between 20,000 and 50,000 depending on the nature of the update.	Funding is maintained as an operational budgeted item	Education and Awareness Programs	Existing	Ongoing	
Hazardous Materials Release													
2. Provide training to all relevent staff to identify the concerns and understand the steps to properly ensure safety of persons and property													
Provide training to staff for the identificationand appropriate action to implement after a spill or release	2015	High	KCPS utilizes certified consultan	KCPS Operations Department	KCPS would like to provide annual training for staff	Cost would be the fee for a certified consultant to execute the training/ Benefit would be in the cost effective handling of the material and peace of mind for those in proximity that they have not been put in harms way.	All staff and students, visitors to KCPS	$10,000 annually	It would be funeded as an operational budget item if the funds were available.	Education and Awareness Programs	Existing	Ongoing	
Severe Winter Weather													
3. Refine procedures to respond to severe winter weather to ensure the continuation of regular activities while providing a safe and comfortable environment.													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Snow removal, surface treatment, vehicle and equipment maintenance, facility maintaince to ensure safe environments	2015	High	KCPS deploys staff members in District owned vehicles to address severe winter weather concers.	KCPS Operations Department	Annually	Explanation	All staff and students, and public	$1,120,000	Operating budget	Local Plans and Regulations	Existing	Ongoing	
Civil Disorder													
4. Establishing behavior expectations for students and adults and enforce standards. Staff inhouse security in safety sensitive areas, increase relationship with KCPD to assist as needed to respond to incidents.													
Increase training of security officers to handle concerns involving mental illness, to de-escalate situations without using force or removing student from school.	2015	High	KCPS Safety and Security maintains a staff of site based and patrol officers.	KCPS Operations Department	Annually	cost benefit result is in the reduction of liability claims against the District and increase the safety of all	All staff, students and public	$5,271,000	Operating budget	Education and Awareness Programs	Existing	Ongoing	
Intruder													
5. Continue with ASIRT training for all employees, provide supervised drills to ensure effectiveness of the response, provide education to parents and community partners on school safety protocols.													
Establish the most secure enironment for student and staff safety. Controlling entry of unauthorized visitors through installation of integrated security systems and redeisgn school entries for security purposes..	2015	high	School Safety and Security Program	KCPS Operations Department	As soon as possible	Safety is the benefit	All staff, student and public	$6,100,000	Undetermined as of now	Structure and Infrastructure Projects	New	Ongoing	

Kansas City University of Medicine and Biosciences, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
Consistant Monthly Drills													
Identify shelter areas in building-Monthly drills for staff, student, & faculty familiarity.	2015	Medium	Safety Plan/EOP	Security	1 year	Low cost mechanism to increase student safety.	250-750	n/a	n/a	Structure and Infrastructure Projects	Existing	Ongoing	
Severe Winter Weather													
Communitcating and Identifying hazardous snow/ice conditions to our community													
Mass notifications to university community on snow/ice hazards	2015	Medium	Safety Plan/EOP	Security	1 year	Low cost mechanism to increase student safety.	1000	n/a	n/a	Education and Awareness Programs	Existing	Ongoing	
Civil Disorder													
Communitcating and Identifying Civil Disorders or protestors to our university community													
Mass notifications to university community civil disorder	2015	Medium	Safety Plan/EOP	Security/KCPD	1 year	Low cost mechanism to increase student safety.	1000	n/a	n/a	Education and Awareness Programs	New	Ongoing	
Intruder													
Lockdown drills													
Mass notifications to university community Intruder/Active Shooter	2015	High	Safety Plan/EOP	Security/KCPD	1 year	Low cost mechanism to increase student safety.	1000	n/a	n/a	Education and Awareness Programs	New	Ongoing	

Harrisonville School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Severe Thunderstorms													
1. Educate district staff, parents and students about the necessity of severe weather planning at school and at home.													
Obtain and distribute educational brochures to help staff, students and families become more aware of the dangers of severe thunderstorms and ways they can protect themselves.	2010	Medium	Emergency Preparedness Training and Communications	District Administration and Building Administration	ongoing	Low cost approach to increase awareness of actions people can take to prevent injury, death and property damage from severe thunderstorms.	5000	Very low cost	District Budget	Education and Awareness Programs	Existing	Ongoing	
Initiate onoing training and awareness of district staff and students.	2010	Medium	Emergency Preparedness Training and Communications	District Administration and Building Administration	ongoing	Low cost approach to increase awareness of actions people can take to prevent injury, death and property damage from severe thunderstorms.	5000	Very low cost	District Budget	Education and Awareness Programs	Existing	Ongoing	
Tornadoes													
1. Educate district staff, parents and students about the necessity of severe weather planning at school and at home.													
Obtain and distribute educational brochures to help staff, students and families become more aware of the dangers of severe thunderstorms and ways they can protect themselves.	2010	Medium	Emergency Preparedness Training and Communications	District Administration and Building Administration	ongoing	Low cost approach to increase awareness of actions people can take to prevent injury, death and property damage from tornadoes.	5000	Very low cost	District Budget	Education and Awareness Programs	Existing	Ongoing	
Initiate onoing training and awareness of district staff and students.	2010	Medium	Emergency Preparedness Training and Communications	District Administration and Building Administration	ongoing	Low cost approach to increase awareness of actions people can take to prevent injury, death and property damage from tornadoes.	5000	Very low cost	District Budget	Education and Awareness Programs	Existing	Ongoing	

2. Continue to train students and staff for various disaster situations.													
Develop protocols for visitors to district buildings.	2015	High	This will be implemented through the district safety team.	District and Building Administration	August 2015-June 2016	This action will provided us with consistent practices for the arrival and departure of district visitors during school hours/business hours.	This will impact all visitors, students, staff, and all buildings.	None	N/A	Local Plans and Regulations	Existing	Ongoing	
Design and build secure entries to district buildings.	2015	High	This will be implemented through the district safety team.	District and Building Administration	August 2015 - Ongoing	This action will provided us with building entrances that allow for safe arrival and departure of visitors, and it will assist with the maintainence of secure facilities.	This will impact all visitors, students, staff, and all buildings.	$50,000 - $100,000	Local district funds	Structure and Infrastructure Projects	Existing	Ongoing	
Intruder													
1. Evaluate and improve district infrastructure for hazard mitigation													
Create plans for secure entry into district buildings.	2015	High	This will be implemented through the district safety team.	District and Building Administration	August 2015-June 2016	This action will provided us with consistent practices and facilities within the district.	This will impact all visitors, students, staff, and all buildings.	None	N/A	Local Plans and Regulations	Existing	Ongoing	
Develop protocols for visitors to district buildings.	2015	High	This will be implemented through the district safety team.	District and Building Administration	August 2015-June 2016	This action will provided us with consistent practices for the arrival and departure of district visitors during school hours/business hours.	This will impact all visitors, students, staff, and all buildings.	None	N/A	Local Plans and Regulations	Existing	Ongoing	
Design and build secure entries to district buildings.	2015	High	This will be implemented through the district safety team.	District and Building Administration	August 2015 - Ongoing	This action will provided us with building entrances that allow for safe arrival and departure of visitors, and it will assist with the maintainence of secure facilities.	This will impact all visitors, students, staff, and all buildings.	$50,000 - $100,000	Local district funds	Structure and Infrastructure Projects	Existing	Ongoing	

Independence School District, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Improve student safety from natrual and man-made hazards.													
Construct a storm shelter	2015	High	Capital Plan	ISD 30	Ongoing	Add to new facilities as we can	Total enrollment of attendance center involved	$12-20 million	District/Levy/Bond	Structure and Infrastructure Projects	New	Ongoing	
Implement use of interoperable radio on City emergency system	2015	High	District Plan	ISD 30	2 years	Implement district wide	District	$50,000	District Capital	Structure and Infrastructure Projects	New	Ongoing	
Intruder													
1. Improve student safety from natrual and man-made hazards.													
Install video identification system at main entrances	2015	Medium	Test	ISD 30	2-3 years	Cost is great	District	$1 million with yearly fees	District Capital	Education and Awareness Programs	Existing	Ongoing	
Lock down doors and access software	2015	High	District Plan	ISD 30	1-2 years	Add to new and retofit	District	$3-5 million	District Capital	Structure and Infrastructure Projects	Existing	Ongoing	

Lee's Summit R-VIII School District, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Intruder													
1. Active Shooter/Intruder Response Training													
Define and implement an Active Shooter/Intruder Response Training (ASIRT) for all facilities and staff.	2015	High	Emergency Response Quality Focus Team	Student Services/Safety	Within the next 2 years and continuing annually.	The increase training for staff to respond to and mitigate loss of individuals during an intruder event. The intitial implementation cost will be high and continual education cost will be minimually comparitive.	This will potentailly impact more than 2500 individuals at 28 sites.	$26,115 for intial implementation, $12,720 every three year for continual maintenance.	Currently Unknown	Education and Awareness Programs	Existing	Ongoing	
2. Advanced/Tactical Medical Training for Heath Services Staff													
Define and implement an advanced/medical medical training to assist in mitigating loss due to serious or life threating injuries.	2015	High	Emergency Response Quality Focus Team	Student Services/Safety	Within the next 2 years and continuing annually.	The Increase of training and ability of the medical staff would not only assist in an emergency situation, but enhance the ability to respond to serious injuries during all operational times. The cost of such additional training is minimal, yet substitution and compensation may hinder implementation.	Health Services/SROs	$35,000 initial and unknown continual maintenance	Currently Unknown	Education and Awareness Programs	Existing	Ongoing	
3. Evaluations and Enhancement of physical security infrastruture													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Audit of current security infratructure to determine if it is adequate to meet the needs of our District.	2015	High	Operations	Safety/Facility Services	Within the next 2 years	The cost of having our systems evaluated to ensure reliability, redundancy, and adequacy can be substantial, but the need and benefit outweight that potential cost.	Security Infrastructure that effects all District population and most of the community.	$25,000	Currently Unknown	Structure and Infrastructure Projects	Existing	Ongoing	
Enhancement of Security Infrastructure	2015	Medium	Operations	Safety/Facility Services	Unknown	Systems or physical buidlings need to be constantly evaluated to determine if the existing security is adequate to protect and deter an event. The cost of such projects may need to be determined before benefits can be weighed.	Security Infrastructure that effects all District population and most of the community.	Unknown	Currently Unknown	Structure and Infrastructure Projects	New	Ongoing	
Tornadoes													
1. Evaluation and Enhancement of Sheltering Areas.													
Evaluate current sheltering needs	2015	Medium	Facility evaluation	Safety/Facility Services	Within the next 5 years.	Evaluation of current sheltering needs to determine if our areas can adequately shelter our school populations should be done every couple of years. There is no cost associated and it is always benefitial to review asset capabilities.	Entire School population at each of our 36 facilities.	Unknown	Unknown	Local Plans and Regulations	Existing	Ongoing	

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Enhancement/Redefinement of Sheltering areas	2015	Low	Comprehensive Facillty Master Plan	Facility Services	Unknown	The cost of such a structural modification or add on will most greatly outweight the estimated use. Such a project would need to be a needed functional space that can be used as a sheltering area.	Specific sites that need additonal or modified sheltering space to meet the needs of the population.	Unknown	Unknown	Structure and Infrastructure Projects	New	Ongoing	

Metropolitan Community College, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Manmade and Natural													
1. Protect the health and safety of all students, employees and visitors from natural and manmade hazards													
Improve Education and outreach to MCC stakeholders	2010											Completed	Created online education located in a central repository, implemented RAVE text alerts for students and employees, conduct annual drills at each location
2. Protect the health and safety of all students, employees and visitors from natural and manmade hazards													
Establish resources to manage and protect the campus community in the event of a disaster event	2010											Completed	2010 Formed Police Dept and created a Central Dispatch Center
3. Assist school districts and municipalities in acquiring funds to mitigate natural hazards.													
Assist school districts and municipalities in applying for hazard mitigation funds from the Department of Homeland Security's Federal Emergency Management Agency	2010											Deleted	No requests for assistance were received by the Resource Development department.
Hazardous Materials Release													
1. Expand district-wide knowledge of existing substances and prevention procedures													
Hazardous Material Storage Audit	2015	High	This should be refreshed every 2-3 years by Risk Management	MCC	Current calendar year	Conduct a districtwide physical review of safe containment and storage practices of hazardous materials which can be done by our Risk & compliance manager with little additional funding.	MCC all locations	$0	N/A	Education and Awareness Programs	Existing	Ongoing	
Develop and conduct mandatory training protocols for all personnel handling hazardous materials to ensure compliance with federal, state and local regulations for hazardous materials and proper use of Personal Protective Equipment.	2015	Low	This should be refreshed every 2-3 years by Risk Management	MCC	2-3 years	Provide additional training opportunities for employees that work with hazardous materials. There may be initial cost for any training materials.	MCC all locations	$5,000	MCC	Education and Awareness Programs	New	Ongoing	
Severe Thunderstorms													
1. Protect human lives, property and mitigate injuries													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Ensure MCC emergency response procedures are reviewed and employees trained annually.	2015	Medium	Risk Management and MCC Police Department	MCC	2-3 years	MCC has existing procedures but a process needs to be in place to consistently reeducate to ensure the safety of it's constituents.	MCC all locations	$0	N/A	Education and Awareness Programs	Existing	Ongoing	
Upgrade and integrate communications system to provide capability to communicate across jurisdictional lines between MCC and other law enforcement agencies and emergency service providers (i.e. Mutual Aid capabilities)	2015	Medium	MCC Police Department	MCC	TBD	The exact cost of the upgrade is unknown at this time. The upgrade will support a variety of configurations, allowing a more expeditious and coordinated response effort from multiple agencies spanning a large geographical area. It will decrease response times and potentially save lives in the event of a major hazardous event.	MCC all locations	Unknown	State/Federal Grants	Structure and Infrastructure Projects	New	Ongoing	
Ensure communication channels are working properly between Police Department and other college departments, such as Facilities and Information Technology, to implement equipment or perform maintenance to reduce damage to property and protect lives.	2015	Medium	Facilities and MCC Police Department	MCC	2-3 years	Working with Facilities to maintain landscaping and install lightning protection on campus and college thoroughfares would incure additional funding but ensures a reduction in repair costs. Implementing/Updating surveillance equipment across the district would lead to better prevention and emergecy response. MCC would need to build this into the Facilities projects and seek funding methods or priortize in the deferred maintenace funding.	MCC all locations	$25,000	MCC	Structure and Infrastructure Projects	New	Ongoing	
Intruder													
1. Protect human lives, property and mitigate injuries													
Improve education and in-person training on active shooter and intruder situations	2015	Medium	MCC Police Departme	MCC	Current calendar year	MCC has existing training but a process needs to be in place to consistently reeducate to ensure the safety of it's constituents.	MCC all locations	$0	N/A	Education and Awareness Programs	Existing	Ongoing	
Cyber Disruption													
1. Secure digital information, ensure confidentiality and protect data integrity													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Provide awareness training, risk assessment, penetration testing, vulnerability management, and security assessment and authorization to enhance cyber security.	2015	Medium	Information Technology and Risk Management	MCC	2-3 years	Our Information Technology and Risk Management departments can accomplish this task but need to procure webinars/training and determine the level of assessment needed.	MCC all locations	$20,000	MCC	Education and Awareness Programs	New	Ongoing	

North Kansas City School District, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Intruder													
1. To be better prepared for active threats in our schools													
To better prepare for active threats through increased training	2015	High	Conintual planning with Clay County Sheriff's Dept, NKCPD, and KCPD	Safety & Security	Continuous	Reduce potential for loss of life	all facilities, approximatel y 19500 students, 3000 employees	NA	NA	Education and Awareness Programs	Existing	Ongoing	
Increase Law Enforcement Presence	2015	Medium	Review with CCSD	CCSD & Safety/Security	1/2015-7/2016	Increase LE presence to decrease response time for calls of violence	Add thress depuitres to share 21 schools	$130,000, contract of percentage pay of salary and benefits	Unknown	Local Plans and Regulations	Existing	Ongoing	
Increase technology to expedite responses to violence	2015	High	Community, expert, and law enforcement participation	Safety & Security	Through 7/2017	Cameras to increase property surveillance & provide LE access, $750,000. Add emergency notificaon system $600, 000 to expedite responses, add check-in system to reduce likliehood of restricted persons having access to property- $120,000.	all facilities, approximatel y 19500 students, 3000 employees	$1.6 million	Bond, grants, internal	Structure and Infrastructure Projects	Existing	Ongoing	
Tornadoes													
1. To ensure the best possible severe weather sheltering possible													
Reassess sheltering locations	2015	Medium	Review with CCSD & applicable Fire Dept	Safety & Security	continuous	Reduce potential for loss of life	all facilities, approximatel y 19500 students, 3000 employees	NA	NA	Local Plans and Regulations	Existing	Ongoing	
Flooding													
1. To imporve our evacuation reponse and reduce potential damage due to flooding													
Improve response to possible flooding from levee failure at NKCHS	2015	Low	Work with NKCPD & Emergency Manager to ensure communication during appropriate conditions. Also look for flood mitigation strategies	NKCPD, Safety & Security	Continuous	Reduce potential for loss of life	2000 people at NKCHS	Unk	NA	Structure and Infrastructure Projects	Existing	Ongoing	
Emerging Infectious Diseases													
1. To reduce the likliehood of the spread of infectious diseases in our schools & improve ourreponses to outbreaks													
Reduce potential of spread of infectuous diseases	2015	Medium	Work with Clay Co Health, KCMO health to ensure communication, disseminate appropriate informaition, coordinate on distribution of medications, when needed.	Clay Co Health, KCMO Health, NKCSD Health Services	Continuous	Reduce potential for loss of life	all facilities, approximatel y 19500 students, 3000 employees	Unk	NA	Local Plans and Regulations	Existing	Ongoing	

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Mass Transportation Accidents													
1. To mitigiate and reduce the severity of mass transportation accidents													
Reduce potential of mass transportation accidents through increase training	2015	Medium	NKCSD Transportation provide increase training based on industry projections	NKCSD Trnsportation	Continuous	Reduce potential for loss of life & injuries	All student who may be tranported on NKCSD busses	Unk	Unknown	Education and Awareness Programs	Existing	Ongoing	

North Platte R-I School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existin	Status of Project	Status Explanation
Tornadoes													
1. Improve student safety from natural and man-made hazards													
Construct tornado safe room.	2010											Complete	The goal was 2011; but actually closeout date was June 18, 2014. The construction of the school community safe room allows a safe area in the event of a severe weather. The room is beneficial to the community of Edgerton, as well.
Establish and communicate an effective crisis management plan.	2010											Complete	The goal was 2011; but actually closeout date was June 18, 2014. The development of a site-based plan will resulted in a user-friendly approach that will adequately serve the needs of our district and will effectively utilize existing resources.
2. Improve student safety from natural and man-made hazards at all District campuses.													
As funding allows, construct safe rooms to improve student safety from natural and man-made hazards at all District campuses.	2015	High	The Board of Education develops and reviews goals for the student, staff and visitor safety.	Board of Education / Superintendent	Annually review during July Board of Education meeting. If funding sources allow, complete application for SEMA grant.	The construction of a school community safe room on the Dearborn campus and Camden Point campus would allow a safe area in the event of severe weather.	Dearborn - 650; Camden Point - 475	Dearborn - $850,000, Camden Point - $675,000	75% SEMA; 25% Local match	Structure and Infrastructure Projects	New	Ongoing	
Intruder													
1. Improve all building entrances to insure the safety of all students, staff, and visitors.													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existin	Status of Project	Status Explanation
Improve all building entrances to insure the safety of all students, staff, and visitors.	2015	High	The Board of Education develops and reviews goals for the student, staff and visitor safety.	Board of Education / Superintendent	Annually review during July Board of Education meeting. If funding sources allow, complete application for SEMA grant.	The improvement of the entrances to the District facilities would allow for a safer entry into the District's buildings.	The District has three campuses in three different towns. The age of the facilitity and the original design are not conducive to allow the flow of traffic to go through a centralized reception area. Most of the District entrances allow free movement once they enter the facility. This presents unique issues in providing safety and security for the students, staff and community.	$250,000	Federal grants, School District	Structure and Infrastructure Projects	New	Ongoing	

Oak Grove R-VI School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing	Status of Project	Status Explanation
Tornadoes													
1. Improve Tornado Preparedness													
Construct a storm shelter	2010											Complete	Completed the construction of district storm shelter September 7, 2014
Enhance tornado readiness and response procedures in curriculum	2010											Complete	Completed the implementation of increased severe weather and tornado readiness and response into the district wide curriculum the 2012-2013 school year.
Conduct additional drills	2010											Complete	Completed additional tornado drills throughout the 2012-2013 and 2013-14 school years.
Review and revise an effective Crisis	2010											Complete	Completed May 2013
2. Construct a district storm shelter, revise severe weather policies, conduct additional drills													
Construct a district storm shelter, revise severe weather policies, conduct additional drills	2015	High	The school district actively sought methods to improve hazard mitigation actions. Meetings with the district administration, SRO, Oak Grove Police Chief, Sni Valley Fire Protection District Chief, and the Oak Grove Emergency Management Director were conducted to identify weaknesses in the existing plans and a course of action for improvement.	Oak Grove R-VI School District Superintendent and Board of Education	3 years	Revise policies and procedures and conducting additional drills would require no additional cost. $2 to 3 million dollars was estimated as a storm shelter cost. While the cost is significant, the benefits far outweigh the cost.	The school district population of 2,500	$2 to 8 million dollars	District capital projects funds and FEMA/SEMA grant funding	Structure and Infrastructure Projects	New	Ongoing	
Review and revise and effective crisis management plan	2015	High	The district had a plan in place, but new and additional staff indicated a review and revision would be beneficial.	School District Administration and SRO	3 years	Employing outside services for assistance is costly. The revisiting of existing crisis management committee and existing plan will result in a program that will adequately serve the needs of the district utilizing existing resources.	District students and staff	less than $500	District funds	Local Plans and Regulations	New	Ongoing	
Intruder													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing	Status of Project	Status Explanation
1. Minimize the threat of intruders and civil disturbances													
Purchase and install additional surveillance cameras												Complete	Completed the purchase and installation of additional surveillance cameras at various dates throughout the 2012-2013 and 2013-2014 school years.
Additional Hazard													
1. Review and revise and effective Crisis Management Plan													
Review and revise and effective crisis management plan	2015	High	The district had a plan in place, but new and additional staff indicated a review and revision would be beneficial.	School District Administration and SRO	3 years	Employing outside services for assistance is costly. The revisiting of existing crisis management committee and existing plan will result in a program that will adequately serve the needs of the district utilizing existing resources.	District students and staff	less than $500	District funds	Local Plans and Regulations	New	Ongoing	
Intruder													
1. Minimize the threat of intruders and civil disturbances													
Minimize the threat of intruders and civil disturbances.	2015	High	The district had a plan in place, but new and additional staff indicated a review and revision would be beneficial.	School District Administration and SRO	3 years	The district has the services of one school resource officer from 7:00 am to 3:00 pm. Different start times for Primary/Elementary and Middle/High Schools present times when an SRO is not available. An additional SRO with the two on a staggered shift would allow the district the services of an SRO at all regular school hour times. The district has installed additional surveillance cameras.	District students and staff and campus visitors	$10,000	District funds	Local Plans and Regulations	New	Ongoing	

Park Hill School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes/Severe Thunderstorms													
1. Ensure a safe, caring environment for students, staff and visitors.													
Purchase a portable, three-phase generator to supply electrical power in case of an emergency.	2010	High	Comprehensive School Improvement Plan	Park Hill Board of Education/District	Fall 2016	Would ensure electricial power continuity for a variety of threats/hazards.		$40,000	Federal or State Grant Dollars		Existing	Ongoing	
Intruder													
1. Ensure a safe, caring environment for students, staff and visitors.													
Purchase external cameras to reduce property damage and identify potential threats to the school	2010											Complete	Installed internal camera surveillance system consisting of 526 cameras in 2010.
Purchase additional network storage to enable archived video storage for a minimum of 30 days after recorded and allow software to be fully functional.	2015	High	Comprehensive School Improvement Plan	Park Hill Board of Education/District	Fall 2016	Low cost mechanism to increase student safety.		$100,000	Federal or State Grant Dollars		Existing	Ongoing	
Purchase software and/or-devices to allow more immediate internal and external communication during a crisis.	2015	High	Comprehensive School Improvement Plan	Park Hill Board of Education/District	Fall 2016	Will improve internal communication between district staff and external communication between district staff and first responders in the event of a crisis and lead to quicker response times and reduce injury/loss of life.		$200,000	Federal or State Grant Dollars		Existing	Ongoing	

Park University, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Post Emergency Evacuation Routes in all buildings and update as needed													
Review current emergency evacuation routes and maps for accuracy and feasibility.	2015	High	Building review	EHS Compliance Coordinator	Spring 2015	Ensuring that all spaces within a building are accounted for and accurately planning evacuation routes. Losses avoided include submitting inaccurate information to campus community, thus causing confusion during an actual emergency.	All 19 buildings on campus	$1,125 in payroll costs	Campus Safety Payroll Budget	Local Plans and Regulations	Existing	Ongoing	
Coordinate with local NWS personnel to ensure chosen Storm Shelter locations are acceptable.	2015	High	Public Relations	EHS Compliance Coordinator	Spring 2015	Providing the best shelter locations possible in each campus building to ensure the best protection available in the event of a tornado or severe weather emergency.	All 19 buildings on campus	$380 in payroll costs	Campus Safety Payroll Budget	Local Plans and Regulations	Existing	Ongoing	
Print, laminate, and post evacuation maps at strategic locations in all buildings.	2015	High	Copying protocols	EHS Compliance Coordinator	Spring 2015	Providing /making available emergency evacuation/shelter information to the campus community.	All 19 buildings on campus	$700 in payroll, copying, and laminating costs	Campus Safety Payroll Budget and EHS Budget	Local Plans and Regulations	Existing	Ongoing	
2. Perform a campus-wide Tornado Drill in April of each year.													
Coordinate campus-wide tornado drill in the month of April each year after Goal 1 is complete. Optional: Coordinate with City of Parkville to hold drill on same date as city-wide tornado drill.	2015	High	Campus Communications	EHS Compliance Coordinator	Annually after Goal 1 complete	Campus-wide emergency response preparation - drill will identify strengths and weaknesses of planned procedures and allow for any weaknesses to be addressed.	All 19 buildings on campus	Negligible	N/A	Education and Awareness Programs	Existing	Ongoing	
Intruder													
1. Hold at least 1 Active Shooter Exercise on campus with participation of local emergency responders.													
Review and update Active Shooter/Intruder section of the Park University Continuity of Operations Plan.	2015	High	Plan Review Protocols	Director of Campus Safety	Annually	Ensuring that response protocols are up to date and still relevant to current needs.	All Parkville Campus locations	Salary for hourly work	Campus Safety Payroll Budget	Local Plans and Regulations	Existing	Ongoing	
Hold campus lockdown exercise and update protocol/systems as necessary.	2015	High	Lockdown Protocol	Department of Campus Safety	Annually	Ensuring that all buildings on campus have the ability to be locked down and that response times are appropriate to needs.	All 19 buildings on campus	Negligible	N/A	Local Plans and Regulations	Existing	Ongoing	
Coordinate Active Shooter/Intruder Response Plan review and tabletop exercise with local responders and update plan as needed.	2015	High	Public Relations	Director of Campus Safety	Summer 2015	Testing plan in context of other responding agencies' actions for weaknesses or deficiencies which need to be addressed.	All Parkville Campus locations	N/A	N/A	Local Plans and Regulations	Existing	Ongoing	

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Communicate Plan to campus community and train campus responders on response protocols.	2015	High	Campus Communications	Director of Campus Safety	Fall 2015	Educating campus community on correct actions to take in the event of an active shooter on campus. Emails, digital displays, and updated website information will be utilized.	All Parkville Campus locations	N/A	N/A	Education and Awareness Programs	Existing	Ongoing	
Coordinate a full-scale active shooter exercise and after action review/report with local responding agencies and update plan as needed.	2015	High	Campus Communications, Public Relations	Director of Campus Safety	Fall 2015	Testing plan in context of real life emergency in order to identify strengths, weaknesses, and deficiencies and to further educate the campus community regarding active shooter response.	All Parkville Campus locations	N/A	N/A	Local Plans and Regulations	Existing	Ongoing	
Hazardous Materials Release													
1. Increase hazardous materials preparedness.													
Obtain HAZWOPER 24 hour training for key campus response personnel.	2015	Medium	EOP	EHS Compliance Coordinator	Annually	Will ensure personnel are appropriately trained to recognize and appropriately respond to hazmat incidents on campus.	All Parkville Campus locations	Medium	Unknown	Local Plans and Regulations	Existing	Ongoing	
Emerging Infectious Diseases													
1. Increase emerging infectious disease preparedness.													
Develop a more robust Infectious Disease Plan designed to address a wider range of potential infectious diseases and originating location (foreign and domestic origination).	2015	Medium	EOP	EHS Compliance Coordinator	Annually	Low cost mechanism to increase preparedness for emerging infectious disease.	All Parkville Campus locations	Low	Unknown	Local Plans and Regulations	Existing	Ongoing	

Platte County R-III School District, 2015 Mitigation Strategy *(New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Consider sheltering options for students, staff and visitors during tornadoes and other naturual hazards.													
Investigate the cost of adding storm shelters to our existing facilities.	2015	High	School District Infrastructure Plans	Pleasant Hill R-3 School District Administration	1-2 years	Cost of shelters would be significant however this approach is the best way of keeping people safe during a tornado. Many lives would be saved.		High	Unknown	Structure and Infrastructure Projects	Existing	Ongoing	
Severe Winter Weather													
1. Improve communications to all stakeholders for severe winter weather siutations.												**Ongoing**	
Develop a comprehensive communication plan when severe winter weather causes the district to close.	2015	High	Communication Plan	Pleasant Hill R-3 School District Administration	1-2 years	Low cost but big benefits in communicating effectively to staff, students, family, etc.		Low	School district budget	Local Plans and Regulations	Existing	Ongoing	
Mass Transportation Accidents													
1. Improve the school district's ability to respond to bus accidents.													
Develop a process for drivers and staff to follow when a school bus is involved in an accident.	2015	High	School District Transportation or Safety Plan	Pleasant Hill R-3 School District Administration	1-2 years	Low cost but lives could be saved or injuries lessened if protocols are developed.		Low	School district budget	Local Plans and Regulations	Existing	Ongoing	
Intruder													
1. Enhance the school district's ability to handle an active shooter or intruder.													
Work with law enforcement to provide training to all school buildings in regards to an active shooter.	2015	High	School District Active Shooter Plan	Pleasant Hill R-3 School District Administration	1-2 years	Low cost and potential for saving lives during an active shooter event would be high.		Low	School District budget?	Education and Awareness Programs	Existing	Ongoing	

Pleasant Hill School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Educate Board of Education, district staff, parents, patrons and students about the necessity of severe weather planning at school and at home.													
Create an electronic survey to be sent home annually to parents and present safety information to parents, staff and Board of Education.	2010	High	District Safety Committee	School Board	Ongoing	Cost is minimal but information will be invaluable for strudants, staff and patrons.	2000 plus	Minimal	Local	Education and Awareness Programs	Existing	Ongoing	
Disseminate information to patrons based upon survey information • Initiate ongoing information dissemination and awareness for the district's staff, parents and patrons during faculty and staff in-service • Meet with school personnel regarding school district safety and emergency preparedness	2010	High	District Safety Committee	School Board	Ongoing	Cost is minimal but information will be invaluable for strudants, staff and patrons.	2000 plus	Minimal	Local	Education and Awareness Programs	Existing	Ongoing	
3. Upgrade storm sheltering capacities and facilities in the district.													
Consturct tornado saferooms in district facilities.	2015	High	Facilities Planning	School Board	3 to 5 years	$4 million cost. Benefit would to better shelter our students, staff and patrons in the event of severe weather.	1000	$4 million	FEMA Grant/Loca	Structure and Infrastructure Projects	New	Ongoing	

Raymore - Peculiar School District, 2015 Mitigation Strategy (*New Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Increase public awareness and understanding the benefits of "safe rooms."													
Develop, distribute informational materials on safe rooms.	2015	Medium	Comprehensive School Improvement Plan	Ray-Pec District Administration	Ongoing	Low cost mechanism to increase student safety.	District Wide	Low	unknown	Education and Awareness Programs	New	Ongoing	
Intruder													
2. Provide district wide training on strategies to address violent intruders in schools													
Mandatory annual training for all staff on how to effectively deal with violent intruders in schools	2015	High	Comprehensive School Improvement Plan	Ray-Pec District Administration	Ongoing	Low cost mechanism to increase student safety.	All District Staff	Low	unknown	Local Plans and Regulations	New	Ongoing	
Severe Thunderstorms													
3. Maintain current weather alert systems in all district facilities													
Test, monitor, and repair all weather alert systems annually.	2015	High	Comprehensive School Improvement Plan	Ray-Pec District Administration	Ongoing	Will ensure proper function of alerting systems.	District Wide	Low	unknown	Structure and Infrastructure Projects	Existing	Ongoing	
Cyber Disruption													
4. Increase awareness of potential breaches in cyber security.													
Launch a training initiative designed to educate all employees on security risks in every day technology use.	2015	Medium	Comprehensive School Improvement Plan	Ray-Pec District Administration	Ongoing	Low cost training/awareness can prevent costly recovery from cyber attacks.	All District Staff	Low	unknown	Education and Awareness Programs	New	Ongoing	
Emerging Infectious Diseases													
5. Establish an effective communication process between the school district and county health department regarding potential infectious disease concerns.													
Participate in a monthly conference with cass county public health to discuss public health concerns, health notifications, or health related policies.	2015	Medium	Nurse Supervisor	Ray-Pec District Administration	Ongoing	Low cost mechanism to increase student safety.	District Emergency Management Personnel	unknown	unknown	Education and Awareness Programs	New	Ongoing	

Smithville R-22 School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornado													
1. To protect the health and safety of students, employees, and community members from natural and man-made hazards													
Improve Tornado Preparedness	2010											Complete	August 2012 a Safe Room was completed at Smithville High School to shelter 1800+
2. To protect the health and safety of students, employees, and community members from natural and man-made hazards													
Improve Tornado Prepardeness by Construct a storm shelter/Safe Room. • Implement tornado readiness and response procedures in curriculum. • Conduct additional drills. (Tornado, Intruder, Fire)	2010	High	School safety plan	Board of Education, Superintendent	TBD	Conducting additional drills would not require additional funding, however we feel that two drills per year is sufficient for students in grades 6 through 12, and a minimum of four drills are required for students in grades kindergarten through fifth. Throughout this process, it was discovered that tornado readiness and response procedures are already included in our curriculum at several grade levels however; our current facilities are not adequate to safely house nor secure our student and staff population during a drill or actual disaster event. While construction of a storm shelter would require a higher initial cost, the benefits outweigh this cost when increased student and community safety is considered. Additionally, this project would stimulate the local economy by providing construction opportunities and bringing income to local businesses. This was determined to be high priority because of the high likelihood of tornadoes affecting our school and community and due to the large number of individuals that would be impacted. Secondly, at the present time, there is not an adequate facility to shelter a large population in the event of a disaster or crisis situation.	2600+ students, 300+ staff	$3 Million	Local Funding	Structure and Infrastructure Projects	New	Ongoing	
Intruder													
1. To protect the health and safety of students, employees, and community members from natural and man-made hazards													
Minimize the threat of intruders and civil disturbances	2010											Deferred	Local funding failed in 2013 and 2014
2. To protect the health and safety of students, employees, and community members from natural and man-made hazards													

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	Facility Asset (New/Existing)	Status of Project	Status Explanation
Establish and Communicate and effective Crisis management plan. Other actions considered: • Establish a school safety committee consisting of the school safety coordinator, superintendent, SRO, additional administrators, certified and non-certified staff, patrons, and students. • Revise the existing site-based crisis management plan to improve ease of use. (Create Quick Reference Flip-Chart, Update Crisis Management Manual, Provide training) • Educate and disseminate information for the Board of Education, district staff, parents, patrons, emergency personnel, and city government about the necessity of severe weather and crisis planning at school and at home. • Conduct meetings and training with emergency personnel on how to access the Safe Room after hours. Create an incident command flow chart for use of Safe Room after normal hours. • Expand and enhance utilization of E.R.I.P. emergency response plan.	2010	High	School safety plan	Board of Education, Superintendent	4/22/2017	Having an effective crisis management plan creates a solid foundation on which other mitigation efforts can be built. Refining the existing site-based plan to improve ease of use represents the most cost-effective measure to effectively communicate the plan. While establishing safety committees, training, etc. are certainly options to consider in the future, making the crisis management plan more easily understandable immediately improves both student and staff safety – as assigned roles, duties/responsibilities, etc. will be more tacitly stated. Since staff will be used to draft and incorporate the revisions, the only costs associated with this course of action are for printed materials.	2600+ students, 300+ staff	$12,000 or less	Local Funding	Education and Awareness Programs	Existing	Ongoing	

West Platte R-II School District, 2015 Mitigation Strategy *(Continuing Plan Participant)*

Mitigation Goals and Action Steps	Plan Year	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost / Benefit Review	Target Capacity	Estimated Cost ($)	Funding Source	Type of Mitigation Activity (2015)	District Facility Asset (New/Existing)	Status of Project	Status Explanation
Tornadoes													
1. Improved Safety for students, staff and community from hazard of tornado.													
Consider including the Construction of a "hardened shelter" as part of the upcoming capital improvement project.	2010	Medium	Crisis Emergency Management Plan	West Platte District	2017-2018	Avoid injury, loss of life.	500-700	Federal/State Grand Match	District Capital Projects Budget/FEMA Grant	Structure and Infrastructure Projects	New	Ongoing	District constructed one hardened shelter at district cost. Need more shelter space for safety.
Severe Thunderstorms													
1. Improved Safety for students, staff and community from hazard of severe thunderstorms.													
Consider including the Construction of a "hardened shelter" as part of the upcoming capital improvement project.	2010	Medium	Crisis Emergency Management Plan	West Platte District	2017-2018	Avoid injury, loss of life.	500-700	Federal/State Grand Match	District Capital Projects Budget/FEMA Grant	Structure and Infrastructure Projects	New	Ongoing	District constructed one hardened shelter at district cost. Need more shelter space for safety.
Intruder													
1. Improved Safety for students, staff and community from hazard of Intruders.													
Consider installation of security cameras and securely locking doors as part of district safety plan for crisis management.	2010	Medium	Crisis Emergency Management Plan	West Platte District	2017-2018	Avoid injury, loss of life.	1000	$20,000	District Capital Projects Budget/ Grants	Structure and Infrastructure Projects	New	Ongoing	District has installed cameras and door locks. Need upgraded systems for facility/student safety.
2. Incorporate new safety/security measures and evacuation routes for natural and man-made emergencies, educating our school and surrounding community of safety processes.													
Develop, drill and train with upgraded cameras, security locks, active shooter and evacuaiton drills to keep up with changing faciilites and emergencies.	2015	High	Crisis Emergency Management Plan	West Platte District	2015-2020	Avoid injury, loss of life.	1000	$20,000	District/ Grants	Education and Awareness Programs	New	Ongoing	
Cyber Disruption													
1. Incorporate new safety and security measures to prevent cyber disruption and ensure information safety and training of district staff.													
Develop policies, procedures and training to prevent cyber disruption, addiing off site server storage.	2015	High	Cyber Safety/Technology Plan	West Platte District	2015-2020	Security of data and personal safety of students and staff.	1000	$8-10,000	District/ Grants	Local Plans and Regulations	Existing	Ongoing	
Hazardous Materials Release													
1. Share training and resources with the City of Weston including training and drills for active shooter, cyber disruption and hazardous materilas release, in additon to other man-made and natural disaster emergencies.													
Share training and resources with City for emergency evacuation and shelter for hazardous materials release, in addition to other man-made and natural disaster emergencies.	2015	High	City Collaboration	City/School District	2015-2020	Avoid injury, loss of life.	1500	Nominal . Use existing personnel, PD and resources.	City/ District/ Grant	Local Plans and Regulations	Existing	Ongoing	

This page intentionally left blank.

Section 6: Plan Implementation and Maintenance

Requirement §201.6(c)(4)(i)): *[The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the plan within a five-year cycle.*

6.1 Monitoring, Evaluating and Updating the Plan

This plan shall be reviewed and evaluated annually or following a disaster to determine the effectiveness of mitigation actions; reflect changes in laws, regulations and/or policies; reprioritize mitigation actions, if necessary, and consider other issues affecting hazard mitigation in the Kansas City metropolitan area. The Planning Team, in accordance with the roles and responsibilities outlined in Attachment 1, shall be responsible for coordinating annual reviews of the plan for their represented jurisdictions. The annual review process shall include an evaluation of the plan's effectiveness for the area. Criteria used to evaluate the plan should include:

- The goals and objectives address current and expected conditions
- The nature, magnitude and/or types of risk have changed
- The current resources are appropriate for implementing the plan
- There are implementation problems, such as technical, political or legal or there are coordination issues with other agencies
- The outcomes have occurred as expected
- The agency and partners participated as originally proposed

During these reviews, mitigation goals and actions will be reevaluated and updated to reflect current status as appropriate. Jurisdictions wishing to add new mitigation goals and actions may choose to do so at this time. Those jurisdictions submitting new goals and actions should develop a planning process narrative in accordance with the requirements for mitigation strategies outlined in this plan. The narrative should be submitted to the jurisdiction's respective Planning Team member for review, who will forward to MARC for formatting and incorporation into this plan. MARC will continue to provide administrative support in accordance with the roles and responsibilities of Plan Author as defined in Attachment 6.1.

In order for mitigation efforts to become more fully incorporated into regional planning efforts for the Kansas City Metropolitan area, the review of the Hazard Mitigation Plan and the mitigation strategies will be included in the annual work plan for the Metropolitan Emergency Management Committee. The Metropolitan Emergency Managers Committee, a committee coordinated by Mid America Regional Council, serves as a forum for local emergency managers to discuss and resolve regional issues, problems, projects and activities related to all-hazards emergency management.

For this update, participating jurisdictions appointed a responsible party to act as a central point of contact and coordinate the update process for their community. These individuals are listed in Attachment 6.2. During the yearly reviews, these same individuals shall be responsible for collating the necessary information from their jurisdiction and forwarding to their respective Planning Team member. For each action proposed by the participating jurisdiction there is a "Primary Agency Responsible" designated for implementing mitigating goals and actions. These agencies shall provide the status of

their mitigation projects to their community's responsible party, as listed in Attachment 6.2. If a community's responsible party changes, they shall notify their Planning Team representative of the change.

Every five years, the Planning Team shall conduct a comprehensive review of the *Regional Multi-Hazard Mitigation Plan* and document the successes, failures, limitations and recommended revisions of hazard mitigation actions resulting in a full update to the plan. The model used for this update process will continue to be used for future updates; the roles and responsibilities outlined in Attachment 6.1 will be maintained. The following generic timeline should be used to guide the update process. All dates are listed as time remaining (T-) until plan expiration:

T – 22 months:

1.) *MARC*: Notify Planning Team, participating and potential new jurisdictions of upcoming update process.
2.) *MARC*: Request authorizations from participating jurisdictions for MARC to act as Plan Author on jurisdiction's behalf (if desired).

T-21 months:

1.) *MARC*: Apply for grant funding.
2.) *MARC/Planning Team*: Confirm participation requirements, desired updates, and changes in regulations. Begin full review of plan. Set kickoff meeting dates and times.
3.) *MARC/Planning Team:* Begin collecting contact information for all potential jurisdictions and organizations to ensure that all potential participants receive the initial invitation to be involved.

T-19 months:

1.) *MARC/Planning Team*: Complete full review of plan, confirm required updates.
2.) *MARC*: Begin research on any changes to the hazard profiles and recent hazard events. Create materials for kick off meetings.
3.) *MARC*: Begin advertising meeting dates and times for participating jurisdictions and other parties interested in contributing to the update process.

T-16 months:

1.) *MARC/Planning Team/Participating Jurisdictions/Other interested parties*: Begin kickoff meetings to review process for update, review historical and recent occurrences of the various hazards, and review data collection and plan participation requirements. Hold follow-up meetings as necessary.
2.) *Participating jurisdictions:* Begin submitting required information about hazard risks and capabilities (Community Profile information) to MARC.
3.) *MARC:* Analyze and assess the information received through the Community Profile submission. Develop materials for public meetings to explain hazards and the capabilities on hand. Incorporate information received into draft update.

T-14 months:

1.) *MARC/Planning Team/Participating Jurisdictions:* Advertise and conduct 1st round of public meetings.

T-12 months:

1.) *Participating Jurisdictions:* Status report on past mitigation strategies and development of new mitigation strategies. Participating jurisdictions and organizations will consider the hazards that are likely to impact their constituents and the tools/capabilities available to address the hazards and they will create goals and actions to continue building upon the capabilities already in place.
2.) *MARC:* MARC staff will collect the mitigation strategy information for past and future goals and actions and incorporate the information into the draft update.

T-8 months:

1.) *MARC/Planning Team/Participating Jurisdictions:* Advertise and conduct 2nd round of public meetings/public input opportunities.

T-6 months:

1.) *MARC:* Complete first draft, submit to Planning Team for review and approval.
2.) *Planning Team:* Review/Approve first draft.

T-5 months:

1.) *MARC:* Submit first draft to SEMA.
2.) *MARC:* Make corrections to draft.
3.) *MARC/Planning Team/Participating Jurisdictions:* Advertise and conduct final public review and comment period.
4.) *Planning Team*: Review/Approve corrections to draft.

T-3 months:

1.) *MARC:* Submit final draft to SEMA for forwarding to FEMA.
2.) *MARC:* Make any corrections from FEMA. Submit to Planning Team for review/approval and resubmittal to FEMA.
3.) *MARC/Planning Team/Participating Jurisdictions:* Once FEMA approves, participating jurisdictions adopt by formal resolution, and forward to FEMA.

A number of data deficiencies were identified through this update to be addressed prior to the next update to extent possible –pending available information. Table 6.1 identifies these deficiencies.

Table 6.1: Data Deficiencies Identified

Data Deficiency	Action to Be taken	Responsible Party
1. Dam inundation pathways still in process of being shared with local officials or not yet available	Continue to work the MDNR and local dam owners to obtain information/maps showing dam failure inundation pathways as part of EAP update/completion process	Planning Team

Table 6.1: Data Deficiencies Identified		
Data Deficiency	**Action to Be taken**	**Responsible Party**
2. Levee failure analysis information largely unavailable	Continue to work with USACE and other entities to obtain levee failure analysis information as it becomes available	Planning Team
3. Future land use data unavailable for Ray County	Incorporate future land use maps for Ray County as developed	Ray County Planning Team representative, MARC
4. Various data collection/interpretation deficiencies were noted for winter weather, heat wave, drought, HazMat and infectious disease due to certain inherent limitations	Continue to reassess hazards and data collection methods for next update. As new collection methods and interpretation techniques become available, incorporate into plan update	Planning Team, MARC
5. Utility infrastructure - Research Services of MARC does not currently have access to this data at present	Through collaboration with jurisdictions and utility companies are working to address this.	Planning Team, MARC
6. Data regarding homes without basements –	The next time MARC asks for a parcel update will seek this information	MARC
7. Building counts – not all jurisdictions maintain a GIS layer of building points or building outlines. MARC digitized many buildings by hand as part of a SOLAR grant, but will not be able to keep it current.	As jurisdictions develop GIS capabilities this information will be incorporated in future updates.	Participating Jurisdictions
8. Critical facilities – don't have measures of size or capacity or capabilities for most of them. This information would help produce more meaningful maps and visualizations.	As jurisdictions continue to implement HAZUS software this information become more accessible.	Participating jurisdictions, MARC

Table 6.1: Data Deficiencies Identified		
Data Deficiency	**Action to Be taken**	**Responsible Party**
9. Addresses of repetitive flood loss properties would have been helpful in mapping the general locations where flooding occurs that is more likely to damage property.	Continue to work with jurisdictions and the State Emergency Management Agency to determine options for obtaining this type of information.	Participating jurisdictions, MARC
10. Data regarding the number of cases and the number of deaths related to true outbreaks of emerging or re-emerging infectious diseases is not publicly accessible.	Work with the local health agencies to determine if there are ways that they can share information about the number of cases and or deaths attributed to an emerging or re-emerging disease outbreak.	Local Health Agencies, MARC

Minor data limitations continue to exist for estimating probability of future occurrence and potential damages for emerging infectious, civil disorder, drought, heat waves and severe winter storms. Specific limitations are discussed in each hazard profile.

6.2 Incorporation into Existing Planning Mechanisms

Incorporation of the mitigation strategies, goals and actions into other planning mechanisms, as identified by each jurisdiction, is discussed in full in *Section 3 Capabilities Assessment*. The planning process used to update the plan will continue to tie hazard risk assessment for each jurisdiction to the capabilities and resources that the jurisdictions have available. Through the Community Profile, jurisdictions and organizations identify the hazards that for which their jurisdictions are most at risk. In addition, the jurisdictions and organizations report on the administrative, technical, financial, and programmatic (education and outreach) resources that they have in place. Participating jurisdictions and organizations are encouraged to consider this information as they identify mitigation goals and actions. In the end, the goals is to establish a cycle where the Hazard Mitigation Plan update process drives changes and improvements in the local planning mechanisms and capabilities and also, local planning processes will ultimately identify projects and initiatives that can be supported in the Hazard Mitigation Plan.

6.3 Continued Public Involvement

Public involvement in the mitigation planning process — from plan development through implementation of mitigation actions and plan review, evaluation and revision — is important to the success and sustainability of a community's (and the region's) mitigation efforts. As stakeholders in the mitigation process, the public should be given the opportunity to influence the policy decisions that will affect their communities.

The citizens of jurisdictions that have adopted this plan will be encouraged to participate in the plan maintenance and review process. Copies of this plan will be provided to the following public libraries or library systems serving the participating jurisdictions:

Ray County Library
215 East Lexington
Richmond, MO 64085

Kansas City Public Library
14 West 10th Street
Kansas City, MO

Mid-Continent Public Libraries
(Administrative Headquarters, serving Jackson, Platte and Clay Counties)
15616 East 24 Highway
Independence, MO

Cass County Libraries
(Administrative offices)
400 E. Mechanic St.
Harrisonville, MO 64701

Copies of the plan will also be available from MARC and from the participating jurisdictions. In addition, this plan will be posted on MARC's Web site and the Web sites of participating jurisdictions, if possible. Contact information and the method for submitting comments and suggestions regarding the plan (i.e., e-mail, fax, etc.) will also be posted on the aforementioned Web sites. The availability of this plan will also be publicized in MARC's printed, online and electronic newsletters, such as *Management Matters* and *ReMARC*. Participating jurisdictions will also publicize the availability of this plan in community newsletters and related publications as well as advertising on community TV channels. All information regarding plan availability will continue to be posted in accordance with the provisions of the Missouri Sunshine Law. Additional information regarding Missouri's Sunshine Law can be found on the Web site of Missouri's Attorney General at http://ago.mo.gov/sunshinelaw/.

During the yearly reviews, the Planning Teams should redirect the public to the plan's availability and again solicit information on topics of mitigation concern to the community. Specific information regarding public involvement efforts as part of the planning process can be found in *Section 1.3.5*. Additional media outlets for potential advertising can be found in the 2010 Plan.

6.1 Attachments

Attachment 6.1: Hazard Mitigation Planning Committee (HMPC) Members Roles and Responsibilities

I. Roles

A. *Planning Team:*

Stan Swaggart, Director, Cass County Emergency Management
Representing the following Cass County communities:

- Belton
- Harrisonville
- Lake Winnebago
- Peculiar
- Pleasant Hill
- Raymore
- Archie R-V School District
- Harrisonville School District
- Pleasant Hill School District
- Raymore-Peculiar School District

Eric Ramsey, Emergency Management Director, Clay County
Representing the following Clay County communities:

- Excelsior Springs
- Gladstone
- Kearney
- Liberty
- Mosby
- North Kansas City
- Smithville
- Fishing River Fire Protection District
- North Kansas City School District
- Smithville R-II School District

Mike Curry, Director, Jackson County Emergency Preparedness
Representing the following Jackson County communities:

- Blue Springs
- Grandview
- Lee's Summit
- Oak Grove
- Raytown
- Sni Valley Fire Protection District

- Blue Springs R-IV School District
- Fort Osage School District
- Independence School District
- Kansas City School District
- Lee's Summit R-VIII School District
- Oak Grove R-VI School District
- Kansas City University of Medicine and Biosciences
- Metropolitan Community Colleges
-

Anthony Avery, Captain, Platte County Sheriff's Department (Appointed by Mark Owen, Director, Platte County Emergency Management)

Mike O'Neal, Deputy Director, Platte County Sheriff's Department (Appointed by Mark Owen, Director, Platte County Emergency Management)
Representing the following Platte County communities:

- Edgerton
- Farley
- Ferrelview
- Houston Lake
- Lake Waukomis
- Northmoor
- Parkville
- Platte City
- Platte Woods
- Riverside
- Tracy
- Weatherby Lake
- Weston
- Northland Regional Ambulance District (NRAD)
- West Platte Fire District
- North Platte R-1 School District
- Park Hill School District
- Park University
- Platte County R-III School District
- West Platte R-II School District

Dante Gliniecki, Emergency Manager, City of Independence

Andrew Carpenter, Emergency Preparedness Planner, City of Independence

Gene Shepherd, Emergency Manager, Kansas City, Mo. Emergency Management

Chris Carroll, Emergency Planner, Kansas City, Mo. Emergency Management

B. ***Plan Author, Mid-America Regional Council (MARC):***

Donna E Field Martin, Emergency Services and Public Health Senior Planner

- Project manager, process facilitator, co-author and researcher

Justin Sorg, Planning and Exercise Program Manager

- Co-author and researcher

Lisa Danbury, Emergency Services Consultant

- Co-author and researcher

Mark Widner, Emergency Services Consultant

- Co-author and researcher

John Davis, Emergency Services Administrative Support

- Data management and document design

Erin Lynch, Emergency Services and Homeland Security Program Director

- Editor and project oversight

Frank Lenk, Research Service Director

- Research lead

Jakob Goldman, GIS Specialist II

- GIS mapping, coordination and research

Andrea Rapinsky, GIS Specialist II

- GIS mapping and research

Laura Bogue, Public Affairs Coordinator

- Lead graphic designer; marketing coordinator

Barbara Hensley, Public Affairs Program Director

- Editor, graphic design

Amanda Keller, Public Affairs Coordinator

- Public engagement coordinator

Angela Waltz, Public Affairs Website Coordinator

- Web site design

Sasan Baharaeen, Manager of Information Services

- Database design and maintenance, IT support

II. Responsibilities

A. *Plan Author*

1. Provide administrative support for the update process to include, but not limited to:

   a. Organize meetings, send mailings, draft and incorporate plan revisions, conduct research, etc.

   b. Provide the Planning Team with recommendations and advice on plan requirements as well as electronic and/or hard copies of updates to the plan as they are drafted for review and comment

   c. Assist in the development of mitigation strategies.

   d. Provide monthly updates and other information as requested to SEMA in accordance memorandum of agreement.

   e. Compile comments, revisions, evaluations, etc., from future reviews and updates and integrate into plan.

B. *Planning Team*

1. Oversee the update process to include, but not limited to:

   a. Determine requirements for satisfactory participation.

   b. Review and approve all revisions to the hazard mitigation plan.

   c. Provide locations to host meeting opportunities.

   d. Work with represented jurisdictions to assist in gathering required information and developing mitigation strategies.

   e. Organize yearly reviews of the plan for represented jurisdictions. Review all new information submitted and forward to Plan Author for incorporation.

C. *Participating Jurisdictions*

1. Inform the update process by accomplishing the following:

   a. Complete all requirements for satisfactory participation as determined by the Planning Team.

b. Review and comment on the plan as drafts become available. Formally adopt the completed plan by resolution.

c. Participate in yearly reviews of the plan and subsequent five-year updates. Submit changes as necessary to Planning Team representative for review and forward to Plan Author.

d. Designate a responsible party to coordinate the above and notify Planning Team representative of designee by name, job title, organization or any other satisfactory method upon appointment or when a change occurs. Responsible parties for participating jurisdictions shall be listed in Attachment 6.2 of this section.

Attachment 6.2: 2015 Participating Jurisdictions' Designated Responsible Parties		
Jurisdiction	**Responsible Party (Name)**	**Title**
1. Cass County	Stan Swaggart	Emergency Management Director
2. Clay County	Eric Ramsey	Assistant Emergency Management Director
3. Jackson County	Mike Curry	Emergency Preparedness Director
4. Platte County	Mike O'Neal	Deputy Emergency Management Director
5. Ray County	Gary Wilhite	County 911 Director
6. Belton	Bob Miller	Director of Emergency Management
7. Blue Springs	Chris Sandie	Assistant Director Public Works
8. Edgerton	Chris Stackhouse	Emergency Manager/Assistant Chief
9. Excelsior Springs	Paul Tribble	Fire Chief
10. Farley	Bob Kincaid	Emergency Manager
11. Ferrelview	Steve Carr	Emergency Management/Health Officer
12. Fishing River Fire Protection District	Gene Walker	Fire Chief
13. Gladstone	Chuck Duddy	Emergency Management Director
14. Grandview	Dennis Randolph	Director of Public Works
15. Harrisonville	Larry Francis	Emergency Services Director
16. Houston Lake	Don Coronado	Emergency Management Director
17. Independence	Andrew Carpenter	Emergency Preparedness Planner
18. Kansas City, Mo	Christopher Carroll	Emergency Management Planner

Attachment 6.2: 2015 Participating Jurisdictions' Designated Responsible Parties		
Jurisdiction	**Responsible Party (Name)**	**Title**
19. Kearney	David Pavlich	Community Development Director
20. Lake Waukomis	Donnie Hachman	Chief of Police
21. Lake Winnebago	Kenneth Smith	Emergency Management Director
22. Lee's Summit	Jim Eden	Assistant Chief
23. Liberty	Dustin Paddack	Fire Marshal
24. Mosby	Justin Lininger	Emergency Manager
25. North Kansas City	Dave Williams	Fire Chief
26. Northland Regional Ambulance District	Jason S James	Supervisor
27. Northmoor	Kelly Clark	Chief of Police
28. Oak Grove	Mark Sherwood	Emergency Management Director
29. Parkville	Jon Jordan	Captain
30. Peculiar	Carl Brooks	City Engineer
31. Platte City	Carl Mitchell	Chief of Police
32. Platte Woods	Michael Benne	Chief of Police/ EM Director
33. Pleasant Hill	Mark Randall	City Administrator
34. Raymore	Ryan Murdock	Emergency Management Coordinator
35. Raytown	Frank Stranimier	Police Captain
36. Richmond	Lonnie Quick	Fire Chief/EM Director
37. Riverside	Mike Shelton	Emergency Manager
38. Sni Valley Fire Protection District	Mark Sherwood	Emergency Management Director
39. Smithville	Jason Lockridge	Chief of Police
40. Tracy	Barbara Stewart	City Clerk/Collector
41. Weatherby Lake	Gary McMullin	Chief of Police
42. Weston	Kim Kirby	City Clerk

Attachment 6.2: 2015 Participating Jurisdictions' Designated Responsible Parties		
Jurisdiction	**Responsible Party (Name)**	**Title**
43. West Platte Fire Protection District	Lynn Johnson	Administrator of Emergency Services
44. Archie R-V School District	Sean Smith	Superintendent
45. Blue Springs R-IV School District	Bill Cowling	Assistant Superintendent
46. Fort Osage R-I School District	John Ruddy	Assistant Superintendent
47. Harrisonville School District	Tim Ryan	Assistant Superintendent
48. Independence School District	Robert Burkey	Director of Facilities
49. Kansas City School District	Regina Ferguson	Risk Manager
50. Lee's Summit R-VIII School District	Ryan Hall	Supervisor of Safety & Environmental Services
51. North Kansas City School District	Jon Brady	Director of Safety & Security
52. North Platte R-1 School District	Dr. Jeffrey Sumy	Superintendent
53. Oak Grove R-VI School District	Freddie Doherty	Superintendent
54. Park Hill School District	Joshua Colvin	Director Student Services
55. Platte County R-III School District	Tolan Singer	Director of Student Services
56. Pleasant Hill School District	John Griffith	Assistant Superintendent
57. Raymore-Peculiar School District	Jay Harris	Assistant Superintendent
58. Smithville R-II School District	Wayne Krueger	Assistant Superintendent
59. West Platte R-II School District	Dr. Regina Knott	Director of Special Services & Assessment

Attachment 6.2: 2015 Participating Jurisdictions' Designated Responsible Parties		
Jurisdiction	**Responsible Party (Name)**	**Title**
60. Kansas City University of Medicine and Biosciences	Eric Shirley	Manager, Safety & Emergency Management
61. Metropolitan Community Colleges	Elvin Seals	Deputy Chief Campus Police
62. Park Hill University	Michelle Budd	EHS Compliance Coordinator

Appendix A: Adoption Resolutions

This section will be completed following SEMA and FEMA's approval to this update when participating jurisdictions will take action to formally adopt the plan.

Sample Adoption Resolution

(Name of Jurisdiction) _____
(Governing Body) _____
(Address) _____

RESOLUTION TO ADOPT THE *REGIONAL MULTI-HAZARD MITIGATION PLAN*

WHEREAS, *(Insert name of Jurisdiction*), with the assistance from the Mid-America Regional Council, has gathered information and prepared the *Regional Multi-Hazard Mitigation Plan*; and,

WHEREAS, the *Regional Multi-Hazard Mitigation Plan* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *(Insert name of Jurisdiction*) is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *(Insert the name of the governing body)* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *(Insert the name of the governing body)* that *(Insert name of Jurisdiction*) adopts the *Regional Multi-Hazard Mitigation Plan* as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this _____ day of _____, 200__ at the meeting of the *(Insert the name of the governing body).*

Insert appropriate signature lines and dates

_____
(Mayor, Village Clerk, County Board Chair, etc.)

Appendix B: Supporting Documents

Due to size constraints, the following supporting documents are available in the below listed file folders on the provided electronic copy of this plan.

List of Files

I. County Authorizations

Letters authorizing MARC to prepare the plan on behalf of Cass, Clay, Jackson, Platte and Ray counties on behalf of the county and its incorporated cities.

II. HMPC Meeting Information

Includes sign-in sheets, meeting summaries and agendas for planning meetings held throughout the update process.

III. MOA FY13 PDMC-EMK-2014-PC-0001

Exhibit D to memorandum of agreement for contractual services between SEMA and MARC

IV. Public Participation Information

Includes meeting notices, fliers, press releases, advertisements, sign-ins, links to social networking sites, etc.



Cass County Commission

102 East Wall • Harrisonville, Missouri 64701

LUKE A. SCAVUZZO
ASSOCIATE COMMISSIONER • DISTRICT 1
E-MAIL: lukes@casscounty.com
PHONE: 816/380-8158

JEFF COX
PRESIDING COMMISSIONER
E-MAIL: jeffc@casscounty.com
PHONE: 816/380-8160

JIMMY ODOM
ASSOCIATE COMMISSIONER • DISTRICT 2
E-MAIL: jimmyo@casscounty.com
PHONE: 816/380-8159

JAN CANTRELL
ADMINISTRATIVE ASSISTANT
E-Mail: janc@casscounty.com
Phone: 816/380-8155

MICHELE PHILLIPS
H. R. DIRECTOR
E-Mail: michelep@casscounty.com
Phone: 816/380-8103 Fax: 816/380-8113

July 22, 2014

David A. Warm
Executive Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, MO 64105

Dear Mr. Warm,

On behalf of the Cass County Commission, I am pleased to confirm our county's interest in having the Mid-America Regional Council (MARC) provide professional planning assistance and act as plan author for the preparation of the five-year update to the Regional Multi-Hazard Mitigation Plan. Cass County intends to work with MARC on the preparation and adoption of the 2014 update to the Regional Multi-Hazard Mitigation Plan.

The county will participate in meetings with MARC and offer information to support the update of the plan. We will provide feedback on a draft plan and work with MARC to ensure that the plan's contents and recommended mitigation measures reflect the county's needs and desires to reduce the risks from natural and other hazards.

Our Emergency Manager Stan Swaggart, will participate with MARC in the Plan's development as a member of the Planning Team. Mr. Swaggarts contact is– stans@casscounty.com.

Sincerely,

Jeff Cox
Presiding Commissioner

Clay County, Missouri
Department of Emergency Management
13106 Rhodus Road
Excelsior Springs, MO 64024

August 25, 2014

David A. Warm
Executive Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, MO 64105

Dear Mr. Warm,

On behalf of the Clay County Commission, I am pleased to confirm our county's interest in having the Mid-America Regional Council (MARC) provide professional planning assistance and act as plan author for the preparation of the five-year update to the Regional Multi-Hazard Mitigation Plan. Clay County Emergency Management intends to work with MARC on the preparation and adoption of the 2014 update to the Regional Multi-Hazard Mitigation Plan.

Clay County Emergency Management will participate in meetings with MARC and offer information to support the update of the plan. We will provide feedback on a draft plan and work with MARC to ensure that the plan's contents and recommended mitigation measures reflect the county's needs and desires to reduce the risks from natural and other hazards.

Our Emergency Manager, Eric Ramsey, will participate with MARC in the Plan's development as a member of the Planning Team.

Sincerely,

Pam Mason
Presiding Commissioner

MICHAEL D. SANDERS
Jackson County Executive

August 25, 2014

David A. Warm
Executive Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, MO 64105

Dear Mr. Warm,

On behalf of Jackson County, MO, I am pleased to confirm our county's interest in having the Mid-America Regional Council (MARC) provide professional planning assistance and act as plan author for the preparation of the five-year update to the Regional Multi-Hazard Mitigation Plan. Jackson County intends to work with MARC on the preparation and adoption of the 2014 update to the Regional Multi-Hazard Mitigation Plan.

The county will participate in meetings with MARC and offer information to support the update of the plan. We will provide feedback on a draft plan and work with MARC to ensure that the plan's contents and recommended mitigation measures reflect the county's needs and desires to reduce the risks from natural and other hazards.

Our Mike Curry, Jackson County's Emergency Preparedness Coordinator, will participate with MARC in the Plan's development as a member of the Planning Team.

Very truly yours,

Michael D. Sanders
Jackson County Executive

Jackson County Courthouse ▪ 415 East 12th Street ▪ Kansas City, Missouri 64106
Office: 816-881-3333 ▪ FAX: 816-881-3133

PLATTE COUNTY COMMISSION

BEVERLEE ROPER
1ST DISTRICT COMMISSIONER

JASON BROWN
PRESIDING COMMISSIONER

DUANE SOPER
2ND DISTRICT COMMISSIONER

July 28, 2014

David A. Warm
Executive Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, MO 64105

Dear Mr. Warm,

On behalf of the Platte County Commission, I am pleased to confirm our county's interest in having the Mid-America Regional Council (MARC) provide professional planning assistance and act as plan author for the preparation of the five-year update to the Regional Multi-Hazard Mitigation Plan. Platte County intends to work with MARC on the preparation and adoption of the 2014 update to the Regional Multi-Hazard Mitigation Plan.

The county will participate in meetings with MARC and offer information to support the update of the plan. We will provide feedback on a draft plan and work with MARC to ensure that the plan's contents and recommended mitigation measures reflect the county's needs and desires to reduce the risks from natural and other hazards.

Our Emergency Management Coordinator, Anthony Avery, will participate with MARC in the Plan's development as a member of the Planning Team.

Sincerely,

Jason Brown - Presiding Commissioner

Beverlee Roper – 1st District Commissioner

Duane Soper – 2nd District Commissioner

415 Third Street, Suite 105 ■ Platte City, Missouri 64079
Phone (816) 858-2232 ■ Fax: (816) 858-3329 ■ www.co.platte.mo.us



RAY COUNTY COMMISSION
Ray County Court House

100 West Main Street
Richmond, Missouri 64085

Telephone: 816.776.4507

Fax: 816-776-4512

Mon.--Fri. / 9:00 a.m.--Noon

EASTERN COMMISSIONER

Allen Dale
Richmond, MO 64085
Telephone: 816-776-7195

PRESIDING COMMISSIONER

Bob King
Richmond, MO 64085
Telephone: 816-776-0051

WESTERN COMMISSIONER

Mike Twyman
Orrick, MO 64077
Telephone: 816-516-5885

July 24, 2014

David A. Warm
Executive Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, MO 64105

Dear Mr. Warm.

On behalf of the Ray County Commission, I am pleased to confirm our county's interest in having the Mid-America Regional Council (MARC) provide professional planning assistance and act as plan author for the preparation of the five-year update to the Regional Multi-Hazard Mitigation Plan. Ray County intends to work with MARC on the preparation and adoption of the 2014 update to the Regional Multi-Hazard Mitigation Plan.

The county will participate in meetings with MARC and offer information to support the update of the plan. We will provide feedback on a draft plan and work with MARC to ensure that the plan's contents and recommended mitigation measures reflect the county's needs and desires to reduce the risks from natural and other hazards.

Our Emergency Manager will participate with MARC in the Plan's development as a member of the Planning Team.

Sincerely,

Bob King
Presiding Commissioner

Allen Dale
Eastern Commissioner

Mike Twyman
Western Commissioner

Regional Hazard Mitigation Plan Review Committee

Mid-America Regional Council
Lewis & Clark Room
600 Broadway #200, Kansas City, MO
Tuesday, September 30, 2014
9:30 a.m. - 12:00 p.m.

AGENDA

1. Welcome and Introductions. Background.

2. Formalize 2015 plan review and update process
    a. Determine review methodology
    b. Discuss the new information that needs to be gathered for the update
        i. Tools to be used for data gathering
            1. Community profile (survey monkey)
            2. Mitigation strategies by hazard (access database)
    c. Proposed Outreach to inform the 2015 plan update
        i. Two meetings in each county and KCMO – others if needed
            1. Initial meeting
            2. Follow-up meeting (public comment)
    d. Review current plan participants
    e. Determine satisfactory participation requirements for the plan update
    f. Discuss plan update timeline

3. FEMA crosswalk
    a. Review plan elements and data gaps
    b. Discuss new FEMA recommendations/requirements including NFIP

4. Review hazard profiles
    a. Discuss new state hazards including Levee Failure
    b. Discuss correlation to THIRA threats and hazards

5. Review mitigation actions
    a. Determine mitigation goals and actions for new hazards
    b. Discuss correlation with mitigation strategies to THIRA capability targets

6. Determine outreach efforts including schools, public and other stakeholders

7. Other business

8. Adjourn/Next meeting – Recommend holding next Core Planning meeting in mid-October after the first local kickoff meeting.

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

Regional Hazard Mitigation Plan Review Committee

Mid-America Regional Council
MARC Board Room
600 Broadway #200, Kansas City, MO
Tuesday, January 27, 2015
9:00 a.m. – 10:30 a.m.

AGENDA

1. Welcome and Introductions.
2. Preliminary impressions from the Community Profiles
3. Review of Participants
    a. Participants who have completed the Community Profile
    b. Participants who have started but not completed the Profile
    c. Participant who we haven't heard from
    d. Strategies for working with b and c
4. Next steps for Participants: Hazard Mitigation Goals and Action Surveys (2010 Update and 2015)
5. Scheduling of Community Engagement meetings (March)
6. Data collection efforts to update Planning Area Profile and Hazard Profiles
    a. Jakob Goldman – Research Services
7. Further discussion regarding the additional hazards
8. Other business
9. Adjourn/Next meeting

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

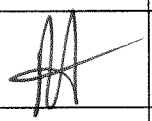
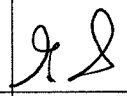
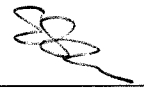
Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Workgroup

JANUARY 27, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Curry, Michael		Jackson County Emergency Management	415 East 12th Street, 2nd fl. Kansas City, MO 64106	816-881-3625	mcurry@jacksongov.org
Quick, Lonnie		Richmond Fire Department	101 E. Lexington Richmand, MO 64085	816-776-2115 x107	chief@richmondmofire.com
Avery, Anthony		Platte County Sheriff's Department	415 East Third Street Platte City, MO 64079	816-858-3361	Anthony.Avery@plattesheriff.org
Ramsey, Eric		Clay County Emergency Management	13106 Rhodus Rd Excelsior Springs, MO 64024	(816) 407-3732	eramsey@claycountymo.gov
Swaggart, Stan		Cass County Emergency Management	102 East Wall Street Harrisonville, MO 64701	816-350-8125	stans@casscounty.com
Shepherd, Gene		Kansas City Missouri Emergency Management	635 Woodland Suite 2107 Kansas City, MO 64106	816-513-8601	gene.shepherd@kcmo.org
Greene, John		City of Independence Fire Department	950 North Spring Street Independence, MO 64050	816-325-7138	JGREENE@indepmo.org
Gliniecki, Dante		City of Indpedence			dglieniecki@indepmo.org
Brady, Jon		North Kansas City School District	2000 NE 46th Street Kansas City, MO 64116	816-413-5472	jbrady1@nkcschools.org
Ruddy, Dr. John		Fort Osage R-I School District	2101 North Twyman Road Independence, MO 64058	816-650-7005	jruddy@fortosage.net
Lynch, Erin		MARC	600 Broadway Kansas City, MO 64150	816-701-8390	elynch@marc.org

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Workgroup

JANUARY 27, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Sorg, Justin		MARC	600 Broadway Kansas City, MO 64105	816-701-8293	jsorg@marc.org
Lenk, Frank		MARC	600 Broadway Kansas City, MO 64105	816-701-8237	flenk@marc.org
Baharaeen, Sasan		MARC	600 Broadway Kansas City, MO 64105	816-701-8235	sasan@marc.org
Danbury, Lisa	ld	MARC	600 Broadway Kansas City, MO 64105	816-853-7053	ldanbury@sbcglobal.net
Martin, Donna		MARC	600 Broadway Kansas City, MO 64105	816 701-8369	dmartin@marc.org
Jakob Goldman	JG	MARC	600 Broadway Kansas City, MO 64105	815 701-8307	jgoldman@marc.org
★ Michael ONeal		Platte County	485 Third ST suite 10 Platte City MO	816 858-1966	michael.oneal platteshariff.org
LES BOATRIGHT	LSB	KCP&L	PO BOX 418679 KC, MO 64141	816 - 225-7507	les.boatright@ KCPL.COM
★ Chris Carroll	CnC	KCMO OEM			christopher.carroll@kcmo.org
★ Andrew Carpenter		Indep. Emergency Preparedness	950 N. Spring Indep. MO 64050	816-325 6960	acarpenter@indepmo.org

Regional Hazard Mitigation Plan Review Committee

Mid-America Regional Council
MARC Board Room
600 Broadway #200, Kansas City, MO
Thursday, March 12, 2015
3:00 p.m. – 4:30 p.m.

AGENDA

1. Welcome and Introductions.

2. Review Status of Participants
    a. Community Profile
    b. Hazard Mitigation 2010 Goals and Actions Status Update
    c. 2015 Hazard Mitigation Goals and Actions
    d. Missing 2010 Participants
    e. Cutoff date for participation?
    f. What about participants that don't meet all requirements
        i. Organizations that weren't at the original County Kick Off meetings or the Educational Institution meeting?
        ii. School Districts that did not attend the Community Engagement meetings
    g. Plan for reaching out to participants who need to complete tools

3. Community Engagement meetings debrief

4. Next steps
    a. Analysis of Probability, Severity and Risk
    b. Assessment of Capabilities
    c. Analysis of Goals and Actions – Commonalities?
    d. Development of Problem Statements

5. Discussion about a possible request for an extension from SEMA

6. Other business

7. Adjourn/Next meeting

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Workgroup

~~JANUARY 27, 2015~~
March 12, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Curry, Michael		Jackson County Emergency Management	415 East 12th Street, 2nd fl. Kansas City, MO 64106	816-881-3625	mcurry@jacksongov.org
Quick, Lonnie		Richmond Fire Department	101 E. Lexington Richmand, MO 64085	816-776-2115 x107	chief@richmondmofire.com
Avery, Anthony		Platte County Sheriff's Department	415 East Third Street Platte City, MO 64079	816-858-3361	Anthony.Avery@plattesheriff.org
Ramsey, Eric	EGR	Clay County Emergency Management	13106 Rhodus Rd Excelsior Springs, MO 64024	(816) 407-3732	eramsey@claycountymo.gov
Swaggart, Stan		Cass County Emergency Management	102 East Wall Street Harrisonville, MO 64701	816-350-8125	stans@casscounty.com
Shepherd, Gene		Kansas City Missouri Emergency Management	635 Woodland Suite 2107 Kansas City, MO 64106	816-513-8601	gene.shepherd@kcmo.org
Greene, John		City of Independence Fire Department	950 North Spring Street Independence, MO 64050	816-325-7138	JGREENE@indepmo.org
Gliniecki, Dante	D.G	City of Independence	↓		dglieniecki@indepmo.org
Brady, Jon		North Kansas City School District	2000 NE 46th Street Kansas City, MO 64116	816-413-5472	jbrady1@nkcschools.org
Ruddy, Dr. John		Fort Osage R-I School District	2101 North Twyman Road Independence, MO 64058	816-650-7005	jruddy@fortosage.net
Lynch, Erin		MARC	600 Broadway Kansas City, MO 64150	816-701-8390	elynch@marc.org

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Workgroup

JANUARY 27, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Sorg, Justin		MARC	600 Broadway Kansas City, MO 64105	816-701-8293	jsorg@marc.org
Lenk, Frank		MARC	600 Broadway Kansas City, MO 64105	816-701-8237	flenk@marc.org
Baharaeen, Sasan		MARC	600 Broadway Kansas City, MO 64105	816-701-8235	sasan@marc.org
Danbury, Lisa		MARC	600 Broadway Kansas City, MO 64105	816-853-7053	ldanbury@sbcglobal.net
Martin, Donna	DM	MARC	600 Broadway Kansas City, MO 64105	816 701-8369	dmartin@marc.org
Jakob Goldman	JG	MARC	600 Broadway Kansas City, MO 64105	815 701-8307	jgoldman@marc.org
Christopher Carroll	CmC	KCMO OEM	635 Woodland Ave 64106	816-513-8603	Christopher.carroll @ kcmo.org
Michael O'Neal		Platte Co EM	415 Third Str Platte City, MO 64079	816 858-1966	Michael.ONeal@ PlatteSheriff.org
Mike Shelton		Riverside OEM	2990 NW Vivion Rd Riverside MO 64150	816 741-1191	MShelton @Riverside-mo.com
Jakob Goldman	JG	MARC			
Dante Gliniecki	DG	Independence EP			

Regional Hazard Mitigation Plan Review Committee

Mid-America Regional Council
Lewis & Clark Room
600 Broadway #200, Kansas City, MO
Thursday, April 30, 2015
9:00 – 11:00 a.m.

AGENDA

1. Welcome and Introductions.

2. Review Status of Participants
    a. Community Profile
    b. Hazard Mitigation 2010 Goals and Actions Status Update
    c. 2015 Hazard Mitigation Goals and Actions

3. Assessment of Goals and Actions Data
    a. 2010 Goals and Actions
        i. Commonalities
    b. 2015 Goals and Actions
        i. Proposed strategy for new natural hazard goals and actions
        ii. Proposed strategy for new man made hazard goals and actions
    c. General gaps in data
        i. Approach for filling in the gaps for Cost Information
        ii. Approach for filling in the gaps for Cost/Benefit Review
    d. Strategy for assigning prioritization for Goals and Actions

4. Document development status report
    a. Regional Profile
    b. Plan for sharing plan sections and getting feedback
        i. **https://share.dhs.gov/kchazmit/**

5. Match documentation

6. Other business

7. Adjourn/Next meeting: May 21st at 1:00-2:00 p.m.

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Committee

April 30, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Curry, Michael	MC	Jackson County Emergency Management	415 East 12th Street, 2nd fl. Kansas City, MO 64106	816-881-3625	mcurry@jacksongov.org
Quick, Lonnie		Richmond Fire Department	101 E. Lexington Richmand, MO 64085	816-776-2115 x107	chief@richmondmofire.com
Avery, Anthony		Platte County Sheriff's Department	415 East Third Street Platte City, MO 64079	816-858-3361	Anthony.Avery@plattesheriff.org
Ramsey, Eric	ER	Clay County Emergency Management	13106 Rhodus Rd Excelsior Springs, MO 64024	(816) 407-3732	eramsey@claycountymo.gov
Swaggart, Stan		Cass County Emergency Management	102 East Wall Street Harrisonville, MO 64701	816-350-8125	stans@casscounty.com
Shepherd, Gene	GS	Kansas City Missouri Emergency Management	635 Woodland Suite 2107 Kansas City, MO 64106	816-513-8601	gene.shepherd@kcmo.org
Carroll, Chris	CMC	Kansas City Missouri Emergency Management	635 Woodland Suite 2107 Kansas City, MO 64106	816-513-8601	christopher.carroll@kcmo.org
Carpenter, Andrew		City of Independence	950 North Spring Street Independence, MO 64050	816-325-7138	acarpenter@indepmo.org
Gliniecki, Dante		City of Independence	950 North Spring Street Independence, MO 64050		dglieniecki@indepmo.org
Brady, Jon		North Kansas City School District	2000 NE 46th Street Kansas City, MO 64116	816-413-5472	jbrady1@nkcschools.org
Ruddy, Dr. John		Fort Osage R-I School District	2101 North Twyman Road Independence, MO 64058	816-650-7005	jruddy@fortosage.net

MARC
Mid-America Regional Council

Regional Hazard Mitigation Planning Committee

APRIL 30, 2015

Name	Initial if Present	Organization/ Title	Address	Phone	E-mail
Lynch, Erin		MARC	600 Broadway Kansas City, MO 64150	816-701-8390	elynch@marc.org
Sorg, Justin		MARC	600 Broadway Kansas City, MO 64105	816-701-8293	jsorg@marc.org
Lenk, Frank		MARC	600 Broadway Kansas City, MO 64105	816-701-8237	flenk@marc.org
Baharaeen, Sasan		MARC	600 Broadway Kansas City, MO 64105	816-701-8235	sasan@marc.org
Danbury, Lisa		MARC	600 Broadway Kansas City, MO 64105	816-853-7053	ldanbury@sbcglobal.net
Martin, Donna	DEFM	MARC	600 Broadway Kansas City, MO 64105	816 701-8369	dmartin@marc.org
Jakob Goldman		MARC	600 Broadway Kansas City, MO 64105	815 701-8307	jgoldman@marc.org
Michael O'Neal		Platte COEM			
Mark Widner		MARC			m.widner@marc.org

Regional Hazard Mitigation Plan Review Committee

Mid-America Regional Council
Broadway Room
600 Broadway #200, Kansas City, MO
Thursday, May 21 2015
1:00 – 2:00 a.m.

AGENDA

1. Update on plan revision
    a. What's been put on HSIN
    b. When remaining sections will be available on HSIN

2. Discuss essential plan components for the planning committee's review
    a. Planning Area profile
    b. Hazards risk assessment and problem statements – confirm information with planning committee make any changes needed
    c. Goals and Action status – remaining work
        i. Need for NFIP jurisdictions to show a related mitigation action
        ii. Jurisdictions that only included community educations goals

    d. Discuss plan maintenance section
    e. Other

3. Match documentation

4. Other business

5. Next meeting recommend schedule conference call for May 28th - Plan due to SEMA June 1

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Cass County Work Session

Cass County Courthouse
102 E. Wall St., Harrisonville, MO 64701
Monday, November 3, 2014
10:00 a.m.

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Cass County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) – **Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**
    a. Draft due to SEMA April 1, 2015
    b. Draft due to FEMA June 1, 2015
    c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. **Questions? Adjourn**

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Clay County Work Session

Clay County Public Health Center
800 Haines Drive, Liberty, MO 64068
Monday, November 17, 2014
9:00 a.m.

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Clay County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) – **Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**
    a. Draft due to SEMA April 1, 2015
    b. Draft due to FEMA June 1, 2015
    c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. **Questions? Adjourn**

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Jackson County Work Session

Midwest Public Risk
19400 East Valley View Parkway, Independence, MO 64055
Tuesday, November 18, 2014
1:00 p.m.

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Jackson County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) – **Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**
    a. Draft due to SEMA April 1, 2015
    b. Draft due to FEMA June 1, 2015
    c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. **Questions? Adjourn**

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Platte County Work Session

Platte County Resource Center
11724 NW Plaza Circle Drive, Kansas City, MO 64153
Friday, November, 14 2014 - 10:00 a.m. OR
Monday, November 17, 2013 – 6:00 p.m.

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Platte County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) – **Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**
    a. Draft due to SEMA April 1, 2015
    b. Draft due to FEMA June 1, 2015
    c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. **Questions? Adjourn**

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Richmond Fire Department
205 Summit St., Richmond, MO 64085
Tuesday, October 21, 2014
10:00 a.m.

AGENDA

1. Regional Multi-Hazard Mitigation Planning Overview. Background.

2. Hazard Profiles
    a. Review current and new hazards (natural and man-made)
    b. Discuss connection to THIRA

3. Plan Update Process & Timeline
    a. Participation Requirements
    b. Tools to be used for data gathering
        i. Community Profile Survey (web-based)
        ii. Mitigation Strategy Survey
            1. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based)
            2. Part 2 – Identification of new Mitigation Goals and Actions (Excel)
        iii. Public Involvement (outreach to schools, public, other stakeholders)
    c. Timeline
        i. Community Profile (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)
        iii. Two meetings in each county
            1. Initial meeting with stakeholders (October/November)
            2. Follow-up meeting for public comment (January)

4. Next Steps

5. Adjourn

The 2010 RHMP is available in its entirety on the MARC Web site:

http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Platte County Commission
100 West Main Street, Richmond Mo 64085

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Ray County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) **– Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**

a. Draft due to SEMA April 1, 2015
b. Draft due to FEMA June 1, 2015
c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. Questions? Adjourn

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Ray County Commission
100 West Main Street, Richmond Mo 64085

AGENDA – MARCH 11, 2015

1. **Review of Ray County's 2010 Ongoing Goals and Actions**

2. **Review of Probability, Severity, and Overall Risk Rankings of each hazard by Ray County**

3. **Discussion of Ray County's 2015 Goals and Actions**

4. **Discussion of possible community engagement event – date and time.**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

Appendix B:
MOA FY13 PDMC-EMK-2014-PC-0001
(21 Pages)

Memorandum of Agreement
Binding the SEMA & the Consultant
For
Professional Planning Services
(FY13 PDMC-EMK-2014-PC-0001)

TITLE OF PLAN: Kansas City Regional MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN
(Name of Region, County or City)

The Missouri State Emergency Management Agency (hereinafter referred to as "SEMA") & the Mid-America Regional Council (hereinafter referred to as "Consultant") hereby declare understanding, agreement and certification of compliance to provide the services, at the prices quoted, in accordance with all requirements and specifications contained herein. In witness whereof, the parties hereto have made and executed this Agreement as of the month, day and year as written below.

SEMA HEREBY AGREES		
Authorized Signature [signature]		Date 07/30/2014
Printed Name Timothy A. Diemler		Title SEMA Acting Director
Missouri State Emergency Management Agency (SEMA)		
Mailing Address P.O. Box 116		
City, State, Zip Jefferson City, MO 65102		
Phone Number (573) 526-9143	Fax Number (573) 526-9198	E-mail Address: Tim.Diemler@sema.dps.mo.gov

THE CONSULTANT HEREBY AGREES		
Authorized Signature [signature]		Date 7/22/14
Printed Name David Warm		Title Executive Director
Consultant Organizational Name Mid-America Regional Council		
Mailing Address 600 Broadway, Suite 200		
City, State, Zip Kansas City, Missouri 64105		
		Federal Employer ID No. 43-0976432
Phone Number 816.474.4240	Fax Number 816.421.7758	E-mail Address: dwarm@marc.org

By affixing signatures to this document, both parties affirm that this Agreement is a legally binding document. SEMA and the Consultant thus each binds him/herself and his/her partners, successors, executors, administrators, assigns and legal representatives to other party to this Agreement and to the partners, successors, executors, administrators, assigns and legal representatives of such other party, in respect to all covenants, agreements and obligations to this Agreement and Exhibits A, B, and C and any subsequently related Change Orders.

1. AGREEMENT REQUIREMENTS

1.1 GENERAL REQUIREMENTS

1.1.1 The Consultant agrees that the **Kansas City Regional Multi-Jurisdictional Hazard Mitigation Plan** (See Exhibit C for list of participating jurisdictions), hereinafter referred to as "Local Government," must meet the requirements of the The *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988* (as amended by the Disaster Mitigation Act of 2000, P.L. 106-390), Federal Emergency Management Agency ("FEMA") guidance at 44 CFR Part 201 – *Mitigation Planning* and 44 CFR Part 206, Subpart N, – *Federal Disaster Assistance, Hazard Mitigation Grant Program*, and FEMA final rules: *Hazard Mitigation Planning and Hazard Mitigation Grant Program* 72 Fed. Reg. 61552 (October 31, 2007), *Flood Mitigation Grants and Hazard Mitigation Planning* 74 Fed. Reg. 47471 (September 19, 2009), and *Change in Submission Requirements for State Mitigation Plans* 79 Fed. Reg. 22873 (April 25, 2014) stipulate that in order for local governments to be eligible to receive funds from the federal Hazard Mitigation Grant Program, the local jurisdiction must have a hazard mitigation plan that describes the process for identifying hazards, assessing risks and vulnerabilities, and identifying and prioritizing mitigation actions.

1.1.2 The Consultant agrees to be/become knowledgeable of and to adhere to the *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988* (as amended by the Disaster Mitigation Act of 2000), and 44 CFR Parts 201 and 206 - Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule, and to become knowledgeable of and to adhere to the FEMA regulations and rules pertaining to the development of and acceptability of the Local Government's Hazard Mitigation Plans in order to successfully perform the requirements outlined in this document and within the time specified herein.

1.1.3 Under the terms of this document, the Consultant agrees to develop and produce a Local Government "Hazard Mitigation Plan" for SEMA in accordance with these terms and conditions, and the procedures, instructions, details and format contained in the following FEMA publications: **Multi–Hazard Mitigation Planning Guidance** (available at http://www.fema.gov/media-library/assets/documents/31598?id=7209) and **Local Mitigation Plan Review Guide and Tool** (available at http://www.fema.gov/media-library/assets/documents/23194?id=4859.)

1.1.4 Under the conditions set forth in 44 CFR Part 201.6, the successful development of the Hazard Mitigation Plan must include the open public involvement of local units of government and other local and regional public or private sector bodies or agencies that influence hazard management or development policies within a Local Government. The Consultant must be prepared, under the scope of this Agreement, to participate and at times possibly facilitate the development and conduct meetings necessary to include said bodies in the planning development process. Specifically include all public school districts, universities, colleges and any other eligible entities.

1.1.5 Multi-jurisdictional plans (e.g. countywide plans and/or region-wide plans) are permissible local Hazard Mitigation Plans, as long as each jurisdiction within the county has participated in the process and has officially adopted the plan (See Exhibit C - Participating Jurisdictions). Statewide plans will not be accepted as multi-jurisdictional plans.

1.1.6 Multi-jurisdictional plans with related purposes (e.g. watershed plans, regional development plans, flood studies, etc.) can be incorporated into the plan as long as the information contained in the multi-jurisdictional plan fully meets all of the requirements outlined in this agreement.

1.1.7 For multi-jurisdictional plans, all assessments and discussions in all parts of the plan must show specific differences for each jurisdiction. Including those for special districts, school districts, universities, colleges, and any other potentially eligible entities.

1.1.8 The Consultant agrees and understands that any and all services shall be performed only with consent of SEMA.

1.1.9 The Consultant agrees to provide SEMA with a first copy **draft** Hazard Mitigation Plan no Later than **April 1, 2015** an approximate not to exceed period of time of six (6) months from the expected implementation date of the award of this Agreement. The Consultant also agrees to complete the project by providing the **final** copy of the plan no later than **June 18, 2015**, as agreed to by SEMA, unless specifically authorized in writing by SEMA through a properly executed Change Order, coordinated through SEMA's Primary Agreement Representative (PAR). The Change Order request must be received by SEMA at least 30 days prior to the due dates.

SEMA'S PRIMARY AGREEMENT REPRESENTATIVE (PAR)			
Printed Name: Elizabeth Weyrauch		Title: State Hazard Mitigation Officer	
Missouri State Emergency Management Agency (SEMA)			
Street	City	State	Zip
Mailing Address P.O. Box 116	Jefferson City	Missouri	65102
Phone Number: (573) 526-9375	Fax Number: (573) 526-9198	E-mail Address elizabeth.weyrauch@sema.dps.mo.gov	

1.1.10 The Consultant agrees that SEMA has the right to determine if an extension is fairly warranted and necessary. Moreover, the Consultant agrees that an extension to the terms of completion time does not obligate SEMA to provide any additional funds to the Consultant, unless the extension is required due to a modification in the scope of work of this Agreement and is fully documented by SEMA in a properly executed Change Order coordinated through SEMA's PAR. Should any Local Government, SEMA or FEMA representative or any other person advertently or inadvertently ask the Consultant to perform any work that is not covered under the scope of this Agreement, the Consultant is required to inform SEMA's PAR who shall coordinate, prepare and properly execute a Change Order, if SEMA determines that the work is necessary.

1.1.11 SEMA may, from time to time, request changes in the scope of the services of the Consultant to be performed hereunder. Such changes, including any increase or decrease in the amount of the Consultant's compensation, which are mutually agreed upon by and between SEMA and the Consultant, shall be incorporated in written Change Orders to this Agreement. If SEMA's PAR requests significant modifications or changes in the extent of the project, the time of performance of Consultant's services and rates of compensation shall be adjusted appropriately, provided funding is available.

1.1.12 By accepting the definitions, terms, requirements, conditions, taskings, and special considerations of this document, the Consultant agrees that the Local Government's Hazard Mitigation Plan shall meet the final approval of both SEMA and FEMA before the terms of this document are considered to be satisfied for purposes of final payment.

1.1.13 SEMA agrees to provide to the Consultant all criteria and full information concerning the requirements for the project and to furnish copies of all documents related to the project.

1.1.14 SEMA agrees to assist the Consultant by furnishing information pertinent to the plan, including previous reports and any other data relative to the plan where such information is readily available to SEMA. However, the Consultant acknowledges that the Hazard Mitigation Plan is local in nature and agrees to obtain most of the information pertinent to the plan, including previous reports and any other data relative to the plan where such information is readily available from the Local Government participating in the planning process and other pertinent information sources such as the National Weather Service, the Census Bureau, the Missouri State Hazard Mitigation Plan, FEMA, and other agencies as appropriate.

1.1.15 SEMA shall bear the costs, incurred incident to the Consultant's compliance with the requirements of this Agreement, in accordance with the terms and conditions contained in the Financial Management section of this Agreement.

1.1.16 The Consultant shall submit monthly statements for services and expenses incurred at the time of billing. SEMA shall make prompt payments in response to consultant's statements.

1.1.17 The Consultant shall not assign any interest on this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without the prior written consent of SEMA thereto: Provided, however, that claims for money by the Consultant from SEMA under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be furnished promptly to SEMA.

1.1.18 The Consultant understands and agrees that this Agreement shall not be construed as an exclusive arrangement with SEMA and that other SEMA/State of Missouri agreements may exist with other entities for the same services.

1.1.19 The Consultant agrees to submit the Hazard Mitigation plan to SEMA whom shall review the plan; and after completion of review SEMA will forward the plan to FEMA. FEMA shall determine if the plan is "approvable pending adoption." Local Government must formally adopt the plan with at least one adoption resolution in order to be considered fully approved. In the event FEMA determines the plan "needs improvement," the plan does not meet the minimum requirements. The Consultant will then have sixty (60) days from FEMA's designation of the plan to make necessary improvements. Consultant shall then resubmit the plan to SEMA for another review.

1.1.20 The Consultant understands and accepts their responsibility under the Revised Statutes of Missouri (RSMo) Sections 285.525 through 285.555 (Illegal Immigrants) to ensure that "no business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri." The Consultant further certifies that any contract awarded by the state will require the

contracted business entity to comply with the references mentioned above. The Consultant understands that failure to comply with this requirement will subject the Consultant to the penalties described in the references mentioned above.

1.1.21 ***References***

a. *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988* (as amended by the Disaster Mitigation Act of 2000)
b. 44 CFR Parts 201 and 206 - Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule.
c. State of Missouri Hazard Mitigation Plan, (July 2013) (http://www.sema.dps.mo.gov/programs/mitigation_management.asp)
d. FEMA **Local Mitigation Planning How-To Series** (http://www.fema.gov/library/viewRecord.do?id=1887)
e. FEMA **Local Mitigation Plan Review Guide and Tool** (October 2011) is mandatory for those plans submitted for final approval after October 1, 2012. (http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859)
f. FEMA **Multi – Hazard Mitigation Planning Guidance** (Blue Book) (http://www.fema.gov/library/viewRecord.do?id=1887)
g. Planning for a Sustainable Future (FEMA 364) (http://www.fema.gov/hazard-mitigation-planning-resources)
h. State and Local Mitigation Planning (FEMA 386-2) (http://www.fema.gov/hazard-mitigation-planning-resources)
i. **Multi–Hazard Mitigation Planning Guidance** (http://www.fema.gov/media-library/assets/documents/31598?id=7209)

1.2 SPECIFIC PLAN REQUIREMENTS

1.2.1 **Local Hazard Mitigation Plan Process, Content and Prescribed Format:** Consultant agrees to follow the instructions contained in the FEMA publication: **Multi–Hazard Mitigation Planning Guidance** and **Plan Review Tool.**

1.2.2 Consultant agrees that **no formal Benefit Cost Analysis is required** for this Local Hazard Mitigation Plan. Consultant acknowledges that this agreement does not cover any costs associated with any formal Benefit Cost Analysis associated with the Local Plan, before or after the plan is developed.

2. SPECIAL PROVISIONS AND EXHIBITS

2.1 The following exhibits are attached to and made a part of this Agreement.

2.1.1 Exhibit A, "Scope of Services" consisting of 1 page.
2.1.2 Exhibit B, "Additional and Conditions" consisting of 10 pages.
2.1.3 Exhibit C, "Listing of Local Jurisdictions" consisting of 1 page.

2.2 This Agreement (consisting of pages 1 to 6, inclusive), together with the exhibits identified above (consisting of pages 7 to 18, inclusive), constitute the entire Agreement between SEMA and Consultant and supersede all prior written or oral understandings. This Agreement and said exhibits may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

EXHIBIT A

SCOPE OF SERVICES
LOCAL GOVERNMENT HAZARD MITIGATION PLAN

The Consultant shall complete, in a professional and timely manner, the following services relative to SEMA's Local Hazard Mitigation Plan criteria. Such actions shall be performed in a manner prescribed by FEMA in the FEMA publication: **Multi – Hazard Mitigation Planning Guidance**

1. The Consultant agrees to provide a plan that focuses on mitigation as part of SEMA's emergency management efforts. Unless mutually agreed upon in advance by SEMA and the Consultant, the Local Hazard Mitigation Plan shall contain various sections as described in detail in the FEMA publication: **Multi – Hazard Mitigation Planning Guidance**

2. Some of the pertinent information to be included in the Local Hazard Mitigation Plan may be available from SEMA and FEMA, but the Consultant with the assistance of Local Government shall develop the majority of the information.

3. The Consultant agrees to provide the plan within the Timeline submitted to SEMA and within the time, terms and conditions and the price stated within this Agreement.

4. The Local Hazard Mitigation Plan must be in compliance with the **Local Mitigation Plan Review Tool**, as applicable, developed by FEMA for evaluating such plans.

5. One electronic copy of the draft plan must be provided to SEMA along with a **Plan Review Tool** identifying page numbers where applicable information is located within the plan. Electronic versions must follow the pre-approved format (see Exhibit B, paragraph 3.a. and 3.b.).

6. One electronic copy of the final plan must be provided to SEMA. Changes made in this version of the plan must be communicated using the **Plan Review Tool**, or other acceptable documentation as determined by SEMA.

EXHIBIT B

ADDITIONAL TERMS AND CONDITIONS
PROJECT MANAGEMENT

1. **SEMA's Primary Agreement Representative (PAR).**

   a. The Consultant agrees and understands that SEMA's Primary Agreement Representative (PAR) shall supervise each planning project.

   b. The Consultant shall coordinate directly with the PAR (or the PAR's designee(s)) and shall agree and understand that the PAR shall have authority for the following:

      1) Final determination of the time frame the Consultant shall follow to provide services and products, and the final determination that the Consultant has completed such services and products.

      2) Approval or disapproval of the Consultant's procedures.

      3) Responding to the Consultant's questions and requests for assistance.

      4) Approval or disapproval of all equipment, materials, personnel, and related services and procedures proposed by the Consultant.

      5) Final approval of any additional equipment, materials, and services requested by the Consultant.

      6) Determination of the planning project's completion, as described herein.

2. **Copyright.** No report, maps, or other documents produced in whole or in part under this Agreement shall be the subject of an application for copyright by or on behalf of the Consultant.

   a. The Consultant agrees that all plans, annexes, and products developed for and included in this undertaking become "public domain" information, the sole property of SEMA and may not be used for sale or resale.

   b. SEMA agrees to freely share ownership of all plans, annexes, and products developed for and in this undertaking with the Local Government for public domain uses as the Local Government deems appropriate in accordance with local, state, and federal laws.

   c. SEMA also agrees that the Consultant may use freely the plans, annexes, and products developed for and in this undertaking for other public planning purposes, and agrees that written permission will not unreasonably be withheld from the Consultant for other purposes of a non-profit nature that benefits the public.

d. The Consultant agrees that all plans, annexes, and products developed for and in this undertaking may not be used for any other purposes without SEMA's expressed advance written permission.

3. Electronic Media.

a. SEMA and the Consultant mutually agree in advance to any and all electronic formats that are used in the development of the plan, its annexes and products. The Consultant agrees to use Microsoft Office products compatible with FEMA and SEMA software – Word (text), Excel (spreadsheet), Access (database) and PowerPoint (Graphics/Presentation) documents. The Consultant also agrees to submit the mitigation plan in PDF format as well. SEMA will not be required to pay the Consultant for any work produced on any electronic format not approved in advance by SEMA, unless SEMA determines in advance that the work is acceptable and beneficial to its needs and purposes.

b. In addition, the Consultant agrees that all database information (key facility maps, hazard analysis maps, GIS maps, etc.) must be incorporated into the plan in CD format, and that the format must be compatible with existing software owned by SEMA (ArcView 3.1, 3.2, 8.3, or 9.3).

c. The Consultant agrees that the plan must incorporate any previously adopted mitigation related plans, identifies mitigation measures currently undertaken or implemented by the City/County.

d. The Consultant understands and agrees that all discussions with the Consultant and SEMA, and all information gained by the Consultant as a result of the Consultant's performance under this Agreement shall be subject to the provisions of Missouri Law (RSMo Chapter 610 - http://www.moga.mo.gov/statutes/c610.htm) and the Federal Freedom of Information Act. Copies of documents may be released immediately for inspection and copying, according to the provisions of RSMo 610.10, 610.23 and 610.24, as long as the Consultant provides SEMA and the Local Government a courtesy notification of the request for release.

e. SEMA agrees to work with Local Government to resolve any concerns or issues broached as pertains to the Special Considerations & Conditions of this Agreement.

4. Personnel

a. The Consultant represents that he/she has, or will secure at his/her own expense, all personnel required in performing the services under this Agreement. Such personnel shall not be employees of or have any relationship with SEMA or the State of Missouri.

b. All of the services required hereunder shall be performed by the Consultant or under his/her supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under State and Local law to perform such services.

c. None of the work or services covered by this Agreement shall be subcontracted

without the prior written approval of SEMA. Intent to use subcontracted work shall be spelled out in Exhibit C, the Schedule of Fees and the Work Plan. Any work or services subcontracted hereunder shall be specified by this written Agreement and shall be subject to each provision of this Agreement.

d. The Consultant agrees not to represent its employees, including subcontracted employees as an employee(s) of SEMA, the State of Missouri or the Local Government.

e. The Consultant represents that it is subject to the Missouri State Legal Expense fund, established by Missouri Statute, and administered and interpreted by the Attorney General of the State of Missouri, and the Consultant has no liability insurance which can extend protection to any other person. To the extent provided by Missouri Law, and in no way to be construed as any waiver or limitation of the doctrines of sovereign, official or governmental immunity, the Consultant agrees to be fully and entirely responsible for its own acts and omissions, whether negligent or not, in conformance with the performance of the terms and conditions of this Agreement. The Consultant to the extent provided by Missouri Law, further agrees to protect, indemnify and hold harmless, with respect to any damages arising from any tort done in performing any of the work embraced by this Agreement, SEMA and Local Government and the officers and agents of those entities, from any claim or liability arising from or based on the violation of any law, ordinance, regulation, order or decree, by the Consultant or the Consultant's employees.

f. Subcontracting:

1) The Consultant agrees and understands that SEMA's concurrence to the Agreement may be predicated in part on the utilization of the specific Consultant identified in the bid. Therefore, the Consultant agrees that no substitution of such specific Consultant and/or personnel qualifications identified in the Agreement shall be made without the prior written approval of SEMA.

2) The Consultant further agrees that any substitution made pursuant to this paragraph must be equal or better than originally proposed and that SEMA's approval of a substitution shall not be construed as an acceptance of the substitution's performance potential. SEMA agrees that an approval of a substitution will not be unreasonably withheld.

3) No subcontracting fees, charges, or hidden commissions shall be allowed or reimbursed beyond the scope of the Consultant's proposal/work plan.

4) Should the Consultant subcontract for those services described herein, any subcontracts shall include appropriate provisions and obligations to ensure the successful fulfillment of all obligations agreed to by the Consultant and SEMA in this Agreement and to ensure that SEMA and the State of Missouri is indemnified, saved, and held harmless from and against any and all claims of damage, loss, and cost (including attorney fees) of any kind related to a subcontract in those matters described in this Agreement between SEMA and the Consultant.

5) The Consultant shall expressly understand and agree that the Consultant assumes and is solely responsible for all legal and financial responsibilities related to the execution of any subcontract.

6) The Consultant agrees and understands that utilization of a subcontractor to provide any of the equipment or services in this Agreement shall in no way relieve the Consultant of the responsibility for providing the equipment or services as described and set forth herein.

7) The Consultant shall bear the sole responsibility for the safety of its employees and any subcontractors the Consultant may choose to utilize in the performance of the services described herein.

5. Compliance with Laws, Ordinances, Regulations and Executive Orders.

a. The Consultant agrees to complete such action as is required to become fully informed of all State and National laws and county and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work and the Consultant shall at all times observe and comply with, all such applicable existing and future laws, ordinances, regulations, orders and decrees and the Consultant further agrees to protect, indemnify and hold harmless, with respect to any damages arising from any tort done in performing any of the work embraced by this Agreement, SEMA, the State of Missouri and Local Government and the officers and agents of those entities, from any claim or liability arising from or based on the violation of any law, ordinance, regulation, order or decree, whether by the Consultant or the Consultant's employees.

b. ***Equal Employment Opportunity.*** During the performance of this Agreement, the Consultant agrees as follows:

1) The Consultant shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, religion, or sex. The Consultant will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, national origin, religion, or sex. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by SEMA setting forth the provisions of this non-discrimination clause.

2) The Consultant shall, in all solicitation or advertisements for employees placed by or on behalf of the Consultant, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, religion, or sex.

3) The Consultant shall cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Agreement so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to subcontracts for standard commercial supplies or raw materials.

4) The Consultant shall comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

5) The Consultant shall furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by SEMA, the State of Missouri, the Local Government, FEMA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

6) In the event of the Consultant's noncompliance with the non-discrimination clauses of this Agreement or with any of such rules, regulations or orders, this Agreement may be canceled, terminated, or suspended in whole or in part and the Consultant may be declared ineligible for further Government agreements in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7) The Consultant shall include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 1 1246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Consultant will take such action with respect to any subcontract or purchase order as SEMA may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the Consultant becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by SEMA, the Consultant may request the United States Government to enter into such litigation to protect the interests of the United States.

c. ***Civil Rights Act of 1964:*** Under Title VI of the Civil Rights Act of 1964, No person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

d. ***Section 109(a) of the Housing and Community Development Act of 1974:*** No person in the United States shall on the ground of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in

part with funds made available under this title. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975 or with respect to an otherwise qualified handicapped individual as provided in; section 504 of the Rehabilitation Act of 1973 shall also apply to any such program or activity.

e. ***Section 503 of Rehabilitation Act of 1973***, as amended: Provides for the nondiscrimination in consultants employment. All recipients of Federal funds must certify to the following through all agreements issued.

Affirmative Action for Handicapped Workers:

1) The Consultant shall not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Consultant agrees to take affirmative action to employ, advance in employment and to otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship.

2) The Consultant agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

3) In the event of the Consultant's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

4) The Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the SEMA officer. Such notices shall state the Consultant's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

5) The Consultant shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other understanding that the Consultant is bound by terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

6) The Consultant shall include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Consultant will take such action with respect to any subcontractor or purchase order as the Director of the Office of Federal

Compliance Programs may direct to enforce such provisions, including action for noncompliance.

f. ***Section 504 of the Rehabilitation Act of 1973,*** as amended: Provides for nondiscrimination of an otherwise qualified individual solely on the basis of his/her handicap in benefiting from any program or activity receiving Federal financial assistance. All recipients must certify to compliance with all provisions of this Section.

g. ***Age Discrimination Act of 1975***: No person in the United States, on the basis of age, be excluded from participation in, be denied benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance.

h. ***Interest of Members of the Owner***: No member of the governing body of the State and no other officer, employee, or agent of the State who exercises any functions or responsibilities in connection with the planning and carrying out of the program, shall have any personal financial interest, direct or indirect, in this Agreement, and the Consultant shall take appropriate steps to assure compliance.

i. ***Interest of Other Local Public Officials***: No member of the governing body of the locality and no other public official of such locality, who exercises any functions or responsibilities in connection with the planning and carrying out of the program, shall have any personal financial interest, direct or indirect, in this Agreement; and the Consultant shall take appropriate steps to assure compliance.

j. ***Interest of Consultant and Employees*:** The Consultant covenants that he/she presently has no interest and shall not acquire interest, direct or indirect, in the study area or any parcels therein or any other interest which would conflict in any manner or degree with the performance of his services hereunder. The Consultant further covenants that in the performance of this Agreement, no person having any such interest shall be employed.

6. **Reports and Information:** The Consultant, at such times and in such forms as SEMA may require, shall furnish SEMA such periodic reports as described below as SEMA may request pertaining to the work or services undertaken pursuant to this Agreement, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this Agreement.

a. As the work progresses, the Consultant agrees to make advice and information on matters performed by the Consultant reasonably available to the PAR.

b. The Consultant agrees to provide a Monthly Progress Report to the PAR by the 10th of the month, along with the monthly invoice and statement. The Monthly Progress Report shall contain the following information for the prior month:

1) Date of Report
2) Name of Consultant Organization and the name and telephone number of the report preparer

3) Brief Narrative of any significant activities or meetings conducted during the month, any Milestones Completed, any concerns or complications noted and any assistance requested
4) Percent of Plan Completed to Date

7. Termination of Agreement for Cause.

a. The Consultant agrees to give prompt written notice to SEMA whenever the Consultant becomes aware of any development that affects the scope of timing of the Consultant's services.

b. If, through any cause, the Consultant shall fail to fulfill in timely and proper manner his obligations under this Agreement, or if the Consultant shall violate any of the covenants, agreements, or stipulations of this Agreement, SEMA shall thereupon have the right to terminate this Agreement by giving written notice to the Consultant of such termination and specifying the effective date thereof, at least seven days before the effective date of such termination. In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared by the Consultant under this Agreement shall, at the option of SEMA, become its property and the Consultant shall be entitled to receive just and Equitable compensation for any work satisfactorily completed hereunder.

c. Notwithstanding the above, the Consultant shall not be relieved of liability to SEMA for damages sustained by SEMA by virtue of any breach of this Agreement by the Consultant, and SEMA may withhold any payments to the Consultant for the purpose of set-off until such time as the exact amount of damages due SEMA from the Consultant is determined.

8. Termination for Convenience of SEMA.

a. SEMA may terminate this Agreement at any time by giving at least ten (10) days notice in writing to the Consultant. If the Agreement is terminated by SEMA as provided herein, the Consultant will be paid for the time provided and expenses incurred up to the termination date.

b. SEMA agrees to give prompt written notice to the Consultant whenever SEMA observes or otherwise becomes aware of any development that adversely affects the scope, timing or satisfactory fulfillment of the Consultant's services.

c. If this Agreement is terminated due to the fault of the Consultant, Paragraph 8.b. hereof relative to termination shall apply as part of the termination process.

9. Records and Audits. The Consultant shall maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Agreement and such other records as may be deemed necessary by SEMA to assure proper accounting for all project funds, both Federal and non-Federal shares. These records will be made available for audit purposes to SEMA or any authorized representative, and **shall be retained for three years *after*** the **"Close Out"** of the **Planning Grant Agreement**, after permission to destroy them is granted by SEMA.

10. Payments.

a. The Consultant shall be paid in accordance with the firm, fixed price stated herein. The maximum amount SEMA shall pay the Consultant for performance of this agreement shall not exceed **$90,000.00**, without written consent by SEMA.

b. For grant management and audit purposes, the above federal amount must be added to the local nonfederal match amount of **$30,000.00** to be provided by the County Jurisdiction(s) for which the plan is being prepared and/or the Consultant to calculate the total planning project value of **$120,000.00**.

c. The Consultant understands that the Memorandum of Agreement is subject to the availability of grant funding. All work must cease at expiration of the grant. The Consultant may complete work only with the understanding that no additional cost can be charged and will not be paid by the grant.

d. The Consultant understands that the payment/documentation of the local match is the sole responsibility of the County for which this plan is being prepared and/or the Consultant. SEMA is providing only the federal share of the grant being used to fund this planning project. The Consultant and the participating County shall determine jointly how much of the planning work is to be performed by the County/Consultant in the event that the nonfederal match is provided in a form other than cash. The Consultant and the County also shall determine jointly how the County shall pay the Consultant in the event that the County provides the nonfederal match in the form of cash. SEMA has no responsibility to the Consultant for any payments owed by the County. The Consultant also agrees to assist the County to prepare and submit to SEMA each month the paperwork necessary to document the non-federal match.

e. Payment for this Agreement shall be full compensation for services rendered, including, but not limited to, all labor, materials, supplies, equipment, and incidentals necessary to complete the services required herein, as well as overhead. The Consultant shall not be entitled to any other payments or reimbursements for this planning project without the written consent of SEMA.

f. The Consultant may submit a request for payment to which SEMA shall respond, at the following percentages of project completion:

- Twenty-five percent of the Agreement price (federal share) which shall be paid to the Consultant prior to FEMA approval of the Hazard Mitigation Plan. Twenty-five percent of the local match documentation must be submitted along with the request for payment.
- Fifty percent of the Agreement price (federal share) which shall be paid to the Consultant prior to FEMA approval of the Hazard Mitigation Plan. Fifty percent of the local match documentation must be submitted along with the request for payment.
- Seventy-five percent of the Agreement price (federal share) which shall be paid to the Consultant prior to FEMA approval of the Hazard Mitigation

Plan. Seventy-five percent of the local match documentation must be submitted along with the request for payment.

- One-hundred percent of the Agreement price (federal share) which shall be paid to the Consultant after FEMA approval of the Hazard Mitigation Plan. One-hundred percent of the local match documentation must be submitted along with the final request for payment.

FEMA approval of the Hazard Mitigation Plan includes the submission of at least one fully executed adoption resolution which must be approved by FEMA.

g. The acceptance by the Consultant of final payment shall be and shall operate as a release to SEMA, the State of Missouri, FEMA and the Local Government of all claims and liability to the Consultant for all things done or furnished in connection with this work and for every act and neglect of SEMA, the State of Missouri, FEMA and the Local Government relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Consultant from any obligations under this Agreement or the performance of the work completed, i.e. a Local Hazard Mitigation Plan in compliance with the federal regulations previously identified.

11. Repayment Clause.

If the Consultant does not submit Hazard Mitigation Plans according to the dates outlined in 1.1.10 of this agreement, SEMA shall request, and the Consultant shall return within 30 days, the total Federal funds SEMA spent under this agreement.

EXHIBIT C

LISTING OF LOCAL JURISDICTIONS

The Consultant shall develop a regional multi-jurisdictional plan to meet the needs of the following local jurisdictions in **Mid-American Regional Council:**

Cass County

Cass County, City of Archie, Village of Baldwin Park, City of Belton, City of Cleveland, City of Creighton, City of Drexel, City of East Lynne, City of Freeman, City of Garden City, Village of Gunn City, City of Harrisonville, City of Lake Annette, City of Lake Winnebago, City of Peculiar, City of Pleasant Hill, City of Raymore, City of Strasburg, Village of West Line.

Clay County

Clay County, City of Avondale, Village of Birmingham, Village of Claycomo, City of Excelsior Estates, City of Excelsior Springs, City of Gladstone, City of Glenaire, City of Holt, City of Kearney, City of Liberty, City of Missouri City, City of Mosby, City of North Kansas City, Village of Oaks, Village of Oakview, Village of Oakwood, Village of Oakwood Park, Pleasant Valley, City of Pleasant Valley, Village of Prathersville, City of Randolph, City of Smithville..

Jackson County

Jackson County, City of Blue Springs, City of Buckner, City of Grain Valley, City of Grandview, City of Greenwood, City of Independence, City of Kansas City, City of Lake Lotawana, City of Lake Tapawingo, City of Lee's Summit, City of Levasy, City of Lone Jack, City of Oak Grove, City of Raytown, Village of River Bend, Village of Sibley, City of Sugar Creek, Village of Unity Village.

Platte County

Platte County, City of Camden Point, City of Dearborn, City of Edgerton, Village of Farley, Village of Ferrelview, City of Houston Lake, Village of Latan, City of Lake Waukomis, City of Northmoor, City of Parkville, City of Platte City, City of Platte Woods, Village of Ridgely, City of Riverside, City of Tracy, City of Weatherby Lake, City of Weston.

Ray County

Ray County, City of Camden, City of Crystal Lakes, Village of Elmira, City of Fleming, City of Hardin, City of Henrietta, Village of Homestead, City of Lawson, City of Orrick, Village of Rayville, City of Richmond, City of Wood Heights.

The Consultant shall notify, invite, and encourage active involvement and participation by representatives of each jurisdiction listed above in public meetings, planning meetings, and in the review of draft information to ensure the plan accurately and appropriately reflects the needs, conditions, desires and capabilities of each participating jurisdiction.

Returned to Cynthia Allen

PATH OF REVIEW WORKSHEET

Typically at least two originals of the contract document are executed.

*Please mark all signature areas where executive director is to sign; complete any sections such as title, name, etc.

For Grant Applications, Grant Agreements and Revenue Contracts (Funds coming to MARC)

Application or Grant Agreement is with: MO - SEMA
(Name of Grantor Agency)

Grant Purpose Hazard Mitigation Plan ~~Grant Number~~, if known _____

Amount $90,000. Period Covered (Date contract signed) to 6/18/15

Is FFATA (Federal Funding Accountability and Transparency Act) Reporting Required?

Is Grantor Agency a "Direct" federal department or agency? no (Insert yes or no)

(Examples of "Direct" federal agencies are US Department of Health and Human Services, US Department of Labor, US Environmental Protection Agency, Economic Development Administration, etc. Federal grant funds that are passed through other organizations before the grant comes to MARC are not "Direct" federal grants but are considered "Pass-Through" federal grants. "Pass-Through" federal grants are not subject to FFATA reporting.)

If "yes," then FFATA reporting is required. Provide the following information to Joy Edwards or Mark Johnson so that they can submit the required information on the FFATA website within the 30-day (+) timeline:

1. Copy of signed/approved grant agreement. Joy Edwards or Mark Johnson will update the website. Date reported on FFATA website is _____.
2. Budget information and list of any planned purchases over $25,000 for professional services and/or federal subrecipient pass-through agreements so that we are aware of any purchases that will require FFATA reporting.

$1001 to $5,000 – Department Director Approval to Accept Funds Received:
$5,001 to $25,000 – Executive Director
$25,001 to $50,000 - B&P
More than $50,001 - MARC Board

Date 6-24-2014
By MARC Board

Form Completed By	Cynthia L Allen	Date 6-18-14
Program Manager Approval	EBLyn	Date 6-20-14
Dept. Director Approval	MLyn	Date 6/23/14
Finance Affairs Dir. Approval	[illegible]	Date 6-24-14
Virginia Johnson, Joy Edwards or Mark Johnson	lp	Date
Executive Dir. Approval*	[signature]	Date 6/

Special Instructions or Comments _____

Distribution within MARC: original sent to Finance on _____
copy sent to department on _____

****

Other Documents Requiring Executive Director's Signature

(i.e. mutual agreements, progress reports, letter of support, contracts with no funds involved, etc.)

Description/Purpose _____

Board Approval Date: _____ (Insert date or "Not Required")

Please consult with Dorothy Pope or David Warm about whether Board approval is desired and/or required. Often the document involves a commitment of MARC or the Board or may raise policy issues.

Form Completed By		Date
Program Manager Approval		Date
Dept. Director Approval		Date
Finance Affairs Dir. Approval		Date
Executive Dir. Approval*		Date

Special Instructions or Comments _____

Mailed 7.24-14

600 Broadway, Suite 200
Kansas City, Missouri 64105-1659

816-474-4240
816-421-7758 FAX
www.marc.org

MARC
MID-AMERICA REGIONAL COUNCIL

March 12, 2015

Elizabeth Weyrauch
State Hazard Mitigation Officer
Missouri State Emergency Management Agency
2302 Militia Drive
PO Box 116
Jefferson City, MO 65102

RE: Request for No-Cost Extension on Kansas City Region (Cass, Clay, Jackson, Platte and Ray Counties) Hazard Mitigation Plan first draft submission

Dear Ms. Weyrauch:

On behalf of the above counties and per Donna Martin's phone communications with Heidi Carver, Hazard Mitigation Planner, please accept this letter as a formal request for a 60-day extension on the Hazard Mitigation Plan first draft submission. The applicable contract number is FY13 PDMC-EMK-2014-PC-0001 with a performance period ending in 2016. Currently, the first draft of the updated plan is due April 1, 2015.

While significant work has been done to gather information from the communities for the plan update there are a number of communities that completed their community profile but have not yet completed their mitigation goals and actions that we need to follow up with requiring additional time. Additionally we have been compiling the information received from the 59 jurisdictions and need additional time to analyze the information received and conduct follow up on some of the information. With this plan update we changed the technology used to produce portions of the plan. We are trying to get the information into GIS rather than separate tables which will serve us well in the future but it has taken longer to get this set up than originally anticipated.

This planning process so far has stimulated needed and useful dialog within jurisdictions and across jurisdictions on important topics. We discussed this extension request with the Planning Committee and they were supportive and understood the need.

Please let us know if you require additional information to consider this extension. We appreciate your support and thank you in advance for consideration of this request. If you have any questions, please contact Donna Martin (816) 701-8369 dmartin@marc.org or me at (816) 701-8390 or by email at elynch@marc.org.

Respectfully submitted,

Erin E.S. Lynch
Director, Emergency Services and Homeland Security

cc: Ms. Donna Martin, Planner
Ms. Heidi Carver, State hazard Mitigation Specialist

Chair
Curt Skoog
Councilmember
Overland Park, Kansas

1st Vice Chair
Carol Suter
Councilmember
Gladstone, Missouri

2nd Vice Chair
Ed Eilert
Commission Chairman
Johnson County, Kansas

Treasurer
Beverlee Roper
Commissioner
Platte County, Missouri

Secretary
Randy Rhoads
Mayor
Lee's Summit, Missouri

Executive Director
David A. Warm

Jeremiah W. (Jay) Nixon
Governor

Peter Lyskowski
Acting Director of Public Safety

STATE OF MISSOURI

EMERGENCY MANAGEMENT AGENCY

Ron Walker
Director

DEPARTMENT OF PUBLIC SAFETY
PO Box 116, Jefferson City, Missouri 65102
Phone: 573/526-9100 Fax: 573/634-7966
E-mail: mosema@sema.dps.mo.gov

March 13, 2015

Erin E.S. Lynch, Director
Mid-America Regional Council
600 Broadway, Suite 200
Kansas City, Missouri 64105

RE: Request for No-Cost Extension on Kansas City Region (Cass, Clay, Jackson, Platte, and Ray County) Hazard Mitigation Plan first draft Submission.

Dear Ms. Lynch:

SEMA has received and has accepted your request for an extension for the first draft of the Kansas City Regional Hazard Mitigation Plan. The first draft will now be due June 1, 2015. This extension acceptance is under the condition SEMA/FEMA cannot guarantee that the Kansas City Region Hazard Mitigation Plan will be approved by the plan's expiration date of August 31, 2015. The SEMA/FEMA review process could lead to revisions of the plan which would hinder the approval time.

If you have any questions please contact Heidi Carver, State Hazard Mitigation Specialist at (573) 526-9116.

Sincerely,

Elizabeth Weyrauch
State Hazard Mitigation Officer

EW/hc

EMAP Accredited

A Nationally Accredited Agency

Appendix B:
Public Participation Information
(101 Pages)

County Hosted Community Engagement Events

A Hazard Mitigation Plan display was created for the County hosted Community Engagement events. The display included: 19 poster boards describing the different hazards. These boards were placed on easels for the public to view. Handouts were included in an envelope attached to each board. The handouts provided information to the public about the hazard specific goals and actions that each jurisdiction was proposing for the next five years.

County	Date	Place	Address	Time of Storm Spotter Training	Times when Storm Spotter Participants can view the Hazard Mitigation Materials
Cass	March 4, 2015	Eagle Glen Intermediate School	100 S Foxridge Dr, Raymore, MO 64080	7:00-8:30 p.m.	6:30-7:00 p.m.; end of training to 9:30 p.m.
Clay	March 24, 2015	Pleasant Valley Baptist Church	1600 North 291 Highway, Liberty, MO 64068	7:00-8:30 p.m.	6:30-7:00 p.m.; 8:30-9:00 p.m.
Jackson	March 3, 2015	Crown Point Church	5950 NE Lakewood Way, Lee's Summit	7:00-8:30 p.m.	
Platte	March 5, 2015	Congress Middle School	8150 North Congress Ave, Kansas City, MO 64152	7:00-9:00 p.m.	6:00-9:30 p.m.
A Storm Spotter training was not hosted in Ray County this year so the Ray County Commissioners chose to hold a community engagement event at the courthouse on a day when court was in session and when several groups were visiting the building. The Hazard Mitigation Plan display was in place of this event.					
Ray	May 12, 2015	Ray County Courthouse	100 W Main, Richmond, MO	9:30 a.m.-11:30 a.m.	Estimated number of people who viewed the display: 55

HOW MY COMMUNITY IS PREPARING FOR
ACTIVE SHOOTERS / INTRUDERS



WHAT IS IT?

An active shooter is defined by the U.S. Department of Homeland Security as "an individual or individuals actively engaged in killing or attempting to kill people in a confined and populated area; in most cases active shooters use firearm(s) and there is not pattern or method to their selection of victims." An intruder is defined as someone who goes into a place without permission and inappropriately, possibly with the intent to commit a crime.

WHEN DOES IT OCCUR?

Active shooter or intruder events can occur at any time. Active shooter events do not occur frequently, but the number of these types of events has increased steadily in the U.S. since 2000, with a peak of at least 208 active shooting events in 2012.

WHERE DOES IT OCCUR?

Active shooter or intruder events primarily occur in commerce/business or educational environments. They have also occurred on city streets, military/government properties, health care facilities, houses of worship and private residences. These types of events happen in small and large communities and in urban and rural areas.

CORRESPONDING HAZARDS

Most active shooter events are contained within a fairly defined geographic area. The immediate impact on the community may be public panic, which could stretch a community's law enforcement and other response capabilities. Long term effects of active shooter events can include economic and psychological impacts. Unfortunately, active shooter events can often generate copycat events in other communities.

DAMAGE TYPE & SEVERITY

The damage that can occur from an active shooter/intruder can vary from low to severe. When the person is an unarmed intruder, life lost and damage to property could be relatively low. However, in active shooter cases, the potential for life lost and property damage is significant.

VULNERABLE AREAS

Areas where people are most vulnerable to experiencing an active shooter or intruder event are businesses and educational environments. Educational environments tend to account for higher casualty counts.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR CIVIL DISORDER

WHAT IS IT?

As defined by United States statute, "civil disorder" is any public disturbance involving acts of violence by assemblages of three or more persons that causes an immediate danger of or results in damage or injury to the property or person of any other individual.



WHEN DOES IT OCCUR?

Civil disorder events can occur anytime a group of people feels driven to protest against a social, political, economic or cultural issue or problem.

WHERE DOES IT OCCUR?

Civil disorder occurs generally where people gather or large groups of people live. They can also take place where a particular activity occurs. Town squares or common areas, governmental/judicial buildings, community facilities, penitentiaries or prisons and medical facilities are all places where civil disorder has occurred.

CORRESPONDING HAZARDS

Civil disorder can also be triggered as a response to major disaster events when there may be a real or perceived gap in public safety coverage. Civil disorder can lead to injury, death, property damage and sustained damage to the local economy.

DAMAGE TYPE & SEVERITY

Depending on the size of the civil disorder and the tactics chosen by the participants, severity of these type events can range from low to severe.

VULNERABLE AREAS

Populations vulnerable to the effects of civil disorder are those that live in the areas adjacent to the location of the event. In some cases, when events have taken place because of a conflict between two groups of people, people who live in areas where there are high concentrations of the groups involved can be more vulnerable to the effects.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
CYBER DISRUPTION



WHAT IS IT?

Cyber disruption is an event which causes an unplanned interruption in computer operations or functions for an unacceptable length of time.

WHEN DOES IT OCCUR?

Cyber disruptions can occur for a variety of reasons, unintentional and intentional, including power outages, faulty programming, hardware malfunction and cyber-attacks. It is difficult to predict when a cyber disruption will occur, particularly if the cause is an intentional attack. It is also very difficult to know when the event has ended.

WHERE DOES IT OCCUR?

Cyber disruptions can impact any system, organization, business or household that utilizes computers and other information technologies. Intentional cyber-attacks often target systems relating to sensitive or private information and that impact large numbers of people.

CORRESPONDING HAZARDS

Due to the fact that computers and information technology touch so many aspects of our lives, cyber disruptions could result in other types of events, such as commuter rail or train accidents, disruption of utilities, disruption of financial services, and failure of air traffic control systems.

DAMAGE TYPE & SEVERITY

Cyber disruption has the potential to cause moderate to severe damage, depending on the nature of the incident.

VULNERABLE AREAS

Essentially everyone is vulnerable to cyber disruption because so many of the things we do in our daily lives are done with computers. Companies or organizations that deal with large amounts of financial or private data are particularly at risk — as are the individuals that do business with those companies.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

DAM FAILURES



WHAT ARE THEY?

A dam is an artificial barrier that impounds or diverts water. The most common causes of dam failures include piping, erosion, structural failure, cracking, water spilling over the top of a dam, and inadequate maintenance and upkeep.

WHEN DO THEY OCCUR?

The most likely cause of dam failure is heavy rainfall. In the Kansas City area, May, June, July and September receive the highest average monthly rainfall. There have been 26 recorded dam failures in Missouri.

WHERE DO THEY OCCUR?

There are about 250 dams in various locations across the Kansas City metro area.

CORRESPONDING HAZARDS

Flood waters can create a variety of problems for communities, including preventing transportation and releasing pollutants from industry into the water supply. For more information, see the "Floods" poster.

DAMAGE TYPE & SEVERITY

When a dam fails, a rushing torrent of water is released. Depending on the speed and magnitude of the flow, homes, businesses, bridges, roads, cars and vegetation can be demolished in minutes. People and animals may be swept away. Dam failure can also result in a significant loss of capital investment on the part of the dam owner. Loss of a reservoir due to dam failure can cause serious hardships for those who depend on it for their livelihood or water supply. Torrential flood waters resulting from a dam failure can destroy wildlife habitats and natural areas, and the loss of a reservoir can adversely impact the ecosystems of the area.

VULNERABLE AREAS

Areas located in the pathway of flood waters released by a dam failure.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
DROUGHT

WHAT IS IT?

Drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance, such as crop damage or water-supply shortage. Drought is a recurrent, normal feature of climate. Drought conditions can last from several months to several years.



WHEN DOES IT OCCUR?

Drought alerts are typically issued in the summer months. The economic impact of drought, however, can extend year-round.

WHERE DOES IT OCCUR?

Drought occurs in most places on Earth in one form or another. Drought tends to be regional in scope, so a drought in our area would affect the entire Kansas City metro area.

CORRESPONDING HAZARDS

Drought can be exacerbated by other climatic conditions, including high temperatures, high winds and low humidity.

DAMAGE TYPE & SEVERITY

A drought's severity is dependent on a variety of factors, including duration, degree of moisture deficiency and size of the affected area. The environmental impacts may include damage to plant and animal species, wildlife habitat, and air and water quality; forest and range fires; degradation of landscape quality; loss of biodiversity; and soil erosion. Drought can also have social impacts, including mental and physical stress; public health and safety problems related to low-flow water situations; restrictions on water use and conflicts from these restrictions; reduced quality of life resulting from forced changes in lifestyle; loss of aesthetic values of landscaping and property; and reduction or modification of recreational activities involving water.

VULNERABLE AREAS

Rural areas and small communities tend to be more affected than large municipalities with more robust water supplies and modern water infrastructure.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

EARTHQUAKES



WHAT ARE THEY?

Earthquakes are sudden slips of faults and the resulting ground shaking and radiated seismic energy caused by those slips, by volcanic or magmatic activity, or by other sudden stress changes in the Earth.

WHEN DO THEY OCCUR?

Earthquakes can occur at any time.

WHERE DO THEY OCCUR?

The Kansas City area is not at high risk for earthquakes. There are two earthquake source zones that cross Missouri: the New Madrid Fault and the Commerce Fault in southeastern Missouri.

CORRESPONDING HAZARDS

It is common for earthquakes to have smaller earthquakes that follow the first event, or aftershocks. Earthquakes can also induce landslides. Physical damage to office and production facilities, the transportation system and other infrastructure can hinder the local economy.

DAMAGE TYPE & SEVERITY

Hazards associated with earthquakes include ground shaking, loss of soil strength, and increased magnitude of an earthquake's seismic waves due to geologic conditions. The severity of these hazards depends on several factors, such as soil and slope conditions, an affected area's proximity to the fault and earthquake magnitude.

VULNERABLE AREAS

- Buildings and houses, particularly those that are poorly constructed, built of unreinforced masonry or stone.
- Water, sewer and wastewater systems and plants.
- Dams.
- Bridges, overpasses, railroad trestles, highways and roads and rail lines.
- Telecommunications and electrical distribution systems.
- Critical facilities, such as police stations, fire stations and hospitals.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
EMERGING INFECTIOUS DISEASE

WHAT IS IT?

An emerging infectious disease is one that has appeared in a population for the first time, or that may have existed previously but is rapidly increasing in incidence or geographic range. They are caused by the invasion of a host (person or animal) by agents (viruses, bacteria, fungi, protozoa and parasitic worms) which make the host ill and can be transmitted to other individuals. The most concerning infectious diseases are those that are very transmissible and very virulent. Examples of recent emerging infectious diseases include: measles, West Nile Virus, cryptosporidiosis, Lyme disease, SARS and Ebola hemorrhagic fever.



WHEN DOES IT OCCUR?

An emerging infectious disease usually becomes an issue when it starts to spread rapidly from person to person and from one geographic region to another. The spread can be due to many different factors such as environmental changes, international travel or a genetic shift in the infecting agent changing either its transmissibility or its virulence.

WHERE DOES IT OCCUR?

Emerging infectious diseases, once spreading rapidly, can occur anywhere. Some emerging diseases that mutate from diseases commonly seen in animals (zoonotic diseases) are more prevalent in human populations that cohabitate with livestock or poultry that are raised for food. Factors that may speed up transmission include population density and communities with no access to clean water, proper sewage treatment and waste disposal, food safety programs, and proper animal management programs.

CORRESPONDING HAZARDS

Emerging infectious diseases can occur on their own or can be set off by environmental changes caused by floods, tornados, tsunamis, etc.

DAMAGE TYPE & SEVERITY

Damage due to injury or death from emerging infectious diseases can range from moderate to severe. Emerging infectious diseases that become pandemics can take a very serious toll on a population, physically, mentally and socially.

VULNERABLE AREAS

Emerging infectious diseases can impact certain groups of people more than others, such as children and the elderly. For some diseases, such as measles, a vaccination is available to prevent people from getting ill. People who are not vaccinated are more susceptible to getting those diseases when there is an outbreak.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

FLOODING



WHAT IS IT?

Floods are caused by a number of conditions, including widespread or heavy rainfall; runoff from deep snow cover; over-saturated soil; frozen soil; high river, stream or reservoir levels preceding heavy or extended rains; ice jams in rivers; and urbanization.

WHEN DOES IT OCCUR?

The region is at the highest risk for flooding during the months of May, June, July and September. Flash flooding may occur within a few hours. Riverine flooding can last for several days, weeks or months.

WHERE DOES IT OCCUR?

With the exception of fires, floods are the most common and widespread of all natural disasters. A significant portion of the region lies within floodplains.

CORRESPONDING HAZARDS

Floods can disperse contaminants and pollutants across large areas, cause septic system problems, overflow wastewater treatment basins, damage underground storage tanks, and inundate facilities that manufacture or store hazardous materials.

DAMAGE TYPE & SEVERITY

Damage depends on several factors, including the depth and velocity of the flood waters. Flooding poses significant problems for infrastructure. Flooding can also erode stream banks and deposit large amounts of silt in waterways. Large amounts of fast-moving water can destroy vegetation and alter wildlife habitats.

VULNERABLE AREAS

- Stormwater systems.
- Sewer and drainage systems obstructed by debris.
- Areas of low elevation.
- Telecommunications and electrical distribution systems.
- Roads and bridges.
- Water supply.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

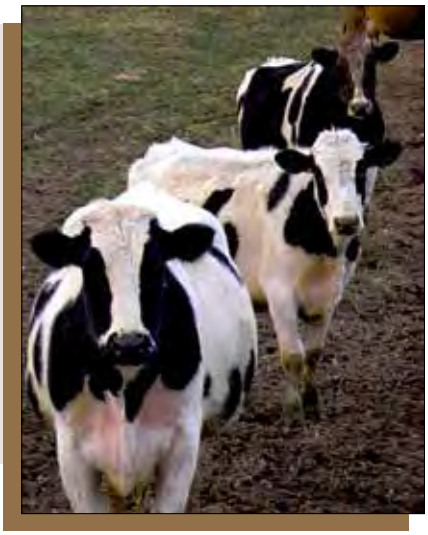
MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
FOREIGN ANIMAL DISEASE

WHAT IS IT?

Animal health officials define a foreign animal disease (FAD) as "an important transmissible livestock or poultry disease believed to be absent from the United States and its territories that has a potentially significant health or economic impact." These types of diseases are most concerning when they could significantly affect human health or animal production, and disease control and eradication efforts are costly. These events significantly impact agricultural markets in the United States and globally, because other countries will not want to purchase animals or animal products that pose a risk to their agricultural industry.



WHEN DOES IT OCCUR?

A foreign animal disease outbreak can occur at any time. Factors increasing the number of FAD incidents include free trade agreements, free trade blocks, regionalization, increased international travel, intensification of animal production, and the evolution of infectious disease agents.

WHERE DOES IT OCCUR?

Foreign animal diseases primarily affect communities that have high concentrations of livestock or poultry. Farms or ranches with large herds or flocks are at greater risk and the impact of an outbreak will be much greater at those facilities. Now that a greater proportion of cattle and poultry are being raised on large agricultural facilities owned by a small number of companies, the spread of infections can take place more easily as animals are moved more frequently along interstate corridors.

CORRESPONDING HAZARDS

While most foreign animal diseases of concern primarily impact livestock, some diseases are zoonotic (able to be transmitted easily to humans) and others could become zoonotic as they evolve. In addition, a large outbreak of a foreign animal disease could significantly impact agricultural economic activity.

DAMAGE TYPE & SEVERITY

The damage caused from foreign animal diseases can be classified as moderate to severe. A large outbreak of disease could affect agricultural markets regionally, nationally and internationally and may have sustained impact long after the outbreak has been contained.

VULNERABLE AREAS

Populations most affected by a foreign animal disease are the particular species of animals that could be infected by the disease. If the disease is transmissible to humans, the caretakers of the flocks or herds are also susceptible. Farm owners and consumers are vulnerable to the economic impact that results from removing large numbers of animals from the food supply.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
HAZARDOUS MATERIALS RELEASE

WHAT IS IT?

Incidents involving substances that may pose a reasonable risk to health, the environment or property, such as toxic chemicals, fuels, nuclear wastes and/or products, and other radiological, biological or chemical agents. This hazard definition focuses on accidental releases of hazardous materials primarily from fixed facility incidents or transportation accidents.



WHEN DOES IT OCCUR?

Hazardous materials releases can happen at any time, given that fixed facilities operate year-round and often have more than one shift during the day. Also, hazardous materials are transported through the five-county area year-round.

WHERE DOES IT OCCUR?

With a fixed facility, the hazards can be pre-identified, and the facility is required by law to submit an annual report of the types and quantities of hazardous materials onsite. Additionally, sites that have large amounts of extremely hazardous substances (EHS) are required to prepare a risk management plan to the local emergency planning committee (LEPC) and local fire departments.

The exact location of a hazardous materials transportation accident is not possible to predict. The close proximity of railroads, highways, airports, waterways, pipelines and industrial facilities to populated areas, schools and businesses could put a large number of individuals in danger at any time. In addition, essential service facilities, such as police and fire stations, hospitals and schools near major transportation routes in the state are also at risk from potential hazardous materials transportation incidents.

CORRESPONDING HAZARDS

Hazardous materials can be explosive, flammable, combustible, corrosive, poisonous and even radioactive. Depending on the substance or substances released, injury or damage can occur due to explosive reactivity, fire, chemical or radiological burning, and other reactions. Additional secondary hazards can result from contamination of storm sewers, lakes, streams and groundwater.

DAMAGE TYPE & SEVERITY

Damage caused by hazardous materials released from either a fixed facility incident or a transportation accident is likely to be of moderate severity.

VULNERABLE AREAS

Populations that live or work near fixed facilities that make or work with hazardous materials, or near railroads, highways, airports, waterways and pipelines where hazardous materials might be transported, are more vulnerable to the dangers of hazardous material releases.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

HEAT WAVES

WHAT ARE THEY?

By definition, heat waves are three consecutive days of temperatures above 90 degrees. But conditions of extreme heat and humidity can last several days.



WHEN DO THEY OCCUR?

In our area, heat waves generally occur between June and September, but are most likely in July and August. Heat waves affect the Kansas City area almost every summer. Our region typically experiences about 37 days per year above 90 degrees.

WHERE DO THEY OCCUR?

Heat waves affect the entire region, but they have a more significant impact on urban areas because the large concentration of buildings and pavement absorb more heat during the day and radiate more heat into the immediate surroundings at night than in rural areas with more vegetation.

CORRESPONDING HAZARDS

The stagnant air of a heat wave traps ozone and other pollutants in urban areas, adding to poor air quality.

DAMAGE TYPE & SEVERITY

The severity of heat-related disorders tends to increase with age. Heat waves can cause fatigue, heat cramps, heat exhaustion, sunstroke or heat stroke.

VULNERABLE AREAS

- People vulnerable to heat stress due to physical condition.
- People with limited independence due to physical limitations or mental disorders.
- People working in heat under stress, such as firefighters and police.
- People in urban environments.
- People with low incomes.
- People who work outdoors.
- Athletes.
- People who are difficult to reach through normal communications, such as the homeless or those who do not speak English.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

LEVEE FAILURE

WHAT IS IT?

Levees are earth embankments constructed along rivers and coastlines to protect adjacent lands from flooding. In urban areas where there is insufficient room for earthen levees, concrete structures called floodwalls are commonly used instead. When levees and floodwalls are stressed beyond their capacity, the levees and floodwalls fail. This failure could result from an actual breach or break in the levee, or it could result from the flood waters going over the levee because the levee is not high enough.



WHEN DOES IT OCCUR?

Levee failures occur either when the flood waters are so high that they go over the top of the levee or when a levee has been damaged by strong currents, debris and ice, or even when vegetation on the levee gets removed by strong currents and/or high winds.

WHERE DOES IT OCCUR?

In this area of the country, levee failures occur along rivers. Levees fall into several different categories including: levees in the USACE Levee Safety Program; Levees Recognized on FEMA's Digital Flood Insurance Rate Maps (DFIRM) as protecting from the 1 percent annual chance of flood; all the other known levees not in the UASACE Levee Safety Program or recognized as providing protection from the 1 percent annual chance flood (100-year flood).

CORRESPONDING HAZARDS

Immediate related hazards from levee failures could include unsanitary conditions from flood waters, disruption of emergency services and utilities, injury and, possibly, loss of life. Long-term impacts include loss of crops, environmental damage and loss of economic activity.

DAMAGE TYPE & SEVERITY

Depending on the nature of the levee failure, the damage from a levee failure may vary from moderate to severe. Rapid breaches or floods that go over the levees because of a cresting or surge of floodwaters, can cause major damage to communities. Proper inspection, diligent maintenance and timely repair are key elements in controlling the severity of damage caused by levee failure in the event of a catastrophic flood.

VULNERABLE AREAS

Populations most vulnerable to levee failure include people living in communities along rivers where there are levees protecting either the communities and/or agricultural land.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
MASS TRANSPORTATION ACCIDENTS

WHAT ARE THEY?

Mass transportation is defined as a system or means that transfers large groups of individuals from one place to another. This hazard profile addresses only transportation accidents involving people, not materials. Thus, mass transportation accidents include public airlines, railroad passenger cars, tour buses, city bus lines, school buses, trolley cars and other means of public transportation.



WHEN DO THEY OCCUR?

Mass transportation accidents can occur any time, due to the fact that people travel by many modes 24 hours a day. However, peak times for accidents include morning and evening rush hours, holidays (particularly for air travel and rail travel) and special events.

WHERE DO THEY OCCUR?

Mass transportation accidents are most likely to occur on major federal and state highways, rail lines, bus routes, and common air traffic corridors.

CORRESPONDING HAZARDS

Mass transportation accidents, because they involve large vehicles with fuels tanks, may often result in a fire and/or the release of hazardous materials into the area surrounding the accident.

DAMAGE TYPE & SEVERITY

Damage caused by mass transportation accidents is likely to be of moderate severity.

VULNERABLE AREAS

Populations that are most vulnerable to mass transportation accidents are those that utilize the various different types of mass transportation modes or systems.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
SEVERE THUNDERSTORMS

WHAT ARE THEY?

A thunderstorm is a rain shower with lightning and thunder. It is produced by a cumulonimbus cloud, usually accompanied by gusty winds, heavy rain and, sometimes, hail. Thunderstorms are classified into four major types (from weakest to strongest): a single cell, multicell, squall line and supercell. The National Weather Service defines a severe thunderstorm as a thunderstorm that produces winds of at least 58 mph, hail at least 1 inch in diameter, and/or a tornado.



WHEN DO THEY OCCUR?

Thunderstorms occur when certain conditions are in place in the environment including moisture; warm, unstable air meeting a cooler front of air; and lift from either a front or geographical features, such as mountains. Thunderstorms can happen at any time but are most common in the spring and summer months and during the afternoon and evening hours.

WHERE DO THEY OCCUR?

Severe thunderstorms are most common in the United States from Texas to southern Minnesota, although, if the conditions are right, they can happen anywhere.

CORRESPONDING HAZARDS

Hazards that are related to severe thunderstorms include lightning strikes, heavy rains resulting in flash flooding, tornadoes, damaging winds and hail.

DAMAGE TYPE & SEVERITY

Damage that results from severe thunderstorms can be severe, given the high probability of these types of events happening in this region, and the damage that results from the high winds/tornadoes, lightning and hail.

VULNERABLE AREAS

Populations vulnerable to the impact of severe thunderstorms are those who live, work, play and shop in areas of the community where buildings are not built to withstand high winds, hail and heavy rain, and where storm shelters are unavailable.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
TERRORISM

WHAT IS IT?

Terrorism is defined by the FBI as "the use of violence and threats to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." Terrorism can be divided into two categories: domestic terrorism and international terrorism. Terrorist attacks can result in a variety of outcomes including loss of life, injuries to people and property, and disruptions in services.



WHEN DOES IT OCCUR?

Although terrorist attacks do not occur very often in the United States, there is potential for a terrorist attack at any time. Because they are carried out for political or social purposes, terrorist attacks have sometimes historically coincided with anniversaries of past controversial events, such as court case or governmental decisions.

WHERE DOES IT OCCUR?

To maximize the impact that a terrorist attack has on a community or a nation, perpetrators of terrorist attacks may carry out their actions in areas where there are large numbers of people or at a location that has significant meaning to the population.

CORRESPONDING HAZARDS

Secondary effects of terrorist attacks might include a lack of shelter, safe food and water, health and medical facilities, trained response and medical personnel, and mortuary services. These types of events may also result in disrupted communication systems, power and other services.

DAMAGE TYPE & SEVERITY

Depending on the type of terrorist event, the success of the attack method chosen, the number of people targeted and/or the location where the event takes place, damage could range from low to severe.

VULNERABLE AREAS

Populations that live in areas where there is political strife, and where the government has little capability to carry out surveillance and monitoring, are more vulnerable to terrorist attacks.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
TORNADOES

WHAT ARE THEY?

Violently rotating columns of air extending from a thunderstorm to the ground. Tornadoes are formed from the largest thunderstorms; the most destructive tornadoes are formed by "supercells." The average tornado stays in contact with the ground for 30 minutes and covers a distance of 15 miles.



WHEN DO THEY OCCUR?

Peak tornado season is the spring and summer. The period with the greatest probability of tornado activity is late March through mid-June. Tornadoes can occur at any time of the day, though they are most likely between 3 and 9 p.m.

WHERE DO THEY OCCUR?

Although most often associated with the central U.S., tornadoes have been documented in all 50 states.

CORRESPONDING HAZARDS

Weather conditions conducive to the formation of tornadoes often produce a variety of other dangerous storm-related weather conditions, such as severe thunderstorms, winds, lightning, hail and heavy rains.

DAMAGE TYPE & SEVERITY

The damage associated with tornadoes is caused mostly by wind speed; in general, the greater the wind speed, the greater the potential damage a tornado can cause. Tornadoes can also create a large amount of debris that can harm people and infrastructure and block transportation routes.

VULNERABLE AREAS

- Areas with high concentrations of people and structures, such as urban and suburban areas, apartment complexes and mobile-home parks.
- Structures without safe rooms or basements, whether residential, commercial or public buildings.
- Areas without multiple, redundant warning systems or no outdoor warning systems.
- Infrastructure, utilities (especially those that are above ground), livestock, crops and vegetation.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

WILDLAND FIRES



WHAT ARE THEY?

Wildland fires are defined as any non-structure fire — other than prescribed fire — that occurs in wildlands. Wildland fires are caused by both natural phenomena, such as lightning strikes, and human activity, such as unattended or out of control brush or debris-pile fires.

WHEN DO THEY OCCUR?

Wildland fires can occur throughout the year, but the threat is greatest during the spring fire season, normally between Feb. 15 and May 10. At any time of the year, the potential for and severity of wildland fires can be exacerbated by weather conditions such as high wind or heat, low humidity and drought.

WHERE DO THEY OCCUR?

The Kansas City metropolitan area does not have a history of significant wildland fires. The threat of wildland fires is more prevalent in rural areas, but it is also present in urban and suburban areas where structures and other development meet or mix with undeveloped wildland. Sloping terrain exacerbates the threat of wildland fires.

CORRESPONDING HAZARDS

Air quality may be affected by a burning fire. Local government resources may also be strained by the need to fight or clean up after wildland fires.

DAMAGE TYPE & SEVERITY

Fuel, weather and topography work together to determine how quickly a wildland fire travels and at what intensity the fire burns. Wildland fires can last from a few minutes to several days, depending on factors such as fuel load, weather conditions and available firefighting resources. They can destroy homes, vegetation and infrastructure,
and impede transportation.

VULNERABLE AREAS

Forested areas along the transition zone between urban and undeveloped areas.

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR
WINTER WEATHER

WHAT IS IT?

Winter weather can include blizzards, blowing snow, snow squalls, snow showers and flurries. Ice storms may also occur. Elements of a severe winter storm may include snow, ice, freezing rain, sleet or extremely cold temperatures, or a combination of these conditions. The specific nature of a severe winter storm is determined by the amount and extent of snow and/or ice; air temperature and wind chill; wind speed and direction; and the duration of the event.



WHEN DOES IT OCCUR?

Greater Kansas City typically experiences one or more types of severe winter weather each year. Severe winter weather is most likely during the months of December, January and February, but it is possible for winter weather to affect the region as early as October or as late as March.

WHERE DOES IT OCCUR?

Although annual snowfall in the Kansas City area is typically moderate — around 20 inches — severe winter weather may affect any part of Cass, Clay, Jackson, Platte and Ray counties.

CORRESPONDING HAZARDS

About 70 percent of injuries related to ice and snow are the result of vehicle accidents. Icy or snow-covered roads, or roads blocked by downed tree limbs or power lines, may also inhibit the ability of emergency services and medical personnel to reach people.

DAMAGE TYPE & SEVERITY

Fallen trees and downed power lines are common results of severe winter weather. By damaging property, hampering transportation and disrupting utility services, severe winter weather can have an adverse impact on the local economy. The most direct causes of injuries and death from severe winter weather are frostbite and hypothermia.

VULNERABLE AREAS

- Residential and commercial property
- Transportation infrastructure and services
- Above-ground power and telecommunications lines

For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

HOW MY COMMUNITY IS PREPARING FOR

OTHER HAZARDS

LANDSLIDES

A landslide is a rapid shift in land mass. In a landslide, masses of rock, earth or debris move down a slope. Landslides occur in all U.S. states and territories and can be caused by a variety of factors including earthquakes, storms, volcanic eruptions, fire, and by human modification of land. Landslides can occur quickly, often with little notice.



STRUCTURE / BRIDGE FAILURE

A structure or bridge failure occurs when a building, bridge or other structure collapses unintentionally. Structure or bridge failures occur for multiple reasons including defects in the materials used to build the structure, mistakes made when the structure was built, poor maintenance of the structure over time or damage sustained by the structure that either was not repaired or repaired incorrectly.



STRUCTURAL FIRES

A structural fire involves the structural components of residential and commercial buildings, including single family homes, townhomes/ condominiums, apartments, offices and shopping malls.



FOOD CONTAMINATION

Food Contamination (sometimes called “foodborne illness,” “foodborne disease,” “foodborne infection,” or “food poisoning) is a common, costly — yet preventable — public health problem. Each year, one in six Americans gets sick by consuming contaminated foods or beverages. There are a host of disease-causing microbes that can contaminate foods resulting in many different foodborne infections. In addition, poisonous chemicals or other harmful substances can contaminate food, causing pathological clinical signs.



For information, contact Donna Martin, Public Health Senior Planner, Mid-America Regional Council, at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL



Have suggestions for Hazard Mitigation?

Please share your ideas about steps that your community can take to minimize loss of life and property damage BEFORE a hazard occurs.

You can share your ideas by sending them to Donna Martin at dmartin@marc.org or calling 816 701-8369. Please make sure to include your jurisdiction in your message so that your ideas can be shared with leaders in your community.



Have suggestions for Hazard Mitigation?

Please share your ideas about steps that your community can take to minimize loss of life and property damage BEFORE a hazard occurs.

You can share your ideas by sending them to Donna Martin at dmartin@marc.org or calling 816 701-8369. Please make sure to include your jurisdiction in your message so that your ideas can be shared with leaders in your community.



HAZARD MITIGATION-

Taking actions BEFORE a hazard occurs that will prevent the loss of life and minimize property damage.

What actions do you want your community to take?



HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?

It pays to prepare for natural disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

Before or after the Storm Spotter class, visit the Hazard Mitigation display and learn about the hazards that your community faces and actions your community is considering to address those hazards.

Mar. 4, 2015, 6:30–7 and end of meeting to 9 p.m., in the lobby at Eagle Glen Intermediate School, 100 S. Foxridge Dr., Raymore, Missouri



HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?

It pays to prepare for natural disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

Before or after the Storm Spotter class, visit the Hazard Mitigation display and learn about the hazards that your community faces and actions your community is considering to address those hazards.

Mar. 24, 2015
6:30–7 & 8:30–9 p.m.,
in the lobby at Pleasant Valley Baptist Church,
1600 North 291 Hwy,
Liberty, Missouri

HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?



Hazards such as tornadoes and floods leave permanent marks on people and communities.

It pays to prepare for disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

You have a chance to review actions your community is taking to lessen the impact of natural and man-made hazards. Visit the Hazard Mitigation display and learn about the hazards your community faces, and actions your community is considering to address those hazards.



Attend the public meeting for Cass County

TIME
6:30–9:30 p.m.

DATE
Wednesday, March 4

LOCATION
Eagle Glen
Intermediate School
100 S. Foxridge Dr.
Raymore, Missouri





Joplin, Missouri, after the May 2011 EF-5 tornado. Photo courtesy of FEMA.



What hazards could affect Cass County?

- ***Tornadoes***
- ***Floods***
- ***Severe winter weather***
- ***Drought***
- ***Heat waves***
- ***Wildland fires***
- ***Earthquakes***
- ***Dam failures***
- ***Hazardous materials release***
- ***Terrorism***
- ***Emerging infectious diseases***
- ***Civil disorder***
- ***Mass transportation accident***
- ***Levee failures***
- ***Cyber disruption***
- ***Foreign animal diseases***

MARC
MID-AMERICA REGIONAL COUNCIL

MEMC
Metropolitan Emergency Managers Committee

Questions?

Contact Donna Martin at dmartin@marc.org or 816-701-8369.

Mid-America Regional Council | 600 Broadway, Suite 200 | Kansas City, MO 64105
Phone 816-474-4240 | Fax 816-421-9958 | www.marc.org



HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?

It pays to prepare for natural disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

Before or after the Storm Spotter class, visit the Hazard Mitigation display and learn about the hazards that your community faces and actions your community is considering to address those hazards.

Mar. 3, 2015, 6–9 p.m., in the lobby at Crown Pointe Church, 5950 NE Lakewood Way, Lee's Summit, Missouri



HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?

It pays to prepare for natural disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

Before or after the Storm Spotter class, visit the Hazard Mitigation display and learn about the hazards that your community faces and actions your community is considering to address those hazards.

Mar. 5, 2015
6–9:30 p.m., in the lobby at Congress Middle School, 8150 North Congress Ave., Kansas City, Missouri

HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?



Hazards such as tornadoes and floods leave permanent marks on people and communities.

It pays to prepare for disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

You have a chance to review actions your community is taking to lessen the impact of natural and man-made hazards. Visit the Hazard Mitigation display and learn about the hazards your community faces, and actions your community is considering to address those hazards.



Attend the public meeting for Clay County

TIME
6:30–9 p.m.

DATE
Tuesday, Mar. 24

LOCATION
Pleasant Valley
Baptist Church
1600 North 291 Highway
Liberty, Missouri





Joplin, Missouri, after the May 2011 EF-5 tornado. Photo courtesy of FEMA.



What hazards could affect Clay County?

- ***Tornadoes***
- ***Floods***
- ***Severe winter weather***
- ***Drought***
- ***Heat waves***
- ***Wildland fires***
- ***Earthquakes***
- ***Dam failures***
- ***Hazardous materials release***
- ***Terrorism***
- ***Emerging infectious diseases***
- ***Civil disorder***
- ***Mass transportation accident***
- ***Levee failures***
- ***Cyber disruption***
- ***Foreign animal diseases***

MARC
MID-AMERICA REGIONAL COUNCIL

MEMC
Metropolitan Emergency Managers Committee

Questions?

Contact Donna Martin at dmartin@marc.org or 816-701-8369.

Mid-America Regional Council | 600 Broadway, Suite 200 | Kansas City, MO 64105
Phone 816-474-4240 | Fax 816-421-9958 | www.marc.org

HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?



Hazards such as tornadoes and floods leave permanent marks on people and communities.

It pays to prepare for disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

You have a chance to review actions your community is taking to lessen the impact of natural and man-made hazards. Visit the Hazard Mitigation display and learn about the hazards your community faces, and actions your community is considering to address those hazards.



Attend the public meeting for Jackson County



TIME
6–9 p.m.

DATE
Tuesday, Mar. 3

LOCATION
Crown Pointe Church
5950 NE Lakewood Way
Lee's Summit, Missouri





Joplin, Missouri, after the May 2011 EF-5 tornado. Photo courtesy of FEMA.

What hazards could affect Jackson County?

- ***Tornadoes***
- ***Floods***
- ***Severe winter weather***
- ***Drought***
- ***Heat waves***
- ***Wildland fires***
- ***Earthquakes***
- ***Dam failures***
- ***Hazardous materials release***
- ***Terrorism***
- ***Emerging infectious diseases***
- ***Civil disorder***
- ***Mass transportation accident***
- ***Levee failures***
- ***Cyber disruption***
- ***Foreign animal diseases***

MARC
MID-AMERICA REGIONAL COUNCIL

MEMC
Metropolitan Emergency Managers Committee

Questions?

Contact Donna Martin at dmartin@marc.org or 816-701-8369.

Mid-America Regional Council | 600 Broadway, Suite 200 | Kansas City, MO 64105
Phone 816-474-4240 | Fax 816-421-9958 | www.marc.org

HOW IS YOUR COMMUNITY PREPARING FOR DISASTERS?



Hazards such as tornadoes and floods leave permanent marks on people and communities.

It pays to prepare for disasters, and that's one reason local governments are currently updating a plan to help protect property and save lives.

You have a chance to review actions your community is taking to lessen the impact of natural and man-made hazards. Visit the Hazard Mitigation display and learn about the hazards your community faces, and actions your community is considering to address those hazards.



Attend the public meeting for Platte County



TIME
6–9:30 p.m.

DATE
Thursday, Mar. 5

LOCATION
Congress Middle School
8150 North Congress Ave.
Kansas City, Missouri





Joplin, Missouri, after the May 2011 EF-5 tornado. Photo courtesy of FEMA.

What hazards could affect Platte County?

- ***Tornadoes***
- ***Floods***
- ***Severe winter weather***
- ***Drought***
- ***Heat waves***
- ***Wildland fires***
- ***Earthquakes***
- ***Dam failures***
- ***Hazardous materials release***
- ***Terrorism***
- ***Emerging infectious diseases***
- ***Civil disorder***
- ***Mass transportation accident***
- ***Levee failures***
- ***Cyber disruption***
- ***Foreign animal diseases***

MARC
MID-AMERICA REGIONAL COUNCIL

MEMC
Metropolitan Emergency Managers Committee

Questions?

Contact Donna Martin at dmartin@marc.org or 816-701-8369.

Mid-America Regional Council | 600 Broadway, Suite 200 | Kansas City, MO 64105
Phone 816-474-4240 | Fax 816-421-9958 | www.marc.org



"My community is investing in stream gauges and warning systems to protect residents from floods."

WHAT IS YOUR COMMUNITY DOING TO PREPARE FOR NATURAL HAZARDS?

VIEW THE PUBLIC DISPLAY FOR RAY COUNTY RESIDENTS.

WHEN: 9:30 a.m.–noon, Tuesday, May 12

WHERE: Ray County Courthouse
100 West Main St., Richmond, Missouri

For information, contact Donna Martin at dmartin@marc.org or 816-701-8369.

MEMC
Metropolitan Emergency Managers Committee

MARC
MID-AMERICA REGIONAL COUNCIL

Hazard Mitigation Plan public meetings and ad schedule
02/16/15 version

Event date	Location	County	Newspaper(s)	Ad size	Publishes	Cost	Deadline	Insertion date	Deadline
Tues., March 3	Crown Point Church 5950 NE Lakewood Way Lee's Summit, MO 64064	Jackson	Lee's Summit Journal	2 col. (3.26")x5"	Wed. & Fri.	$ 120.00	4 business days prior	Wed., Feb. 25	Thurs., Feb. 19
Wed., March 4	Eagle Glen Intermediate School 100 S. Foxridge Dr. Raymore, MO 64080	Cass	Cass County Democrat Missourian	2 col. (3.26")x5"	Fridays	$ 84.50	Friday at noon	Fri., Feb. 27	Fri., Feb. 20
Thurs., March 5	Congress Middle School 8150 North Congress Ave. Kansas City, MO 64152	Platte	The Landmark of Platte County	2 col. (4.125")x5"	Wednesdays	$ 82.50	Tuesday at noon	Wed., Feb. 25	Tues., Feb. 24
			Platte County Citizen	2 col. (3.36")x5"	Wednesdays	$ 90.00	Monday at 5 p.m.	Wed., Feb. 25	Mon., Feb. 23
Tues., March 24	Pleasant Valley Baptist Church 1600 N. 291 Highway Liberty, MO 64068	Clay	NPG Newspapers (Liberty Tribune, Kearney Courier, Smithville Herald, Gladstone Dispatch)	2 col. (3.33")x5"	Thursdays (except SH, publishes Wed.)	$ 293.10	Friday at noon	Wed., March 18 & Thurs., March 19	Fri., March 13
Multiple events			KC Hispanic News	2 col. (4.1")x6"	Thursdays	$ 168.00	Friday at noon	Thurs., Feb. 26	Fri., Feb. 20
Multiple events			Kansas City Gobe	2 col. (3.645")x6"	Thursdays	$ 218.04	Tuesday at noon	Thurs., Feb. 26	Tues., Feb. 24
Multiple events			The Call	3 col. (4.328")x6"	Fridays	$ 216.00	Monday at noon	Fri., Feb. 27	Mon., Feb. 23
					TOTAL	**$ 1,272.14**			

Paper	Size	Price
Belton Standard		$185.00
Cass County Democrat Missourian	3.65”x5”	$284.50
Excelsior Springs Standard	3.38”x5”	$99.00
The Kansas City Globe	3.79”x5”	$142.20
Jackson County Advocate	5.25”x5”	$110.25
The Landmark of Platte County	4.13”x5”	$82.50
Northeast News	3.3”x5”	$80.00
NPG Newspapers	3.33”x5”	$660.90
The Odessan/Focus on Oak Grove	3.3”x5”	$60.00
Platte County Citizen	3.36”x5”	$90.00
Pleasant Hill Times	3.6”x5”	$146.80
The Call	4.33”x5”	$180.00
Independence Examiner	3.39”x5”	
Lee’s Summit Journal	3.65”x5”	
Parkville Luminary	5”x5.63”	
Richmond News	3.38”x5”	
TOTAL		$2,139.15

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Ray County Commission
100 West Main Street, Richmond Mo 64085

AGENDA – MARCH 11, 2015

1. **Review of Ray County's 2010 Ongoing Goals and Actions**

2. **Review of Probability, Severity, and Overall Risk Rankings of each hazard by Ray County**

3. **Discussion of Ray County's 2015 Goals and Actions**

4. **Discussion of possible community engagement event – date and time.**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Richmond Fire Department
205 Summit St., Richmond, MO 64085
Tuesday, October 21, 2014
10:00 a.m.

AGENDA

1. Regional Multi-Hazard Mitigation Planning Overview. Background.

2. Hazard Profiles
    a. Review current and new hazards (natural and man-made)
    b. Discuss connection to THIRA

3. Plan Update Process & Timeline
    a. Participation Requirements
    b. Tools to be used for data gathering
        i. Community Profile Survey (web-based)
        ii. Mitigation Strategy Survey
            1. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based)
            2. Part 2 – Identification of new Mitigation Goals and Actions (Excel)
        iii. Public Involvement (outreach to schools, public, other stakeholders)
    c. Timeline
        i. Community Profile (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)
        iii. Two meetings in each county
            1. Initial meeting with stakeholders (October/November)
            2. Follow-up meeting for public comment (January)

4. Next Steps

5. Adjourn

The 2010 RHMP is available in its entirety on the MARC Web site:

http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

2015 Regional Hazard Mitigation Plan Update
Ray County Work Session

Platte County Commission
100 West Main Street, Richmond Mo 64085

AGENDA

1. **Regional Multi-Hazard Mitigation Planning Overview**
    a. Background
    b. Participation Requirements

2. **Ray County Hazard Profiles**
    a. Review current hazards (from 2010 Plan)
        i. Tornado
        ii. Thunderstorms
        iii. Flood
        iv. Severe Winter Weather
        v. Drought
        vi. Heat Wave
        vii. Earthquake
        viii. Dam Failure
        ix. Wildland Fire
        *x. HazMat Incident**
        *xi. Emerging Infectious Disease**
        *xii. Civil Disorder**
        *xiii. Mass Transportation Accidents**
        **Need associated mitigation goals/actions for 2015 update*
    b. Review new hazards (incorporated into 2015 update)
        i. Levee failure
        ii. Cyber disruption
        iii. Foreign Animal Disease
        iv. Terrorism/Weapons of Mass Destruction (WMD) attack

3. **2015 Plan Update Data Gathering Process & Timeline**
    a. Community Profile Survey (web-based, all cities/counties complete) **– Due 1/5/15**
    b. School District Profile Survey (web-based, school districts/colleges/universities only) -- **Due 1/5/15**
    c. City/County Mitigation Strategy Survey – **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (web-based, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants)
    d. School District Mitigation Strategy Survey -- **Due 2/5/15**
        i. Part 1 – Status of 2010 Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan)
        ii. Part 2 – Identification of new Mitigation Goals and Actions (Excel, for those that participated in 2010 Plan and new participants
    e. Public Involvement (outreach to "whole community" partners)
        i. Follow-up meeting for public comment (February - March)
    f. Timeline
        i. Community and School District Profile Surveys (January 5, 2015 deadline)
        ii. Mitigation Strategy Survey (February 5, 2015 deadline)

4. **Next Steps**

a. Draft due to SEMA April 1, 2015
b. Draft due to FEMA June 1, 2015
c. Once FEMA approves, will require local adoption via resolution. ***Jurisdictions should NOT adopt the plan prior to FEMA approval***

5. Questions? Adjourn

The 2010 RHMP is available in its entirety on the MARC Web site:
http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan

A 2015 Regional Multi-Hazard Plan Overview Web Page of the Online Survey Tools is available at:
http://www.marc2.org/HMP2015

2015 City/County Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
Community Profile (online survey)	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating jurisdictions	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (online survey)	**Online:** http://www.marc2.org/HMP2010status	Jurisdictions who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/2015CommMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating jurisdictions	**Feb 5, 2015**

2015 School District Update Tools:

Tool (Type)	Where to Find/Submit Tools	Who should complete?	Due Date
School Profile	**Online:** http://www.marc2.org/HMPprofile	All 2015 participating school districts	**Jan 5, 2015**
2010 Mitigation Goals & Actions Status (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	School districts who participated in 2010	**Feb 5, 2015**
2015 Mitigation Goals & Actions (Excel file)	**Download Excel file from:** http://www.marc2.org/HMP2015/assets/SchoolMitigation.xls **Email completed file to dmartin@marc.org**	All 2015 participating school districts	**Feb 5, 2015**

FEMA Guidance

Mitigation Planning: The purpose of mitigation planning is to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. An updated plan must be resubmitted for approval every five years to maintain eligibility for FEMA mitigation project grant funds.

Guiding Principles: Focus on mitigation strategy, the planning process and a community-driven plan.

Resources: Local Mitigation Planning Handbook is available at www.fema.gov.

Ray County Kick Off

12/19/14

NAME	ORGANIZATION/ADDRESS	PHONE NO.
Stacy Wolfe	P&Z	816-776-5398
Lisa Dalke	911	816-776-2200
Justin Song	MARC	816-701-8293
Donna Martin	MARC	816 701-8369
Allen Dale	Eastern Ray Co. Commissioner	816-776-4507
Bob King	Presiding Ray Co. Commissioner	"
Gary Willits	Ray Coo. New Commissioner	"

Hazard Mitigation Plan Community Engagement Event

Ray County Courthouse, 100 W Main St, Richmond, MO

Tuesday, May 12, 2015, 9:30 – 11:30 a.m.

Organization	Representative Signature
Ray County	
~~Richmond~~	Dary Wilhite EMD
RAY COUNTY	Carl A Harper EMD
Mo Baptist disaster Relief	Michael Hibbard
" " " "	Virgil L Johnson
" " " "	Ken Wood
Richmond	

5
30 | 5th grade classes
20

Hazard Mitigation Plan Community Engagement Event
Crown Pointe Church, 5950 NE Lakewood Way, Lee's Summit
Tuesday, March 3, 2015, 6:00-9:00 p.m.

Organization	Representative Signature
Jackson County	
Blue Springs	
Grandview	Jackie White
Lee's Summit	
Oak Grove	MARK SHERWOOD
Raytown	
Blue Springs R-IV School District	
Fort Osage R-1 School District	
Lee's Summit School District	Ryan Hall
Oak Grove R-VI School District	
Sni-Valley Fire District	MARK SHERWOOD
KCUMB	
Independence	Andrew Carpenter
Independence School District	
Kansas City	Christopher M. Carroll
Kansas City School District	Kenia Ingram

MCC

Hazard Mitigation Plan Community Engagement Event
Congress Middle School, 8150 North Congress Avenue, KCMO
Thursday, March 5, 2015, 6:30-9:00 p.m.

Organization	Representative Signature
Platte County	
Edgerton	
Farley	
Ferrelview	
Houston Lake	
Lake Waukomis	
Northmoor	
Parkville	
Platte City	
Platte Woods	
Riverside	
Tracy	
Weatherby Lake	
Weston	
North Platte R-1 School District	
Park Hill School District	
Park University	
Platte County R-3 School District.	
West Platte Fire District	
Northland Regional Ambulance	
Kansas City	

West Platte R-II

Hazard Mitigation Plan Community Engagement Event
Pleasant Baptist Church, 1600 North 291 Hwy, Liberty, MO
Tuesday, March 24, 2015, 6:00-10:00 p.m.

Organization	Representative Signature
Clay County	Eric Ramsey
Excelsior Springs	Paul Tribble & Zac St. John
Gladstone	
Kearney	David Pavlich / Jay E Pratt
North Kansas City	
Smithville	Tom Boat
North Kansas City School District	Jon Brady
Smithville R-22 School District	
Fishing River Fire District/Mosby	
Kansas City	Christopher M. Carroll
Liberty	Dustin Paddock
Platte County Emerg. Mgmt.	Sheri Tidwell
Liberty Fire	
Mosby	#566 Emergency management manager

Hazard Mitigation Plan Community Engagement Event
Eagle Glen Intermediate School, 200 S. Foxridge Dr., Raymore
Wednesday, March 4, 2015, 6:30-9:30 p.m.

Organization	Representative Signature
Cass County	
Belton	
Harrisonville	LARRY FRANCIS
Lake Winnebago	
Peculiar	
Raymore	
Archie R-V School District	
Harrisonville School District	
Pleasant Hill School District	
Raymore Peculiar School District	
Kansas City	

Pleasant Hill

~~Grandview~~ (Jackson Co)

Hazard Mitigation Planning – Comment Sheet

Communities in Cass, Clay, Jackson, Platte and Ray Counties, are in the process of updating their Regional Hazard Mitigation Plan. The goal of Hazard Mitigation Planning is to reduce the loss of life, property, human suffering, economic disruption and disaster assistance costs from natural disasters. Mitigation Goals and Actions aim to reduce risk and create safer, more disaster-resilient communities. Please take a moment to review the HIGH Priority Goals and Actions that are being proposed for your county for each hazard (see Hazard Boards). Please provide your input below:

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Jurisdiction in which you live: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Hazard: _____

Comment: _____

Jurisdiction in which you live: _____

BOA Meeting Agenda
Peculiar City Board of Aldermen
Meeting and Public Hearing
City Hall – 250 S. Main St
Monday May 18, 2015 6:30 p.m.

Jurisdiction-specific Community Engagement Information

Notice is hereby given that the Board of Aldermen of the City of Peculiar will hold a regularly scheduled meeting on Monday, May 4, 2015 at 6:30 pm, in the Council Chambers at 250 S. Main St. Representatives of the news media may obtain copies of this notice by contacting the City Clerk at City Hall, 250 S. Main St Peculiar, MO 64078 or by calling 816-779-2221. All proposed Ordinances and Resolutions will be available for viewing prior to the meeting in the Council Chambers.

1. Call to Order

2. Pledge of Allegiance

3. Roll Call

4. City Clerk – Read the Board of Alderman Statement

5. Consent Agenda

   A. Approval of the Draft Minutes of April 20, 2015 BOA Meeting.
   B. Approval of the Draft Minutes of May 4, 2015 Worksession Meeting.

6. Proclamation – Public Works Week

7. New Business -

   A. Public Hearing & Bill No. 2015-15 - AN ORDINANCE OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE FINAL PLAT OF GAIL'S RIDGE, TRACTS 1 AND 2 SUBMITTED BY MR. EMMETT SMITH.
   *1st Reading

   B. Resolution No. 2015-27 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE FINANCIAL REPORT AND BUDGET AMENDMENT ENDING APRIL 30, 2015 OF THE FISCAL YEAR 2014-2015.

   C. Resolution No. 2015-28 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE APPOINTMENT OF KELSIE MCCREA AS THE BOARD LIAISON TO THE PARK BOARD FOR A ONE YEAR TERM.

   D. Resolution No. 2015-29 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE APPOINTMENT OF MATT HAMMACK TO THE PLANNING COMMISSION.

   E. Resolution No. 2015-30 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE APPOINTMENT OF JERRY FORD AS POLICE COMMISSIONER OF THE CITY OF PECULIAR.

   F. Resolution No. 2015-31 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE APPOINTMENT OF PATRICK ROBERTS AS THE BOARD LIAISON TO THE DOWNTOWN PECULIAR ARTS & CULTURE DISTRICT (DPACD) FOR A ONE YEAR TERM.

   G. Resolution No. 2015-32 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE ELECTION OF _____ AS PRESIDENT OF THE BOARD.

8. Topics for Discussion -

   A. City Hazard Mitigation Plan (5 year plan on Emergency Management).

9. City Administrator Report

10. Aldermen Concerns

11. Aldermen Directives

12. Adjournment

Posted 5/15/15 by JB

City Administrator
Brad Ratliff

City Clerk
Janet Burlingame

City Engineer
Carl Brooks

Business Office
Trudy Prickett

Municipal Offices - 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

Chief of Police
Harry Gurin

City Planner
Cliff McDonald

City Attorney
Reid Holbrook

Parks Director
Grant Purkey

To: **Board of Alderman**

From: Harry Gurin, Chief of Police/Emergency Manager

Date: **5/14/2015**

Re: **City Mitigation Plan**

GENERAL INFORMATION

Applicant:

Status of Applicant:

Requested Actions:

Date of Application:

Purpose:

Property Location (if applicable):

PROPOSAL

Every 5 years the Hazard Mitigation Plan is updated to meet the needs of the city to be eligble for certain funding. The funding covers hazard mitigation, pre-disaster mitigation, and flood management assistance. The 5 year update expires August 31, 2015.

PREVIOUS ACTIONS

City Engineer, Carl Brooks, completed the update to the mitigation plan as the flood plain manager. The update has been submitted to Mid America Regional Council.

KEY ISSUES

A requirement of the update requires a brief summary of the plan in a public forum for any comments.

STAFF COMMENTS AND SUGGESTIONS

Staff recommends a brief review in a public meeting for possible imput.

STAFF RECOMMENDATION

ATTACHMENTS

___Mitigation Planning, Eligible Activities, Background_____

STAFF CONTACT: **H Gurin, 779-5102, hgurin@ peculiarpd.com**

Mitigation Planning

- Reduce loss of life, property, human suffering, economic disruption, and disaster assistance costs from natural disasters.
- Mitigation policies and actions reduce risk and create safer, more disaster-resilient communities.
- Community must review/revise existing plan to reflect changes in development, progress in local mitigation efforts, changes in priorities.



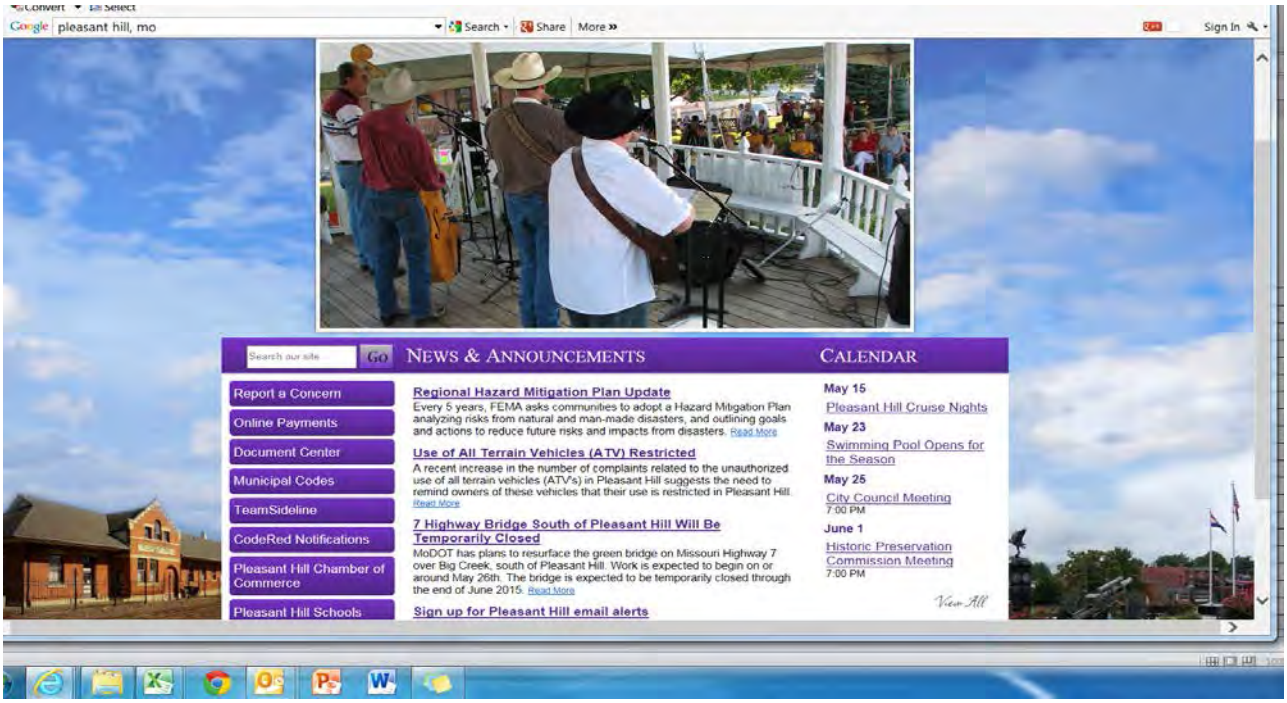
Background

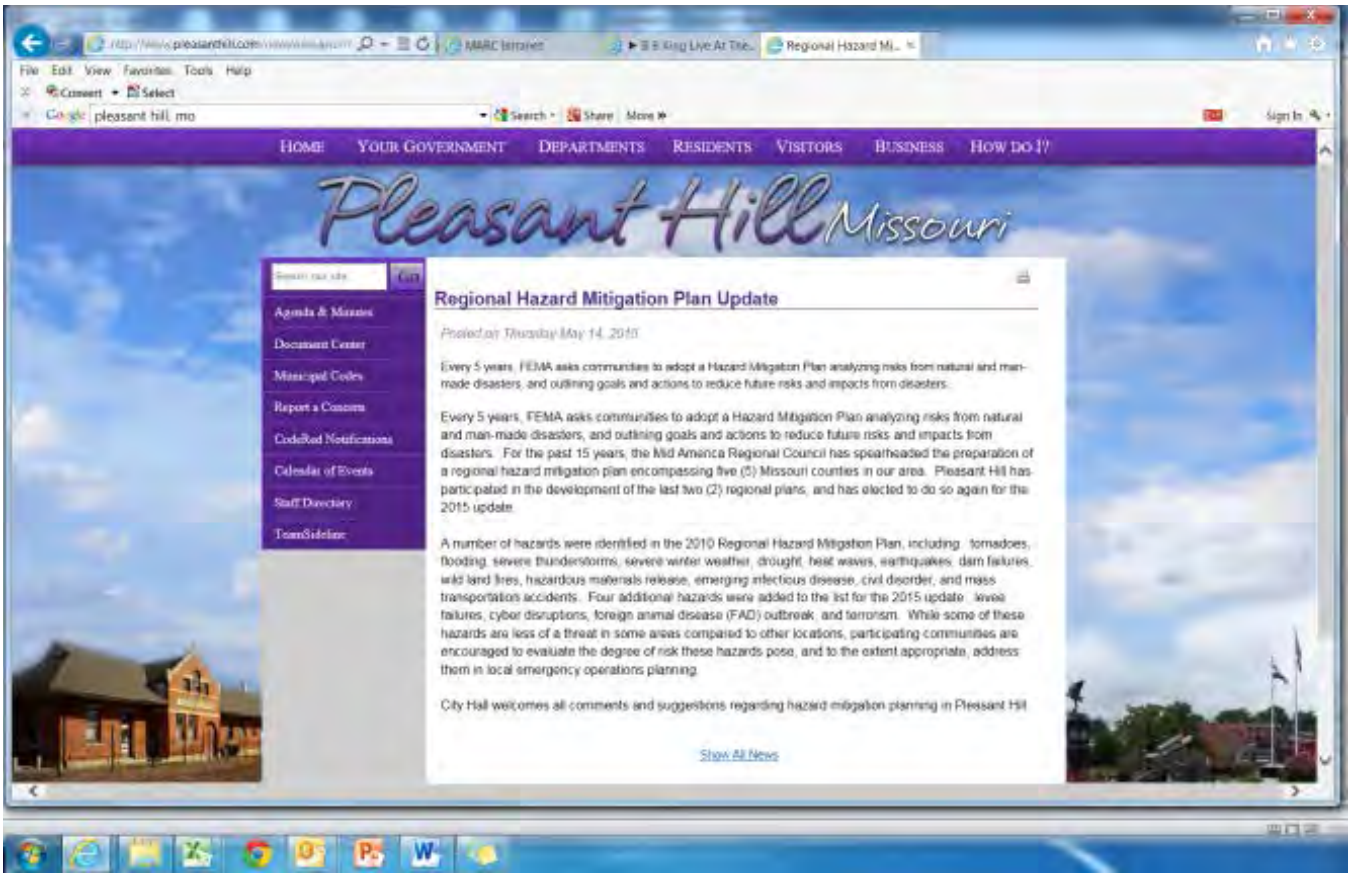
- CFR 44, Part 201
  - Prerequisite for certain funding:
    - Hazard Mitigation Grant Program (HMGP)
    - Pre-Disaster Mitigation (PDM)
    - Flood Mitigation Assistance (FMA)
- MARC assisted 5 Missouri counties in preparation of Regional Hazard Mitigation Plan in 2004, 2009.
- Current Plan approved on August 31, 2010
  - 5-year update required as part of plan maintenance process. Plan expires August 30, 2015.
  - Draft Plan Update due to SEMA on April 1, 2015



Eligible Activities	HMGP	PDM	FMA
1. Mitigation Projects	√	√	√
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction			√
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√
Minor Localized Flood Reduction Projects	√	√	√
Structural Retrofitting of Existing Buildings	√	√	
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildfire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Generators	√	√	
5 Percent Initiative Projects	√		
Advance Assistance	√		
2. Hazard Mitigation Planning	√	√	√
3. Management Costs	√	√	√




pleasant hill, mo
Search
Share
More
Sign In
Search our site
GO
NEWS & ANNOUNCEMENTS
CALENDAR
Report a Concern
Online Payments
Document Center
Municipal Codes
TeamSideline
CodeRed Notifications
Pleasant Hill Chamber of Commerce
Pleasant Hill Schools
Regional Hazard Mitigation Plan Update
Every 5 years, FEMA asks communities to adopt a Hazard Mitigation Plan analyzing risks from natural and man-made disasters, and outlining goals and actions to reduce future risks and impacts from disasters. Read More
Use of All Terrain Vehicles (ATV) Restricted
A recent increase in the number of complaints related to the unauthorized use of all terrain vehicles (ATV's) in Pleasant Hill suggests the need to remind owners of these vehicles that their use is restricted in Pleasant Hill. Read More
7 Highway Bridge South of Pleasant Hill Will Be Temporarily Closed
MoDOT has plans to resurface the green bridge on Missouri Highway 7 over Big Creek, south of Pleasant Hill. Work is expected to begin on or around May 26th. The bridge is expected to be temporarily closed through the end of June 2015. Read More
Sign up for Pleasant Hill email alerts
May 15
Pleasant Hill Cruise Nights
May 23
Swimming Pool Opens for the Season
May 25
City Council Meeting
7:00 PM
June 1
Historic Preservation Commission Meeting
7:00 PM
View All


Regional Hazard Mitigation Plan Update
Posted on Thursday May 14, 2015
Every 5 years, FEMA asks communities to adopt a Hazard Mitigation Plan analyzing risks from natural and man-made disasters, and outlining goals and actions to reduce future risks and impacts from disasters.
Every 5 years, FEMA asks communities to adopt a Hazard Mitigation Plan analyzing risks from natural and man-made disasters, and outlining goals and actions to reduce future risks and impacts from disasters. For the past 15 years, the Mid America Regional Council has spearheaded the preparation of a regional hazard mitigation plan encompassing five (5) Missouri counties in our area. Pleasant Hill has participated in the development of the last two (2) regional plans, and has elected to do so again for the 2015 update.
A number of hazards were identified in the 2010 Regional Hazard Mitigation Plan, including: tornadoes, flooding, severe thunderstorms, severe winter weather, drought, heat waves, earthquakes, dam failures, wild land fires, hazardous materials release, emerging infectious disease, civil disorder, and mass transportation accidents. Four additional hazards were added to the list for the 2015 update: levee failures, cyber disruptions, foreign animal disease (FAD) outbreak, and terrorism. While some of these hazards are less of a threat in some areas compared to other locations, participating communities are encouraged to evaluate the degree of risk these hazards pose, and to the extent appropriate, address them in local emergency operations planning.
City Hall welcomes all comments and suggestions regarding hazard mitigation planning in Pleasant Hill.
Show All News
Agenda & Minutes
Document Center
Municipal Codes
Report a Concern
CodeRed Notifications
Calendar of Events
Staff Directory
TownSideline
HOME
YOUR GOVERNMENT
DEPARTMENTS
RESIDENTS
VISITORS
BUSINESS
HOW DO I?
Pleasant Hill Missouri

Pleasant Hill City Council
Regular Meeting
Monday, April 27, 2015 – 7:00 pm
Council Chambers – 203 Paul Street

Present: Mayor VanGorkom, Council members: Paul Beason, C.J. Hicks, Mark Guffey and Don Donovan
Staff: Mark Randall, Randy Miller, Robert Driscoll, Bob Kee, Shelby Teufel, Justin Wieberg

Public: Kirk Powell-Pleasant Hill Times, Matt Liley, Warren Logan

Mayor VanGorkom called the meeting to order. Shelby Teufel called the roll of officials. A quorum was declared. Motion was made by CM Donovan, seconded by CM Beason to approve the agenda as presented. Vote as follows: CM Beason aye CM Hicks aye CM Guffey aye CM Donovan aye. Motion carried.

The special events application was presented for the Farmer's Market and Flea Market submitted by Warren Logan. The market will be open each Saturday from May 16th through October 17th. The hours of operation will be from 8:00 am – noon. The application also includes a request to use the 2nd Street lot for the market. Motion was made by CM Guffey, seconded by CM Hicks to approve the request for a Farmer's Market and Flea Market. Vote as follows: CM Beason aye CM Hicks aye CM Guffey aye CM Donovan aye. Motion carried.

Justin Wieberg presented the bid tabulation for bid number 04-15. A request for bids had been advertised and sent out for the resurfacing of the basketball court, the tennis court, the parking lot at the tennis court, the parking lot at the City Park and the parking lot at the new Dog Park. The lowest bid was submitted by Thorne and Sons Asphalt in the amount of $63,270.71. Wieberg noted that since the bid was opened Thorne has received a lower price on the painting of the courts and can save approximately $2,000 off of the original bid. With the savings the project is about $11,000 higher than what was budgeted. Upon award of the bid Thorne can start by the end of the week or the first of next week. The asphalt will have to cure for fourteen (14) days before the paint can be applied. Motion was made by CM Hicks, seconded by CM Beason to award bid no. 04-15 to Thorne and Sons Asphalt. Vote as follows: CM Beason aye CM Hicks aye CM Guffey aye CM Donovan aye. Motion carried.

Bob Kee presented two (2) street overlay proposals, both within the $518,000 that is outlined in the budget for overlay. Kee told the Mayor and Council that we are working through the cooperative bid with the cities of Belton, Raymore and Peculiar. The formal bid will be presented to the Belton City Council the next evening. There is a chance the rate per ton could be less which would allow us to do more streets. The consensus of the City Council was for the following streets:

- Boardman Street from 167th to the intersection at 163rd
- 163rd Street from 7 Hwy west to the intersection with Boardman

- VanHoy from Sugarland Drive to 7 Hwy
- Hidden Valley from Sugarland to end of cul-de-sac
- Renee Lynde from 7 Hwy to Christopher Dr
- Lake Street from Cedar St to Wallace Funeral Home parking lot
- Harper Street from Armstrong to Taylor
- Lexington from College Hill to Myrtle and from Rice to Matthes
- Mulberry St from Country Club to Birch
- Birch and Ash from Mulberry to Hickory Hills Dr
- Rice Street from 7 Hwy to dead end

Mark Randall told the Mayor and City Council there is a vacancy on the Community Betterment board. The vacancy is for one (1) of the three (3) city representatives on the board. His recommendation is for Shelby Teufel to serve on the board. Motion was made by CM Hicks, seconded by CM Donovan to appoint Shelby Teufel to the Community Betterment board. Vote as follows: CM Beason aye CM Hicks aye CM Guffey aye CM Donovan aye. Motion carried.

In other business:

Administration/Finance (Shelby Teufel)
- The new website is live
- The final touches are being worked on for the City's portal page
- The auditors will be here June 1st – 6th

Administration/Finance (Mark Randall)
- Finishing the hazardous mitigation plan through MARC
- Most items are in the Administration report
- MoDOT has contacted us and the Green Bridge at the south end of town will close on May 26 and be closed the entire month of June for resurfacing
- Middle Big Creek sewer interceptor project is still underway. They plan to do the work at the Cass County Fairgrounds between the county fair and the Chamber's Big Hill Festival in September
- Still working with the state agencies to get final trail plan confirmations

Parks/Rec & Buildings/Ground (Justin Wieberg)
- Will start filling the pool next Wednesday
- Lifeguard training scheduled
- Sidewalk at the Dog Park completed last Thursday
    - Need to finish a small area inside the fence, but it will need to dry up a little first

Police Department (Robert Driscoll)
- Officers and staff have spent a significant amount of time in training and continuing education
- Was involved in a recent murder trial, and another trial this week

Community Development (Randy Miller)
- Four (4) active permits with foundations going in
- Three (3) residential permits in plan review

- Four (4) houses going in Wildwood
- Met with a developer on an eighteen and half (18.5) acre residential development
- Focusing on weed abatement and seem to be getting voluntary compliance
- Four (4) applications reviewed for the open Building Inspector position
- Cass County Fair website under development
- Cass County Fair advertising and marketing campaign underway
- Spoke with the folks from Subway and they are still waiting on the plans from the civil engineer

Public Works (Bob Kee)

- Water Net Surveys came in to do a leak detection study and found eight (8) small leaks)
    - Five (5) of them are fire hydrants, two (2) will be fixed within the next week and will get the line loss back to single digits
- Patching continues
- Pump two (2) on the Timber street pump house is out and they are working to gather prices to repair

There being no further business to come before the City Council, motion was made by CM Hicks, seconded by CM Beason to adjourn the meeting at 7:31 pm. Vote as follows: CM Beason aye CM Hicks aye CM Guffey aye CM Donovan aye. Motion carried.

Approved:

_____

Mayor John VanGorkom

_____

City Clerk Nici Wilson

DRAFT

PRESS RELEASE
Archie R-V School District

The Archie R-V Board of Education met in regular session on Monday, May 18, 2015 at 7:00 p.m. Present were Board Members, Dennis Kurzweil, April Clark, Ryan Grimes, Wade Plattner and Jonas Jones. Also present were Superintendent, Dr. Sean Smith and Administrative Assistant to the Superintendent, Rebecca Deardorff.

The Board approved the consent agenda for the purposes of approving the agenda, minutes of previous meetings, payment of bills, monthly reports, transfers from Fund 1 to Fund 2 for purposes of payroll and Special Education Compliance Plan.

In the Report of the Superintendent, Dr. Smith informed the Board that the next Cass County Kids First Legislative Meeting would be at Archie on June 5th at Noon. This meeting will include representatives from all Cass County school districts.

As his report continued, Dr. Smith reported on the hazard mitigation goals regarding the tornado safe-room constructed in 2012. Dr. Smith asked for any public comment about the safe-room and the district's hazard mitigation goals with the Mid-America Regional Council (MARC).

In new business, the Board voted 5-0 to approve the contract for the 2015-16 school year with IT4KC for the district's IT services. In other new business, the Board voted 5-0 to provide all eligible employees steps down for experience and steps across for increased graduate credit hours on the certified salary scale. Dr. Smith reported that new contracts will be issued to employees once they return in August prior to school starting.

By a vote of 5-0, the Board adjourned to closed session. The Board of Education will meet in closed session immediately following the regular meeting in compliance with 610.021, RSMo for the following purposes highlighted in **bold** print.

610.021 (1) RSMo	Legal actions involving the district, attorney communications
610.021 (2) RSMo	Leasing, purchase or sale of real estate
610.021 (3) RSMo	**Hiring, terminating, disciplining or promoting**
610.021 (5) RSMo	Proceedings involving mental or physical health of individuals
610.021 (6) RSMo	Actions or records relating to students
610.021 (9) RSMo	Preparations for negotiations with employee groups
610.021 (10)(11)(12)	Testing materials, bid specs, sealed bids, software codes
610.021 (13) RSMo	**Personnel records, evaluations, applications**
610.021 (17) RSMo	Confidential or privileged communication with auditor
610.021 (14) RSMo	Records which are protected from disclosure by law

Employment action taken in Closed Session

Resignations

- Nicole Bremer – End of 2015-16 school year
- Candice Cantrell – End of 2015-16 school year
- Melissa Vanhousen – End of 2015-16 school year

Hired

- Tex Wampler – Day Custodian
- Justin Grahl – High School Social Studies
- Bonnie Dalton – 5th Grade

AGENDA

Pleasant Hill R-III School District

Board of Education Regular Meeting
Tuesday, May 19, 2015
7:00 P.M. in the Board Office
[POSTED: May 12, 2015]

I. Call to order

II. Pledge of Allegiance

III. Reading of District Mission Statement

IV. Approval of consent agenda
   A. Minutes of previous meetings
   B. Financial report, monthly bills and transfer of funds
   C. Administrative program evaluations – Wellness and Extra-curricular Activities
   D. 2015-16 Building handbook revisions
   E. 2015-16 SPED Local Compliance Plan
   F. 2015 Hazard Mitigation Plan

V. Approval of regular agenda

VI. Reports
   A. State Testing – Dr. Becky Gallagher, Ashley Knoll, and Terri Zimmerschied
   B. CSIP Report #11 – Performance Based Learning – Brian McDavitt
   C. CSIP Report #12 – Standards Based Grading – Denise Robinson, Michele Blevins, Brian McDavitt, Becky Russell

VII. Administrative, recommendation to approve:
   A. Salary and Benefit Proposal for 2015-16

VIII. Items for future meeting
   A. FY16 Budget
   B. Comprehensive School Improvement Plan (CSIP)

IX. Closed session pursuant to Section 610.021 (1), (3) & (6) of Missouri Law
   A. Approve minutes from previous meetings
   B. Personnel – 610.021 (3)
      1. Resignations
      2. Employment
      3. 2015-16 Extra duty assignments
   C. Student issues – 610.021 (6)
   D. Litigation – 610.021 (1)
   E. Adjourn closed session

X. Board schedule

XI. Adjourn

Wellness Meeting
Agenda
5/12/15

____ Lora Watson	_____ John Griffith	_____ Lon Campbell
____ Devin Nevels	_____ IS Student Council	_____ Andy Hughes
____ David Adamczyk	_____ Chandra Arbuckle	_____ Jessi Blackwell
____ Margaret Kosfeld	_____ Josh Adamczyk	

1. Welcome
2. Sign-in Sheet
3. Introductions
4. Plan
5. A Healthier You
    a. Options
    b. Preliminary Plan
6. Sub-Committee
7. Future Meetings
    a. Fall – August September
    b. Spring – January February March April May
    c. Do we need 3?
8. Pleasant Hill R-III Hazard Mitigation Plan 2015

Raymore-Peculiar School District

21005 S School Rd.
Peculiar, MO 64078
Ph: (816) 892-1300
Fax: (816) 892-1380

Regional Hazard Mitigation Plan

The Raymore-Peculiar School District participated in the update to the Regional Multi-Hazard Mitigation Plan sponsored by the Mid-America Regional Council (MARC).

The District created its own hazard mitigation plan to include as part of MARC's regional plan. The plan helps us identify areas where large-scale disruptions could have a significant impact on the entire District. The District identified goals in these areas:

1. Tornadoes
2. Intruders
3. Severe Weather
4. Cyber Disruption
5. Emerging Infectious Disease

You are invited to read more about the plan, and its goals and actions. You may also provide feedback. Ray-Pec Hazard Plan

Raymore-Peculiar Schools Participating in Regional Hazard Mitigation Plan

Over the past three months, the Raymore-Peculiar School District participated in the update to the Regional Multi-Hazard Mitigation Plan sponsored by the Mid-America Regional Council (MARC). MARC serves the nine county metro area (5 counties in Missouri and 4 in Kansas). Emergency responders and county and local officials are all part of MARC. This past year the Raymore-Peculiar School District was approached about creating their own hazard mitigation plan and having it included as a part of the regional plan created by MARC, and ultimately adopted by the Federal Emergency Management Agency (FEMA). This plan is a requirement in order to receive, or even be eligible for, numerous grants and other emergency management funds. We were happy to participate and will share a snapshot of our plan with our constituents.

The hazard mitigation plan was created in order to help the Raymore-Peculiar School District identify areas where large scale disruptions or events could have a significant impact on the entire school district. These identified areas are not the only school safety issues addressed in our emergency response plan, but are rather the major areas that with appropriate mitigation efforts, could reduce the overall risk to the school district. MARC, along with county and local emergency management officials, encouraged the district to limit this first plan to five goals. The following goals were identified:

1) Increase public awareness in understanding the benefits of "safe rooms" (Tornadoes)
2) Provide district-wide training on strategies to address violent intruders in schools (Intruder)
3) Maintain current weather alert systems in all District facilities (Severe Weather)
4) Increase awareness of potential breaches in cyber security (Cyber Disruption)
5) Establish an effective communication process between the District and County Health (Emerging Infectious Disease)

Each one of these goals was carefully selected to address the major areas in the MARC Regional Hazard Mitigation plan. If you would like to see the entire community snapshot, you may see the City of Raymore goals and actions by clicking the link below.

Link to Ray-Pec Hazard Plan

The Raymore-Peculiar School District encourages community members to review the goals and actions listed in this hazard plan. Should you have any questions or concerns about the plan, please do not hesitate to email Jay Harris, Assistant Superintendent of Administrative Services, at jay.harris@raypec.org or you may also call 816-892-1317.

MITIGATION STRATEGY SURVEY FOR SCHOOLS: 2015 Mitigation Goals and Actions

2015 Mitigation Strategy Goals & Actions

District/Facility: **Raymore-Peculiar School District**

All Participating Schools are required to complete this survey.

INTRODUCTORY PARAGRAPH

The Raymore-Peculiar School District values a safe and secure environment as a top priority. The District has targeted five hazard areas identified below as a primary focus for this 2015 planning cycle.

A. Local Hazard Mitigation Goals

Please state your district/facility's hazard mitigation goals and hazard connection.

Goal 1:	Increase public awareness and understanding the benefits of "safe rooms."	Tornadoes
Goal 2:	Provide district wide training on strategies to address violent intruders in schools	Intruder
Goal 3:	Maintain current weather alert systems in all district facilities	Severe Thunderstorms
Goal 4:	Increase awareness of potential breaches in cyber security.	Cyber Disruption
Goal 5:	Establish an effective communication process between the school district and county health department	Emerging Infectious Disease

B. Analysis of Mitigation Actions

Please describe your district's analysis of mitigation actions.

We believe the action steps listed below will improve the safety of our staff and students upon completion.

C. Implementation of Mitigation Action

Please identify goal-specific mitigation actions.

Prioritization Criteria:

1. High-Priority Actions: those actions for which resources, manpower, political, capital, etc., are readily available to accomplish the action.
2. Medium-Priority Actions: those actions that are desirable, but due to various planning limitations, are not expected to be implemented for two to five years.
3. Low-Priority Actions: those actions not scheduled to be implemented in the near future (greater than five years)

Hazard	Goal	Action	Action	Priority	Existing Planning Mechanism	Responsible Agency	Timeline	Cost/Benefit Review	Target Capacity	Estimated Cost	Funding Source	Type of Mitigation Activity	District / Facility Asset
Tornadoes	Goal 1:	Action 1:	Develop, distribute informational materials on safe rooms.	Medium	Asst. Superintendent	Ray-Pec District Administrat	Ongoing	Unknown	District Wide	unknown	unknown	Education and Awareness Programs	New
Intruder	Goal 1:	Action 1:	Mandatory annual training for all staff on how to effectively deal with violent intruders in schools.	High	Asst. Superintendent	Ray-Pec District Administrat	Ongoing	Unknown	All District Staff	unknown	unknown	Local Plans and Regulations	New
Severe Thunderstorms	Goal 1:	Action 1:	Test, monitor, and repair all weather alert systems annually.	High	Asst. Superintendent	Ray-Pec District Administrat	Ongoing	Unknown	District Wide	unknown	unknown	Structure and Infrastructure Projects	New
Cyber Disruption	Goal 1:	Action 1:	Launch a training initiative designed to educate all employees on security risks in every day technology use.	Medium	Director of HR	Ray-Pec District Administrat	Ongoing	Unknown	All District Staff	unknown	unknown	Education and Awareness Programs	New
Emerging Infectious Disease	Goal 1:	Action 1:	Participate in a monthly conference with cass county public health to discuss public health concerns, health notifications, or health related policies.	Medium	Nurse Supervisor	Ray-Pec District Administrat	Ongoing	Unknown	District Emergenc	unknown	unknown	Education and Awareness Programs	New
Select Hazard	Goal #	Action #	Description	Choose	Explain	Explain	Explain	Explanation	Explain	Explain	Explain	Choose Type	Select
Select Hazard	Goal #	Action #	Description	Choose	Explain	Explain	Explain	Explanation	Explain	Explain	Explain	Choose Type	Select
Select Hazard	Goal #	Action #	Description	Choose	Explain	Explain	Explain	Explanation	Explain	Explain	Explain	Choose Type	Select
Select Hazard	Goal #	Action #	Description	Choose	Explain	Explain	Explain	Explanation	Explain	Explain	Explain	Choose Type	Select

2015 Mitigation Strategy Goals and Actions Complete

MINUTES MAY 20, 2015 OF THE BOARD OF EDUCATION

SMITHVILLE R-II SCHOOL DISTRICT

REGULAR SESSION 7:10 P.M.
MEETING HELD IN
THE HIGH SCHOOL PERFORMING ARTS CENTER

PRESENT	ABSENT	ADMINISTRATORS
Russell Fries **Presiding Officer**		**Todd Schuetz, Wayne Krueger** **Michelle Kratofil, Ashley Jones** **Tracy Platt, Denise Harwood**
Sandy Van Wagner		**Rena Hawkins, Matt Teeter**
Ron Grusenmeyer		**Chris Heslinga, Matt Henshaw**
Denney Fales		
Michelle Kruse		
Ken Rumney	**Greg Chastain**	

Visitors: Mark Johnson, Herald, Bob Kershaw, Nate Kershaw, Ben Kershaw, David & Sarah Duckwitz, Emily Duckwitz, Alexander Duckwitz, Bob & Kim Phillips, Rita Williams, Josh & Courtney Wall and family, Michelle Price, Teri Kessler, Lacey Atchity, Robert & Cylista Borchelt, Jenny Booth, Jim & Kris Wornson, Susan K. Roberts, Bev Brewer, Shawn Logan, Devito Family, Brad Crider, Shannon Loerzel, Craig Schmitt, Misty Flowers, Kim Krueger, Olivia Krueger, Noah Whitacre, Susan Whitacre, Kaelah Patterson, Derek Patterson, Ronnie Lathrop, Hayden Wheeler, Jordyn Beard & Parents, Chris Rick, Gabe McCrary, Joelie McCrary, Jessica Orton, Clayton Hankins, Edward Holicky, Corky and Dianne Dewey, Mary Veselic, Morgan Russell, Asia Jacobs, Terry Steward, Ryan Winter, Diamond Stewart, Jerimiha Stewart, Levi Hale, Mandy Beumahra, Jacey George & family, Shelly, Paige & Jake Lakenburger, Brittany Winger, Kealee & Eden French, Garrett Greenfield, Robert Simpson, Mary Ann Simpson, Allys Dusanek, Rachel Steffen, Ryan & Leela Ussery, Susan Saunders, Diane Sinclair, Tina Mecklenburg, Emily Meyer, Russ & Jennifer Bollinger, Alex & Shirley Cain, Paula & Gwen Borgert, Nick, Laura & Nathan Noll, Lorie Moorman, Regan Fish, Robin Johnsten, Eddie Johnsten, Kylee Johnsten, Melinda Kadel, Barney Kadel, Kaylyn Kadel, Mitchell Orr, George & Margaret Jones, Doug Orth, Scott, Pam, Cameron & Katelin Meek, Christin Hinson, Holly Burkman, Brock Burkman,Whitney Danner, Carli Basye, Derrick Basye, Ellen Sumerall, Shannon & Lesa Quinn, Clinton Quinn, Beth Urton, Mindy Urton, Matt Urton, Mikey Urton, Roy Winfrey, Kurt Pate, Glen Pate, Savannah Pate, Don Doezbacher, Christen Doezbacher, Clayton Buffa, Cassidy French, Mindi French, Matt French, Jennifer Stanley, Todd Opperman, Ursula Lethcoe, Patrick Howe, Noah Nelson, Sheri Greenfield, Gabe Greenfield, Denney & Shirley French, Frank Lewis, Jennifer Parrott, Lyndsey Dusanek, Mary Dusanek, Mike Dusanek, Amy Pryor, Wes Pryor, Mark Mensik, Terri Mensik, Susan & Dale French, Rae Jenkins, Dillon Woollems, Kimberly Hopkins, Kristen Williams, Dana Wood, Lindsay Edwards, Chris Hinson, Matthew Brunner, Jared Anderson, Glen Stilley, Shawn Stilley, Donna Brooks, Jason Brooks & family, John & Abby Carlson & family, Greg & Melissa Pottebaums, Curt & Karen Powell, Stephanie Henson, Vallri Gaiser, Lisa Guess, Andrew Haws, Johnny & Angela Viebrock, Greg & Cindy Krueger, Jason Jones, Vern Larson, Scott Vitek, Lori Mertz

I. CALL TO ORDER

The meeting was called to order at 7:10 p.m. by Board President, Russell Fries.

V. CONVENE REGULAR MEETING

VI. PLEDGE OF ALLEGIANCE

VII. ADOPTION/MODIFICATION OF AGENDA

Move Consider Northland Caps Program from #7 New Business to #5 Communications.

VIII. APPROVAL OF CONSENT AGENDA ITEMS

Sandy Van Wagner made the motion to approve the following consent agenda items. Ron Grusenmeyer seconded. Motion carried 6 - 0.

1) Approve the Wednesday, April 15, 2015 reorganization/executive/regular session minutes.
2) Approve the minutes of the May 4, 2015, financial workshop.
3) Approve May bills for payment.
4) Approve additions to the substitute teacher list.

IX. COMMUNICATIONS

1) Student Recognition

Assistant Superintendent for Academic Services, Michelle Kratofil acknowledged students from each building for academic and co-curricular honors achieved during second semester.

2) Comments from the Audience

There were no comments from the audience.

3) Correspondence

The Board received a thank you card from Sandra Finney for flowers sent in honor of the passing of her father.

4) Tradition of Excellence

The Tradition of Excellence Award was presented to SWAT coach, Scott Vitek. The robotics team 1806 SWAT finished in the top 64 of 600 teams qualifying for the World Championships.

5) Consider Northland CAPS Program

A presentation on the Northland CAPS program was shared by Northland CAPS Regional Executive Director, Donna Deeds and CAPS students, Jessie Johnson and Seajay Moyer.

6) Assistant Superintendents' Comments

a) Assistant Superintendent for Academic Services, Michelle Kratofil reported that testing is finished. She expressed thanks to all who helped make the first year of online testing successful.

b) Assistant Superintendent for Support Services, Wayne Krueger shared that Missouri Employers Mutual is hosting a training seminar open to the public on drug and alcohol recognition for supervisors in the PAC on June 16.
He also provided an overview and update of the regional multi-hazard mitigation plan for Cass, Clay, Jackson, Platte, and Ray counties followed by information on the district's 2010 and 2015 goals.
Documents were shared regarding residency verification for the 2015-16 school year which will be required for all new students, students entering Kindergarten, 3rd, 6th and 9th grade.
The district is transferring its automobile, inland marine and non-owed insurance coverage effective June 1st to Wright Specialty which will lower the district's liability exposure and its premium.

7) Board Priorities Update

a) Director of Human Resources, Ashley Jones shared the finished product of various promotional, strategic plan, and recruitment materials with the Board.

b) Dr. Schuetz shared a list of Key Communicators and requested everyone to help expand that list. These individuals will be personally invited to the district to communicate needs, concerns, accolades, and ideas to administration and Board members.
He also presented a new activity he would like to pursue for next year called a listening tour. A couple of board members, Mr. Krueger, Dr. Kratofil and Dr. Schuetz would visit each building once a quarter to listen to staff concerns.

X. PROGRAM EVALUATIONS

1) Special Services Program (Postponed to June)
2) Special Supplemental Programs (Postponed to June)

XI. REPORT OF THE SUPERINTENDENT - OLD BUSINESS

1) General Financial Review

During the month of April, we received $1,380,456.83, making a total of $22,733,551.89 received since July 1, 2014.

Expenditures for April were $1,925,885.37, making a total of $19,651,846.56 expended since July 1, 2014.

2) Update on Enrollment

The current district enrollment is 2523.

3) Consider 2015-16 Textbook Recommendations

Sandy Van Wagner made the motion to approve the textbook recommendations for the 2015-16 school year as presented by Michelle Kratofil. Ron Grusenmeyer seconded. Motion carried 6 – 0.

4) Consider 2015-16 Salary and Benefits

Mr. Krueger provided a presentation on proposed salaries and benefits for 2015-16 followed by a presentation from Shawn Logan and Stephanie Dominguez representing the salary committee.

5) Legislative Update

The Board discussed HB 42, the student transfer bill being considered by the Missouri Legislature and Governor Nixon.

6) Consider Graduation Locations for 2016

Michelle Kratofil, Wayne Krueger, Candi Sutton, Russell Fries and three Junior class officers visited several possible graduation locations for 2016. They shared their thoughts from those visits.

XII. REPORT OF THE SUPERINTENDENT - NEW BUSINESS

1) Consider Travel Request for the Wrestling Team

Sandy Van Wagner made the motion to approve the out-of-state trip request from Taylor Middleton for the wrestling team to attend a competition on January 1 & 2, 2016 in Allen, Texas. Denney Fales seconded. Motion carried 6 – 0.

2) Consider New Job Descriptions

Ashley Jones presented five new job descriptions for Board consideration in June.

3) Consider MOSIP Board of Directors Vote

Ron Grusenmeyer made the motion to approve the option 2 to grant our proxy to the MOSIP Board of Directors to vote for a seat on the Board of Directors. Sandy Van Wagner seconded. Motion carried 6 – 0.

4) Consider MSBA 2015A Policy Revisions

Ken Rumney made the motion to approve the recommended revisions to the following policies for a first reading.

File: BF, School Board Policy Process
File: CB, School Superintendent
File: FEF, Construction Contracts Bidding and Awards
File: GBCA, Staff Conflict of Interest
File: GBCBC, Staff Absences and Tardiness
File: GCPB, Resignation of Professional Staff Members
File: GCPD, Suspension of Professional Staff Members
File: GCPE, Termination of Professional Staff Members
File: GCPF, Renewal of Professional Staff Members
File: GDPD, Nonrenewal, Suspension and Termination of Support Staff Members
File: IGBCB, Programs for Migrant Students
File: IGDA, Student-Initiated Group Use of District Facilities (K-12 Districts)
File: IKFB, Graduation Exercises
File: JHCD, Administration of Medications to Students

Michelle Kruse seconded. Motion carried 6 – 0.

5) Consider Customized Policy Revisions

Ron Grusenmeyer made the motion to approve the recommended revisions to the following policies for a first reading.

File: DJF, Purchasing
File: GCBA-R, Professional Staff Salary Schedules
File: GCBDA, Professional Staff Short-Term Leaves
File: GDBDA, Support Staff Leaves

Sandy Van Wagner seconded. Motion carried 6 – 0.

6) Consider Implementation of TILT

Matt Henshaw and Lori Mertz presented an update on the TILT (Teachers Integrating Learning Technology) program. Lori shared ways she used the 2 in 1 device in her classroom to assist in enhancing instruction and learning.

MISCELLANEOUS

XIII. ADJOURNMENT

The meeting was duly adjourned at 11:26 p.m.

SECRETARY

PRESIDENT

Blue Springs RIV Council PTA

Agenda

March 17, 2015

James Walker Elementary

Call to Order	Dayla Fullerton
Pledge of Allegiance	
Inspiration	
Secretary	Deborah Wimmer
Treasurer's Report	Shelly Throckmorton
Membership Report	Patrice Semegran
Programs	
President's Report	Dayla Fullerton
Corresponding Secretary	Rachel Powers

New Business:

2015-16 Officer's Election

Program: FEMA-Dan Anderson, Director of Buildings and Grounds

- Tornado Safe Room Tour and Review
- Hazard Mitigation Planning
  - Moving Forward: Safety Goals

Host Report: James Walker Elementary

District Update: Dave Adams

Chairmen Report:

President's Luncheon
Transportation Luncheon
Male Involvement
Council Café
Scholarship
Volunteer

School Reports:

BSHS	BSSHS	BHMS	DWMS	MRMS
SVMS	CLE	CME	DYE	FSE
JLE	JWE	JNE	LFE	SPE
TUE	VSP	WBE	WYE	LTEC
BSEC				

Upcoming Events:

Transportation Luncheon	April 10, 2015	Trans. Center	11:00 am
Superintendent Roundtable	April 21, 2015	Bartow PLC	9:30 am
Central Office Lunch	April 21, 2015	CO	
Volunteer Brunch	May 7, 2015	PKMS	9:30 am
President's Luncheon	May 14, 2015	Adam's Pointe	11:30 am

Fort Osage R-1 School District (Independence, Missouri)

AGENDA

Regular Session
Gragg Administrative Office
Highways 24 and 7
Wednesday, May 13, 2015 – 7:00 p.m.

PLEDGE of ALLEGIANCE: (Led by a board member)

1. **REGULAR SESSION CALL TO ORDER WITH ROLL CALL**

2. **APPROVAL OF AGENDA**

3. **COMMUNITY IMPACT REPORT** – Mrs. Stephanie Smith, Public Relations Director

4. **RECOGNITIONS**
   a. *MVP's*
   Indian Trails Elementary
   Certificated: Steven Castillo – Behavior Interventionist
   Classified: Angela Simpson – Health Aid

   Early Childhood Center
   Certificated: Leigh Ann Koval – Classroom Teacher
   Classified: Kellee Wilkinson - Paraprofessional

   Fort Osage High School
   Melanie Demore, Paraprofessional

   b. *Special Recognition*
   Fort Osage High School Speech and Debate State and National Qualifiers

   Mackenzie Barnett – MSHSAA State Qualifier Public Forum Debate
   Amatay Boutte – MSHSAA State Qualifier Public Forum Debate
   Riley Messer – MSHSAA State Qualifier International Extemporaneous Speaking and 2015 NFL Academic All American

   Sydney Martin – NIETC and NSDA National Qualifier – Duo Interpretation
   Jessica Long – NIETC and NSDA National Qualifier – Duo Interpretation
   Nate Holthe – NSDA National Qualifier – Congressional Debate

   Fort Osoge High School Student Ambassadors in the Japan Sister City program
   Alexandra Diehl
   Samuel Culver
   Caroline Leeper
   Joey Reeve-Barker
   Jordan Jeffries

Missouri Industrial Technology State Contest Winners
Max Anderson – Electronics
Tyler Davis – Advanced Furniture
Dylan Bateman – Mechanical Drafting
Chris Herron – Bridge Engineering

c. *MSTA Recognition*
Mrs. Cindy Heidtbrink, Director Business Services
Carol Peppers, Director Fort Discovery Child Care

5. PUBLIC PARTICIPATION

6. CONSENT AGENDA

All matters listed under the Consent Agenda are considered to be routine by the Board of Education and will be enacted by one motion in the form listed below. There will be no separate discussion of the items. If discussion is desired, that item will be removed from the Consent Agenda and will be listed as the first item under the appropriate section of the Regular Agenda.

a. **Minutes**
   i. Regular Session – April 14, 2015
   ii. Executive Session – April 14 2015

b. **Financial Reports**
   i. Monthly Cash Summary dated March 31, 2015
   ii. Revenue and Expenditure Report dated April 30, 2015
   iii. Warrant X Register including investment of monies and interest related to the General and Payroll Accounts and Debt Service Account.

c. **Surplus Property**
Recommend authorization to sell to the highest or best bidder(s) the surplus property outlined in board materials.

d. **Budget Amendments**
Approve the budget amendments in expenditures only outlined below and in board materials.
   - Increase expenditures in the General Fund $21,873.73 for professional development and general operating expenses.

e. **MOU with Clever, Inc**
Approve the Memorandum of Understanding with Clever, Inc. to provide data integration and single sign-on access for a variety of instructional technology resources. The MOU will go into effect upon execution by both parties and terminate at the district's request.

f. **Pay Application**
   i. **The Wilson Group, Inc.** – Pay Application #1 in the amount of $19,833.20 for work done on the press box update project.

g. **Bids**
Recommend the following bid(s) be accepted:
   i. **AOS** – 65 chrome boxes - $217.79 each
   ii. **CDWG** – Aruba wireless software support and maintenance - $5,497.32

iii. **CDWG** – 14 mobile Chromebook carts - $1,250.00 each
iv. **CDWG** – Epson Powerlite Projectors/Lamp Bundle - $505.00
v. **Dell** – Renewal of Microsoft School Campus Agreement - $38,600.00
vi. **Dell** – 1600 Chromebooks - $291.51 each ($466,416.00)
vii. **Hiland Dairy** – dairy products for the 2015-16 school year - $227,058.70
viii. **Konica Minolta** – Multifunction Print/Copy/Fax machines - $159,866.04
ix. **Ray Carroll Fuels** – propane heating fuel - $.99 per gallon
x. **Riverside Technologies** – Symantec SymEd Secure Plus - $15,368.00
xi. **Roma Bakery** – bakery products for the 2015-16 school year - $34,355.00
xii. **Smoothwall** – Network Firewall and content filtering system - $45,888.00
xiii. **Thyssenkrupp** – OTMS elevator modernization - $72,192.00

7. SUPERINTENDENT'S REPORT

a. **School Report**
   i. Indian Trails Elementary – Mrs. Emily Cross
   ii. Early Childhood Center – Mrs. Karen Harrach

b. **Program Evaluations**
   i. Early Childhood Center – Mrs. Karen Harrach
   ii. Health Services – Mrs. Karen Daniel

c. **Support Services** – Dr. John Ruddy
   i. Hazardous Mitigation Plan
   ii. Press Box Update

d. **Superintendent** – Dr. Mark Enderle
   i. Budget Update
   ii. Legislative Update
   iii. McGraw Hill
   iv. Health Insurance
   v. Economic Impact of Local School Districts
   vi. Upcoming Events
   CSDGKC Annual Meeting – June 10, 2015, 5:45 pm – Independence School District
   MSBA Leadership Summit – June 13-14, 2015 – Tan-Tar-A

8. UNFINISHED BUSINESS

9. NEW BUSINESS

a. **Approve Updated 2015-16 Employee Calendars**
Recommend approval of the updates to the 144 day and 179 day 2015-16 Support Staff employee calendars as outlined in the board materials.

b. **Approve Increase in School Lunch Prices**
In compliance with the Healthy, Hunger-Free Act of 2010, recommend approval of $.10 increase for school lunch prices beginning with the 2015-16 school year as outlined below:
Lunch for all elementary schools from $2.05 to $2.15
Lunch for Osage Trail and the High School from $2.30 to $2.40
Adult lunch from $2.70 to $2.80

c. **Agreement with Marr and Company**
Approve a one year agreement (FY15 school year) with Marr and Company for the purpose of auditing services.

d. **Consideration of Executive Session**
Recommend the agenda for the June 9, 2015, board meeting include a closed executive session. A roll call vote must be taken for the purpose of consideration of (1) preparation for Meet and Confer with employees, (2) pending legal actions, litigation, and (3) hiring, firing, disciplining, or promotion of personnel.

ANNOUNCEMENTS

ADJOURNMENT

SIGN-IN SHEET

Independence School District Hazard Mitigation Plan	Tuesday, May 26, 2015, 10:00 a.m.
Robert Burkey, Facilities Director ISD	Facilities Conference Room

No.	Name	School District
1.	Jan Bridewell	Indep. School Dist.
2.	Kathy Cooper	Indep School Dist
3.	John Clubb	ISD
4.	Larry Bregman	ISD
5.	Micky Kelly	ISD
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		

Independence School District 30

Hazard Mitigation Plan

Public Information/Input

Central Office Facilities Conference Room

10:00 a.m., May 26, 2015

1. **District's Hazard Mitigation Plan Overview**
    a. **Hazard Identification**
2. **Goal's**
    a. **Completed**
    b. **Deleted**
    c. **Deferred**
3. **Actions**
4. **Public Comments**

AFFIDAVIT OF PUBLICATION

STATE OF MISSSOURI)
County of Jackson) } SS.

I, **KATHERINE M. JONES.**, being duly sworn according to law, state that I am the LEGAL CLERK and agent of THE EXAMINER, a daily newspaper of general circulation in the County of Jackson, State of Missouri, where located; which newspaper has been admitted to the Post Office as a periodical class matter in the City of Independence, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers, voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of Section 493.050, Revised Statutes of Missouri 2000, and Section 59.310, Revised Statutes of Missouri 2000. The affixed notice appeared in said newspaper in the following issues:

Commencing on May 20, 2015

and ending on May 20, 2015, being the issues of:

May 20, 2015

being Volume 110 Numbers: 260

ADVERTISEMENT-
Independence School District will hold a meeting at the Ennovation Center, 201 N. Forest Avenue, Independence, MO 64050 from 10:00 am - 12:00 pm on May 26, 2015 to discuss our hazard mitigation plan, goals and action. This meeting is open to the public to provide the opportunity to comment.
May 20, 2015

Signed Kath M. J

Legal Clerk, Katherine M. Jones

Subscribed and sworn to before me on this 20th day of May, 2015.

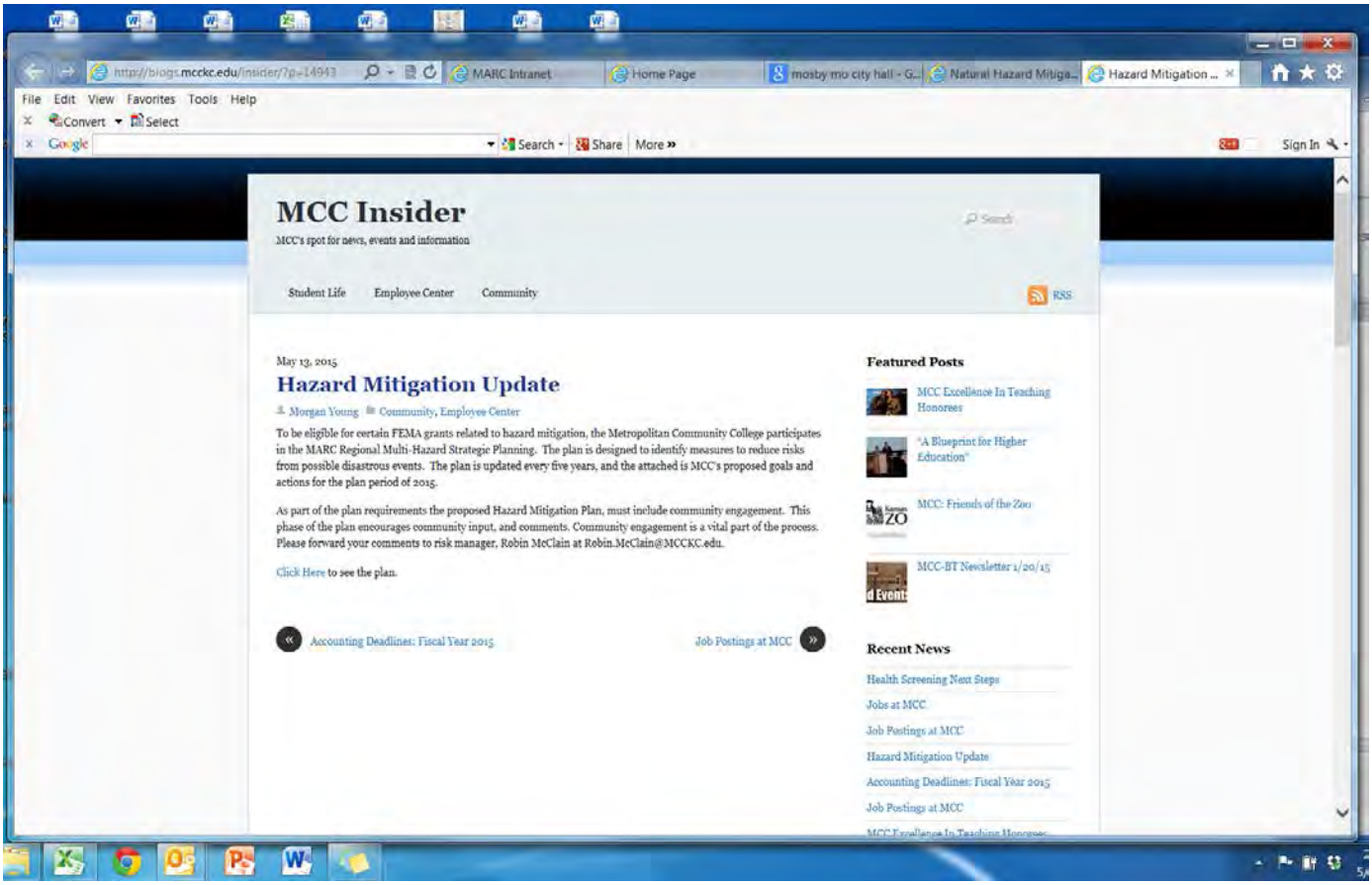
Ramona Williams

Notary Public, Ramona Williams

My commission expires March 13, 2018.

RAMONA WILLIAMS
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: March 13, 2018
Commission Number: 14592804

Metropolitan Community College posted the following information on May 13th, 2015 regarding the Hazard Mitigation Plan inviting comment to their Risk Manager, Robin McClain.



2015 Mitigation Strategy Goals & Actions — District/Facility:

All Participating Schools are required to complete this survey.

INTRODUCTORY PARAGRAPH

In formulating Metropolitan Community College's Mitigation Goals, safety and security of the campus community wide range of activities were considered in order to help achieve the established mitigation goals in addition to ac were discussed at length as well as through site visits with the Kit Bond Corporate Protection Services. Protection creation of a disaster resilient environement is our standard operating procedure.

A. Local Hazard Mitigation Goals

Please state your district/facility's hazard mitigation goals and hazard connection.

Goal 1:	Expand district-wide knowledge of existing substances and prevention procedures
Goal 2:	Protect human lives, property and mitigate injuries
Goal 3:	Protect human lives, property and mitigate injuries
Goal 4:	Secure digital information, ensure confidentiality and protect data integrity
Goal 5:	Goal statement

B. Analysis of Mitigation Actions

Please describe your district's analysis of mitigation actions.

Representatives from Administrative Services, Information Technology, the MCC Police Department, Risk Manage practices/procedures, future projects and known risk areas in order to identify and prioritize hazards. These led t MCC's campus communities.

C. Implementation of Mitigation Action

Please identify goal-specific mitigation actions.

Prioritization Criteria:

1. High-Priority Actions: those actions for which resources, manpower, political, capital, etc., are readily available to accomplish the action.

2. Medium-Priority Actions: those actions that are desirable, but due to various planning limitations, are not expected to be implemented fo

3. Low-Priority Actions: those actions not scheduled to be implemented in the near future (greater than five years)

Hazard	Goal	Action	Action	Priority	Existing Planning Mechanism
Hazardous Materials Release	Goal 1:	Action 1:	Hazardous Material Storage Audit	High	This should be refreshed every 2-3 years by Risk Management

Hazardous Materials Release	Goal 1:	Action 2:	Develop and conduct mandatory training protocols for all personnel handling hazardous materials to ensure compliance with federal, state and local regulations for hazardous materials and proper use of Personal Protective Equipment.	Low	This should be refreshed every 2-3 years by Risk Management
Severe Thunderstorms	Goal 2:	Action 1:	Ensure MCC emergency response procedures are reviewed and employees trained annually.	Medium	Risk Management and MCC Police Department
Severe Thunderstorms	Goal 2:	Action 2:	Upgrade and integrate communications system to provide capability to communicate across jurisdictional lines between MCC and other law enforcement agencies and emergency service providers (i.e. Mutual Aid capabilities)	Medium	MCC Police Department
Severe Thunderstorms	Goal 2:	Action 3:	Ensure communication channels are working properly between Police Department and other college departments, such as Facilities and Information Technology, to implement equipment or perform maintenance to reduce damage to property and protect lives.	Medium	Facilities and MCC Police Department

Intruder	Goal 3:	Action 1:	Improve education and in-person training on active shooter and intruder situations	Medium	MCC Police Department
Cyber Disruption	Goal 4:	Action 1:	Provide awareness training, risk assessment, penetration testing, vulnerability management, and security assessment and authorization to enhance cyber security.	Medium	Information Technology and Risk Management
Select Hazard	Goal #	Action #	Description	Choose	Explain
Select Hazard	Goal #	Action #	Description	Choose	Explain

2015 Mitigation Strategy Goals and Actions Complete

Metropolitan Community College

remains the primary element in the college's mitigation planning. A
ddressing any specific and targeted hazard concerns. These activities
of life, safety and security of MCC's campus communities through the

	Hazardous Materials Release
	Severe Thunderstorms
	Intruder
	Cyber Disruption
	Select Hazard

ement and Facilities reviewed past incident reports, current
o goals with the overarching need to protect life, safety and security of

r two to five years.

Responsible Agency	Timeline	Cost/Benefit Review	Target Capacity	Estimated Cost	Funding Source
MCC	Current calendar year	Conduct a districtwide physical review of safe containment and storage practices of hazardous materials which can be done by our Risk & compliance manager with little additional funding.	MCC all locations	0	N/A

MCC	2-3 years	Provide additional training opportunities for employees that work with hazardous materials. There may be initial cost for any training materials.	MCC all locations	5000	MCC
MCC	2-3 years	MCC has existing procedures but a process needs to be in place to consistently reeducate to ensure the safety of it's constituents.	MCC all locations	0	N/A
MCC	TBD	The exact cost of the upgrade is unknown at this time. The upgrade will support a variety of configurations, allowing a more expeditious and coordinated response effort from multiple agencies spanning a large geographical area. It will decrease response times and potentially save lives in the event of a major hazardous event.	MCC all locations	Unkown	State/Federa
MCC	2-3 years	Working with Facilities to maintain landscaping and install lightning protection on campus and college thoroughfares would incure additional funding but ensures a reduction in repair costs. Implementing/Updating surveillance equipment across the district would lead to better prevention and emergecy response. MCC would need to build this into the Facilities projects and seek funding methods or priortize in the deferred maintenace funding.	MCC all locations	25000	MCC

MCC	Current calendar y	MCC has existing training but a process needs to be in place to consistently reeducate to ensure the safety of it's constituents.	MCC all locations	0	N/A
MCC	2-3 years	Our Information Technology and Risk Management departments can accomplish this task but need to procure webinars/training and determine the level of assessment needed.	MCC all locations	20000	MCC
Explain	Explain	Explanation	Explain	Explain	Explain
Explain	Explain	Explanation	Explain	Explain	Explain

Type of Mitigation Activity	District / Facility Asset
Education and Awareness Programs	Existing

Education and Awareness Programs	New
Education and Awareness Programs	Existing
Structure and Infrastructure Projects	New
Structure and Infrastructure Projects	New

Education and Awareness Programs	Existing
Education and Awareness Programs	New
Choose Type	Select
Choose Type	Select

NOTICE OF MEETING

POSTED MAY 1, 2015, 10:30 A.M.

PUBLIC NOTICE IS HEREBY GIVEN THAT THE BOARD OF TRUSTEES OF THE VILLAGE OF FARLEY WILL CONDUCT THEIR REGULAR MAY MEETING AT THE FIRE STATION IN FARLEY, MISSOURI, ON MAY 5, 2015,, AT 7:00 P.M., AND WILL CONSIDER THE MATTERS ON THE FOLLOWING TENTATIVE AGENDA AND SUCH OTHER MATTERS AS MAY BE PRESENTED AT THE MEETING DETERMINED TO BE APPROPRIATE FOR DISCUSSION AT THAT TIME.

AGENDA
MAY 5, 2015

1. **CALL MEETING TO ORDER.**
2. **ROLL CALL.**
3. **APPROVE AGENDA.**
4. **HAZARD MITIGATION PLAN BY CAPTAIN AVERY AND SERGEANT ONEIL**
5. **PUBLIC COMMENTS (LIMITED TO 5 MINUTES PER PERSON).**
6. **APPROVE MINUTES OF APRIL 14, 2015.**
7. **APPROVE BILL PAYING ORDINANCE AND FINANCIAL REPORT.**
8. **OLD BUSINESS:**
    - **A. DISCUSS PARK TREE PROBLEM.**
    - **B. DISCUSS CELL PHONE TOWER.**
    - **C. DISCUSS MAINTENANCE OF PARK.**
9. **NEW BUSINESS.**
10. **UNSCHEDULED COMMENTS (LIMITED TO BOARD MEMBERS).**
11. **ADJOURNMENT**

THE NEWS MEDIA MAY OBTAIN COPIES OF THIS NOTICE BY CONTACTING:

BEVERLY KINCAID
CLERK OF THE BOARD
OF TRUSTEES
PO BOX 93
FARLEY, MO 64028
816.330.3359



The City of Houston Lake Emergency Management

Wants Your Input

Housto Lake is a special place in the Kansas City metroplex area, being a lake community it has many emergency challenges including dangerous severe weather.

On Monday, May 11th, 2015 at 7:30 pm

You are invited to review the
2015 Hazard Mitigation Plan and Houston Lake's Incident Action Plan
and offer your input and comment on the information presented.

Direct any questions to
Mayor Mike Halleuer or Emergency Management Director Dan Coronado

News & Information

Return to News and Information

Natural Hazard Mitigation Planning

Posted Date:5/26/2015

Natural Hazard Mitigation Planning

Natural hazards such as tornadoes and floods leave permanentmarks on people and communities. It pays to prepare, and that's one reason local governments are currently updating their plans to help protect property and save lives.

The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses from disaster damage, reconstruction, and repeated damage. The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.

State, county and local governments benefit from mitigation planning by:

- Identifying cost effective actions for risk reduction that are agreed upon by stakeholders and the public
- Focusing resources on the greatest risks and vulnerabilities
- Building partnerships by involving people, organizations, and businesses
- Increasing education and awareness of hazards and risk
- Communicating priorities to state and federal officials
- Aligning risk reduction with other community objectives

Every 5 years, FEMA asks communities to adopt a Hazard Mitigation Plan analyzing risks from natural and man-made disasters, and outlining goals and actions to reduce future risks and impacts from disasters. For the past 15 years, the Mid America Regional Council has spearheaded the preparation of a regional hazard mitigation plan encompassing five (5) Missouri counties in our area. Platte City has participated in the development of the last two (2) regional plans, and has elected to do so again for the 2015 update.

A number of hazards were identified in the 2010 Regional Hazard Mitigation Plan, including: tornadoes, flooding, severe thunderstorms, severe winter weather, drought, heat waves, earthquakes, wild land fires, hazardous materials release, emerging infectious disease, civil disorder, and mass transportation accidents. While some of these hazards are less of a threat in some areas compared to other locations, participating communities are encouraged to evaluate the degree of risk these hazards pose, and to the extent appropriate, address them in local emergency operations planning.

State, County, and local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance as well as FEMA funds available for mitigation plan development and mitigation projects.

Platte City welcomes all comments and suggestions regarding hazard mitigation planning in Platte City. To view the Hazard Mitigation Plan please go to http://marc.org/Emergency-Services-9-1-1/MEMC/Activities/Natural-Hazard-Mitigation-Plan. If you have any comments, suggestions or concerns please email police@plattecity.org.

Carl W. Mitchell

Chief of Police

NOTE: The following document refers to a process that was conducted by the Elected Officials and staff of the City of Platte Woods. The City of Platte Woods does not currently have a city website, newsletter or other method of regularly communicating to the citizens of Platte Woods because Platte Woods has a relatively small population (@ 170 households). To get the word out about the Hazard Mitigation Plan, the Emergency Operation Plan, and preparedness in general, the elected officials and staff divided up the city to deliver Ready in 3 information and to verbally let the citizens know about mitigation efforts.

February 11 2015

Subject: Emergency Preparedness/Management Guide for

Platte Woods Elected Officials

Emergency preparedness/management in time of crisis is the responsibility of every member of government. We are mandated to respond to the needs of this community in a prompt and professional manner. The citizens will turn to us for guidance and assistance to restore order and basic services to Platte Woods.

The attached guide is an abbreviated version of the Platte County Local Emergency Operations Plan adopted in May of 2014. It is only a guide to assist your role and guide out role as a political subdivision should the need arise during an emergency situation.

As requested or in the event of total communication failure, all City Aldermen will meet at 6 PM on the day of the event (or 2 (two) hours after an all clear is issued at the southwest corner of the Platte Woods United Methodist Church.

Respectfully,

Michael J. Benne

Chief of Police/ Emergency Management Director

West Platte School District Hazard Mitigation Planning Process

The West Platte School District is asking for patron input on the proposed update of the Hazardous Mitigation Plan. Mitigation Planning is the process of creating policies and actions to reduce risk and create safer, more disaster-resilient communities. These plans involve proposed implementation of prioritized goals and action strategies to reduce loss of life, property, human suffering, economic disruption, and disaster assistance costs from natural disasters.

The Regional Multi-Hazard Mitigation Plan Group involved in the current update process consists of school districts and local governments in the 5 counties of Cass, Clay, Jackson, Platte and Ray, working in conjunction with the Metropolitan Emergency Managers Committee (MEMC). The agency and communities must review and revise existing plans to reflect changes in development, progress in local mitigation efforts, and changes in priorities during each five year period. If Federal or State Emergency Management Assistance (FEMA or SEMA) funding is available during the next 5 years (2015-2020), prior agency approval of this plan enables the district to be eligible to apply for grant funding.

Prioritized mitigation goals and actions proposed to be addressed by our district include:

1. **Intruder Hazard**: Develop, drill and train with upgraded cameras, security locks, active shooter and evacuation drills to keep up with changing facilities and emergencies.

2. **Cyber Disruption:** Develop policies, procedures and training to prevent cyber disruption, adding off site server storage.

3. **Hazardous Materials Release:** Share training and resources with City for emergency evacuation and shelter for hazardous materials release, in addition to other man-made and natural disaster emergencies.

The West Platte School District values patron input in the form of suggestions or questions to add information and to clarify content. Please provide input in writing by including the subject line, “Mitigation Planning” and emailing your comments to wpsd@wpsd.net.

NORTH PLATTE R-I SCHOOL DISTRICT
BOARD OF EDUCATION

OPEN SESSION **MAY 20, 2015**

The meeting was called to order at 6:02 p.m. by the President, George Hoeffner, with six board members in attendance in person, and Kerry Brooke Hyde present via telephone. Dr. Jeff Sumy, Superintendent and Diana Blankenship, Secretary, were also present.

Michele Paden-Livengood made a motion to approve the agenda. Eric Meadows seconded the motion. Motion carried with seven ayes and no nays to approve the agenda as presented.

Bennett French made a motion to adjourn to Executive Session. Eric Meadows seconded the motion. Motion carried Vince Roberts aye, Michele Paden-Livengood aye, Bennett French aye, Mike Fisher aye, Eric Meadows aye, Kerry Brooke Hyde aye, and George Hoeffner aye.

The regular session reconvened at 6:30 p.m.

The treasurer's report was given. Bennett French made a motion to approve the receipts and treasurer's report. Seconded by Eric Meadows. Motion carried with seven ayes and no nays.

During Communication, a letter of congratulations received from the Commissioner of the Missouri Department of Elementary and Secondary Education was shared with the board.

Bennett French made a motion to approve the Consent Agenda. Vince Roberts seconded the motion. Motion carried with seven ayes and no nays.

The Hazard Mitigation Regional Plan was presented to the board. The current District focus is storm safety. Future District focus shall include intruder safety and communications. A risk management plan will be created, to include where to evacuate to or from, and will be updated annually. The board may choose to work together with the emergency management officer of Platte County and Buchanan County. Mike Fisher made a motion to approve the Goals and Actions being submitted to the Regional Plan. Bennett French seconded the motion. Motion carried with seven ayes and no nays.

The proposed Board of Directors for the North Platte Foundation was reviewed. Bennett French made a motion to approve the Board of Directors for the North Platte Foundation as presented. Eric Meadows seconded the motion. Motion carried with seven ayes and no nays.

Dr. Sumy reviewed the current budget outlook. Dr. Sumy presented an overview of the 2015-16 budget projection.

Dr. Sumy reported the athletic trainer contract with Mosaic will be $5,500 for the 2015-16 school year. Bennett French made a motion to approve the contract with Mosaic for athletic trainer services for $5,500. Mike Fisher seconded the motion. Motion carried with seven ayes and no nays.

The summer school staff list was approved during Executive Session.

The next regular meeting will be June 17, 2015, at 6:30 p.m. in the Junior High Technology center.

Mike Fisher made a motion to adjourn. Eric Meadows seconded the motion. Motion carried with seven ayes and no nays. Meeting adjourned at 7:20 p.m.

ATTEST:

_____
GEORGE HOEFFNER, PRESIDENT

_____
Diana Blankenship, Secretary

Minutes Approved:

CRISIS RESPONSE PLAN

Park Hill takes steps every day to protect students and staff. Our crisis response plan includes strategies to prevent, prepare for, respond to and recover from a crisis in our schools.

PREVENTION:

The best way to address a crisis is to prevent it ever happening at all. The Park Hill School District has several programs designed to address issues before they become crisis situations.

- Peer mediation programs to help students learn to resolve conflicts
- Bullying prevention programs
- Counselors, social workers and recovery room specialists
- Uniformed police officers serving in our high schools and middle schools as school resource officers
- Secure buildings with locked exterior doors, photo ID badges for employees and check-in procedures for visitors

PREPARATION:

Park Hill's crisis planning process includes preparing students and staff for possible dangers.

- Regular drills at the schools for hazards like fires, severe weather, earthquakes, evacations, intruders, bomb threats and environmental hazards
- Regular updating of the crisis response plan
- Regular training of the crisis response teams

RESPONSE:

In order to make our crisis response plans as effective as possible, Park Hill worked with our first responders from every police, fire, ambulance, health and mental health department with a district school in its jurisdiction.

- Extensive plans for evacuations, relocations, lock-downs and many other safety measures
- Secure online access for crisis responders to plans, maps, site hazards and necessary information about students and staff

RECOVERY:

After a crisis, the district will work to help students and staff recover from the experience and get back to a sense of normalcy.

- Work with district counselors, local mental health workers and local clergy to provide counseling to those affected
- Return to the learning process as soon as possible

POSSIBLE GOALS AND ACTIONS FOR FUTURE IMPROVEMENTS:

To keep our crisis response plan up-to-date with the latest safety threats, we are working on a Regional Hazard Mitigation Plan with the Platte County Sheriff's Department and the Mid-America Regional Council.

Together, we identified possible actions for improving Park Hill's emergency preparation, which are aligned with a goal from our strategic plan (CSIP), "Ensure a safe, caring environment for students, staff and visitors."

- Purchase a portable, three-phase generator to supply electrical power in case of an emergency.
- Purchase additional external cameras to further reduce property damage and identify potential threats to the school.
- Purchase additional network storage to increase archived video storage.
- Purchase software or devices to improve internal and external communication during a crisis.

If you have any questions or feedback about the district's crisis response plan or our possible goals for improvement, please contact Director of Student Services Dr. Josh Colvin at (816) 359-4036.

Wednesday, April 15, 2015
REGULAR BOARD MEETING

AGENDA
WEST PLATTE BOARD OF EDUCATION REGULAR MEETING
935 WASHINGTON ST., WESTON, MO 64098
6:00 P.M.
WORK SESSION
7:00 P.M.
REGULAR SESSION AND REORGANIZATION MEETING
EXECUTIVE SESSION IMMEDIATELY FOLLOWING
BOARD OF EDUCATION CONFERENCE ROOM

1. Work Session

A. Facilities/Construction

2. Call To Order

A. Pledge of Allegiance

B. Approve or Amend Agenda

3. Reorganization of the Board

A. Official Election Results Recognized and Accepted

B. Sine Die of the 2014-15 Board of Education

C. Election of the 2015-16 Board of Education President

D. Election of the 2015-16 Board of Education Vice-President

E. Appointment of the 2015-16 Board of Education Secretary

F. Appointment of the 2015-16 Board of Education Treasurer

4. Transfer of Funds and Action on Bills/Voucher

A. Approval of Bills/Voucher

B. Action on Bills Requiring Abstentions

5. Consent Agenda

A. Approve Minutes

B. Financial Reports

6. Administrative Reports

A. Elementary Principal

B. High School Principal

C. Director of Special Services

D. Director of Curriculum, Instruction, Assessment

E. Superintendent

7. Old Business

A. RACE Program

B. Bonds

C. West Platte Education Foundation- Board Member

8. New Business

A. Support Staff Salary Schedule

B. Hazardous Mitigation Plan

C. Mosaic

D. Policy BBFA Update/Missouri Ethics Commission Person Financial Disclosure

E. MSBA Policy Updates

F. Math Series

9. Correspondence

A. Patron Input on Agenda Items

B. Correspondence

10. Board Member Input

11. Executive Session

A. Move to executive session to discuss personnel matters in accordance with revised statues of Missouri Section 610.021 (3)(13)

12. Adjourn

A. Adjourn

MINUTES OF THE REGULAR MEETING
OF THE WEST PLATTE R-II BOARD OF EDUCATION
WEDNESDAY, APRIL 15, 2015

Call to Order

The work session was called to order at 6:02 p.m. and ended at 6:48 p.m. The regular board meeting of the West Platte R-II Board of Education was called to order at 7:04 p.m. in the High School Library, 935 Washington Street, by Ron Rowe, Vice President.

Members Present:

Shane Bartee, Member
Ryan Rotterman, Member
Kyle Stephenson, Member
Antonio Cutolo-Ring, Member
Ron Rowe, Vice President
Dr. Donald Wilson, Member

Shannan Eagen, Secretary

Members Absent:

Tracie Kalic, Member

Administrators Present

Dr. Francis Moran, Superintendent
Dr. Regina Knott, Dir. of Special Services
Dr. Mark Harpst, Special Projects Coordinator
Dr. Logan Lightfoot, High School Principal
Ms. Kathy Miller, Curriculum and Prof. Dev.

Work Session

Dr. Harpst discussed the upcoming construction projects. Gordon Kimball with HTK discussed the projects.

Pledge of Allegiance

Dr. Moran led the Board in the Pledge of Allegiance.

Approval/Amendment of Agenda

MOTION by Dr. Donald Wilson SECONDED by Ryan Rotterman to approve the agenda as presented. Approved 6-0.

Reorganization of the Board

Official Election Results Recognized and Accepted

MOTION by Shane Bartee SECONDED by Antonio Cutolo-Ring to recognize and accept the official election results. Approved 6-0.

Sine Die of the 2014-15 Board of Education Meeting

MOTION by Shane Bartee SECONDED Antonio Cutolo-Ring to dissolve the 2014-15 school board by adjourning sine die. Approved 6-0.

Election of the 2015-16 Board of Education President

MOTION by Ryan Rotterman SECONDED by Antonio Cutolo-Ring to nominate Ron Rowe Board President. Kyle Stephenson moved to cease nominations. Motion to elect Ron Rowe passed. Approved 6-0.

Election of the 2015-16 Board of Education Vice-President

MOTION by Shane Bartee SECONEDED by Antonio Cutolo-Ring to nominate Ryan Rotterman for Board Vice President. Kyle Stephenson again moved to cease nominations. Motion to elect Ryan Rotterman passed. Approved 6-0.

Appointment of the 2015-16 Board of Education Secretary

MOTION by Ryan Rotterman SECONDED by Dr. Donald Wilson to appoint Shannan Eagen Board Secretary. Approved 6-0.

Appointment of the 2015-16 Board of Education Treasurer

MOTION by Ryan Rotterman SECONDED by Shane Bartee to appoint Earlene Fulk Board Treasurer. Approved 6-0.

Approval of Bills/Vouchers and Transfer of Funds

MOTION by Ryan Rotterman SECONDED by Antonio Cutolo-Ring to approve the payment of the bills/vouchers as presented. Approved 6-0.

Approval of Consent Agenda

Disposition of the Minutes

The minutes of the regular meeting of March 18, 2015, were included for review and approval. MOTION by Ryan Rotterman SECONDED by Shane Bartee to approve the minutes of the March 18, 2015, meeting as presented. Approved 6-0.

Financial Reports

Dr. Moran shared the March end of month balances.

Administrative Reports

Elementary Principal

Ms. Rebecca Henshaw was absent due to illness. Her written report was included for the Board. Dr. Moran asked the Board for verbal approval of Project Lead the Way. This STEM program includes modules which align to elementary standards. Participation fee for the program is $750/year and the average price of each module is $350. The Board was in support of this program.

High School Principal

Dr. Logan Lightfoot shared his written report. Kyle Stephenson commented that he was appreciative of the ACT Prep nights being offered but would prefer to see it offered on a night with fewer conflicts.

Director of Special Services

Dr. Knott shared the MAP testing schedule as well as the letters that went out to parents.

Director of Curriculum, Instruction and Professional Development

Kathy Miller updated the Board on the progress being made on the development/assessment of the curriculum as stated in Strategy 9 of the CSIP.

Superintendent

Dr. Moran discussed the most recent legislative report.

Old Business

RACE Program

Scenario 1: Each student could take up to one Dual Credit course and one Advanced Placement course per year. Each of these courses offers either a $200 scholarship or a $200 course reimbursement, depending on which course they are taking, for a total of $400. If 60 students per year took the maximum number of courses, we would incur a maximum cost of $24,000.00.
Scenario 2: Each student could take up to three courses per year. Students would have the option of enrolling in two Advanced Placement courses and one Dual Credit course OR one Advanced Placement course and two Dual Credit courses (never three in the same category per year). Each of these courses offers either a $200 scholarship or a $200 course reimbursement, depending on which course they are taking, for a total of $600,00. Assuming 60 students per year took the maximum number of courses, we would incur a maximum cost of $36,000.00.

Dr. Lightfoot shared two different cost estimates. Scenario 1 could cost up to $24,000 and would cover one Ducal Credit Course and on AP course per year. Scenario 2 could cost up to $36,000 and would cover up to three courses per year. The Board would like Dr. Lightfoot to make sure that these "scholarships" don't affect a student's eligibility for college athletics. Shane Bartee voiced his concerns with the hours of community service required from these already very busy kids.
MOTION by Dr. Donald Wilson SECONDED by Kyle Stephenson to approve RACE Program scenario 2. Approved 6-0.

Bonds

This item was tabled until next month.

West Platte Education Foundation- Board Member

Shane Bartee has offered to serve on the West Platte Education Foundation.

MOTION by Ryan Rotterman SECONDED by Antonio Cutolo-Ring to appoint Shane Bartee the Board representative to the West Platte Education Foundation. Approved 6-0.

New Business

Support Staff Salary Schedule

MOTION by Antonio Cutolo-Ring and SECONDED By Dr. Donald Wilson to adopt the 2015-16 support staff salary schedule as presented and to remove the limit on experience. Approved 6-0.

Hazardous Mitigation Plan

Dr. Knott updated our Hazardous Mitigation Plan.

MOTION by Shane Bartee SECONDED by Antonio Cutolo-Ring to approve the updated Hazardous Mitigation Plan. Approved 6-0.

Mosaic

We currently have level II coverage and would like to upgrade the services. Level II costs $5,500 and Level III will cost $15,000. Dr. Moran has asked that they cover all high school level games. They will be at 2 practices per week. This is a 1 year pilot program.

MOTION by Shane Bartee SECONDED by Kyle Stephenson to approve the Level III services with Mosaic. Approved 5-0-1R.Rowe.

Policy BBFA Update/Missouri Ethics Commission PFD

This is a first reading. Action will need to be taken at the May Board Meeting.

MSBA Policy Updates

Policies INC, GDC, and IGDAB were included for Board review. This is a first reading. Action will need to be taken at the May Board Meeting.

Math Series

Ms. Henshaw and the elementary classroom teachers previewed three different math series. They came to the conclusion that the Houghton-Mifflin series best fit their needs. Dr. Moran noted that this had been a very deliberate and thorough process.

MOTION by Kyle Stephenson SECONDED by Dr. Donald Wilson to approve the purchase of the Houghton-Mifflin Math Expression/Go Math Series for grades K-6 with a total cost not to exceed $62,080.69 as recommended. Approved 6-0.

Correspondence

Patron Input on Agenda Items

Individuals or groups requesting time on the agenda for a Board meeting are recognized at the beginning of each meeting. Individuals wishing to request time on the agenda must submit written notification to the Superintendent by noon on the Friday before the Board meeting. The request needs to state the matter to be addressed. If the request is from a delegation or organization, comments before the Board are made by a spokesperson for the group. Persons making written requests for time on the agenda are given five minutes for their presentations. Also, citizens who have not requested prior approval in writing may address the Board by signing a request to speak sheet no later than 15 minutes before the scheduled meeting time. In this case, speakers may address the Board for up to three minutes.

Board Member Input

Shane Bartee had received correspondence regarding a bill that would consolidate school districts that have an enrollment of less than 350 students. Mr. Bartee spoke directly with Representative Kurt Barh.

Adjournment into Executive Session Time: 8:04 p.m.

MOTION by Donald Wilson SECONDED by Ron Row to open executive session pursuant to 610.021 (3) of the Revised Statutes of Missouri for the purpose of the hiring, firing, disciplining or promoting of particular employees when personal information about the employee will be discussed or recorded and pursuant to Section 610.021 (13) of the Revised Statues of Missouri for the

purpose of individually identifiable personnel records, performance ratings or records pertaining to employees or applicants for employment.

Roll Call Vote:

Shane Bartee – yes
Antonio Cutolo-Ring – yes
Tracie Kalic- absent
Ryan Rotterman – yes
Ron Rowe – yes
Kyle Stephenson - yes
Donald Wilson - yes

Open Session resumed at 9:12 p.m.

Adjournment **Time: 9:14 p.m.**

MOTION by Ryan Rotterman SECONDED by Shane Bartee to adjourn. Approved 6-0.

_____
President

Attest:

_____
Secretary

Draft minutes pending approval at the May 20, 2015 meeting.

This message was posted on the City of Richmond's website:

Richmond Fire Department
101 E. Lexington St., Richmond, MO
Phone: 816-776-2115
Website: richmondmofire.com

The mission of the Richmond Fire Department is to protect the lives and property of the citizens of the City of Richmond and the surrounding area. It is the goal of each member of the fire department to take the necessary steps when presented with an emergency to render the situation safe.

Protecting the community since 1899, the Richmond Fire Department uses the latest in fire suppression and emergency medical technology to protect its citizens.

The department is comprised of nine career and 16 volunteer firefighters. Career firefighters participate in fire and medical training from local, state and national training entities. Volunteer firefighters bring a wealth of knowledge and abilities form their individual fields that allow the department to professionally and efficiently deal with situations ranging from hazardous materials, medical emergencies and fires to structural collapse and hazardous rescues.

In total, the Richmond Fire Department operates three pumpers, two brush trucks, a rescue unit, a 3500 gallon tanker and an 85 foot aerial apparatus. Also the department incorporates a fire safety trailer for the delivery of fire prevention training throughout the year.

The Richmond Fire Department has the equipment and ability to execute many types of rescues, from auto extrication with the Hurst Tool to cardiac resuscitation with automatic external defibrillators. Although small in size, the Richmond Fire Department continues to have the skills and technology to serve the needs of the Richmond community.

Invitation for community input for the Hazardous Mitigation Plan:

The City of Richmond is participating in an update process of a Regional Hazard Mitigation Plan which covers communities in Cass, Clay, Jackson, Platte and Ray counties in Missouri. The goal of the Regional Hazard Mitigation Plan is to reduce loss of life, property, human suffering, economic disruption, and disaster assistance cost from natural and man-made disasters. Participating jurisdictions are required to

identify the hazards that would have the greatest inpact on their community. Participation in this place update process will allow Richmond to be eligible to apply for certain FEMA grant funds, should funding be appropriated in the future for those grant sources.

The City of Richmond has identified the following hazards as having the greatest impact: Tornadoes, Flooding, Severe Thunderstorms, and Severe Winter Weather. In order to address these hazards, Richmond has developed goals and actions that will help the City incorporate mitigation strategies into their routine operations and their future plans. The following describes the mitigation activities proposed by Richmond:

• Ensure that systems are in place to communicate tornado warnings.

• Update plans to ensure that current resources and information is included for quick and effective response.

• Educate and raise awareness about the variety of roles and responsibilities needed before and after tornadoes.

• Increase public awareness and understanding about the hazards associated with thunderstorms such as lightning and winds.

The specifics for these goals and actions can be found here.

The City of Richmond values the input of the public and would like to invite comment about the mitigation activities proposed for the next five years. To submit your comment, please email: LHastings@cityofrichmondmo.org.

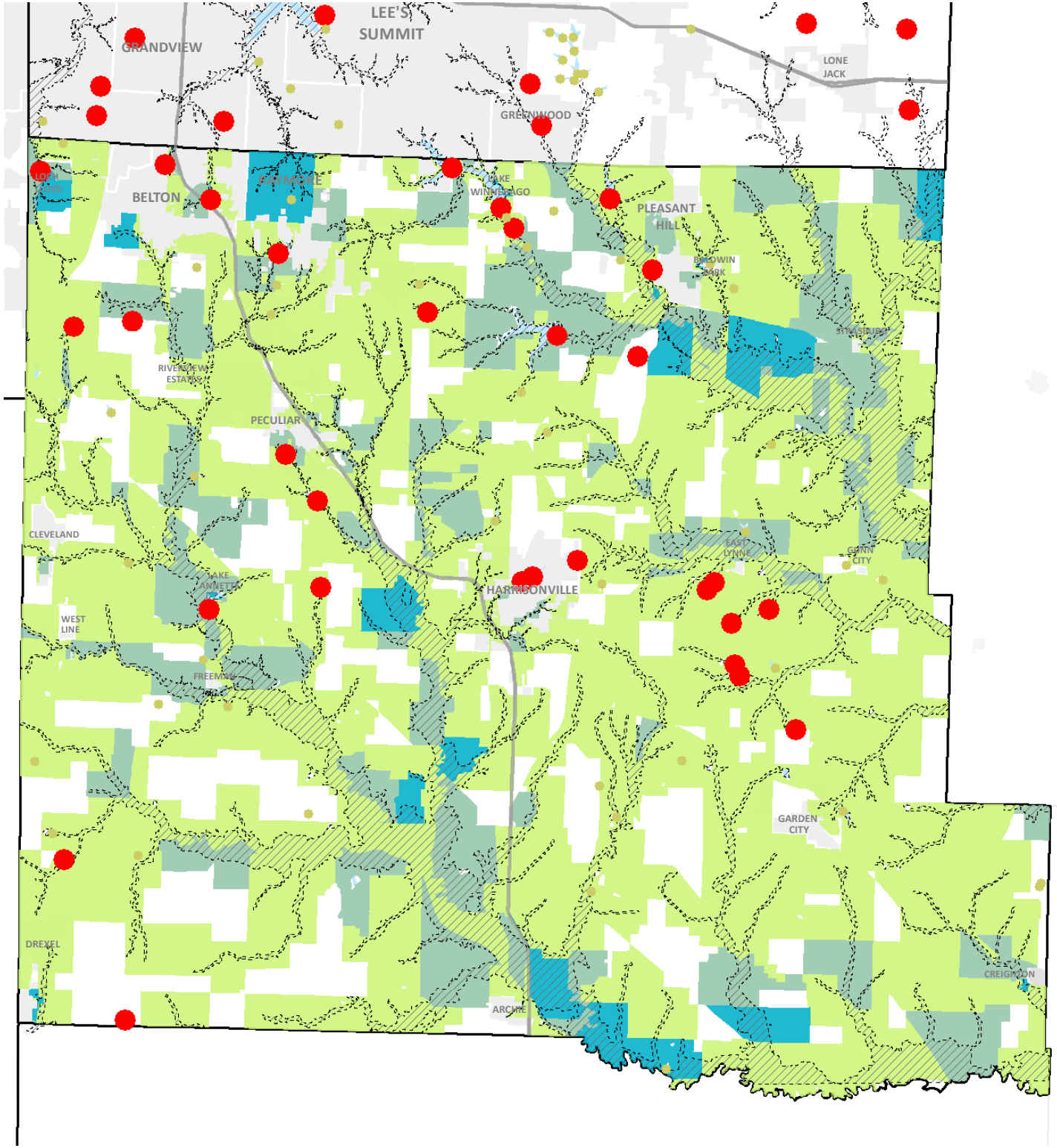
Appendix C: Maps and References

I. Supplemental Hazard-Specific Information

- **Flood Analysis Maps (Flood Zones, Dams, Critical Infrastructure) by Jurisdiction**
- **Flood Area Parcel Value Table by Jurisdiction**
- **Critical Infrastructure Tables by Jurisdiction**
- **100-Year Floodplain and Selected Critical Infrastructure Map and Table by Jurisdiction**
- **Levee-Protected Areas and Selected Critical Infrastructure Map and Table by Jurisdiction**
- **Dam Inundation Maps for Jackson County**

II. Supplemental Jurisdiction-Specific Information

- **Land Use Acreage Tables by Jurisdiction**
- **Population and Employment Forecast Table by Jurisdiction**
- **Vulnerable Populations Table by Jurisdiction**
- **Building Counts and Valuation Tables by Jurisdiction**



Cass County Flood Loss Estimates (HAZUS)

Hazard Level of Dams
- Low
- Significant
- High
- HAZUS Flood Boundary

Total Direct Economic Loss ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 1,458

Total Loss : $75,444,000

Building Loss : $40,821,000

Contents Loss : $33,415,000

Inventory Loss : $794,000

Wage Loss : $371,000

Income Loss : $29,000

Relocation Costs : $13,000

Rental Income Loss : $1,000

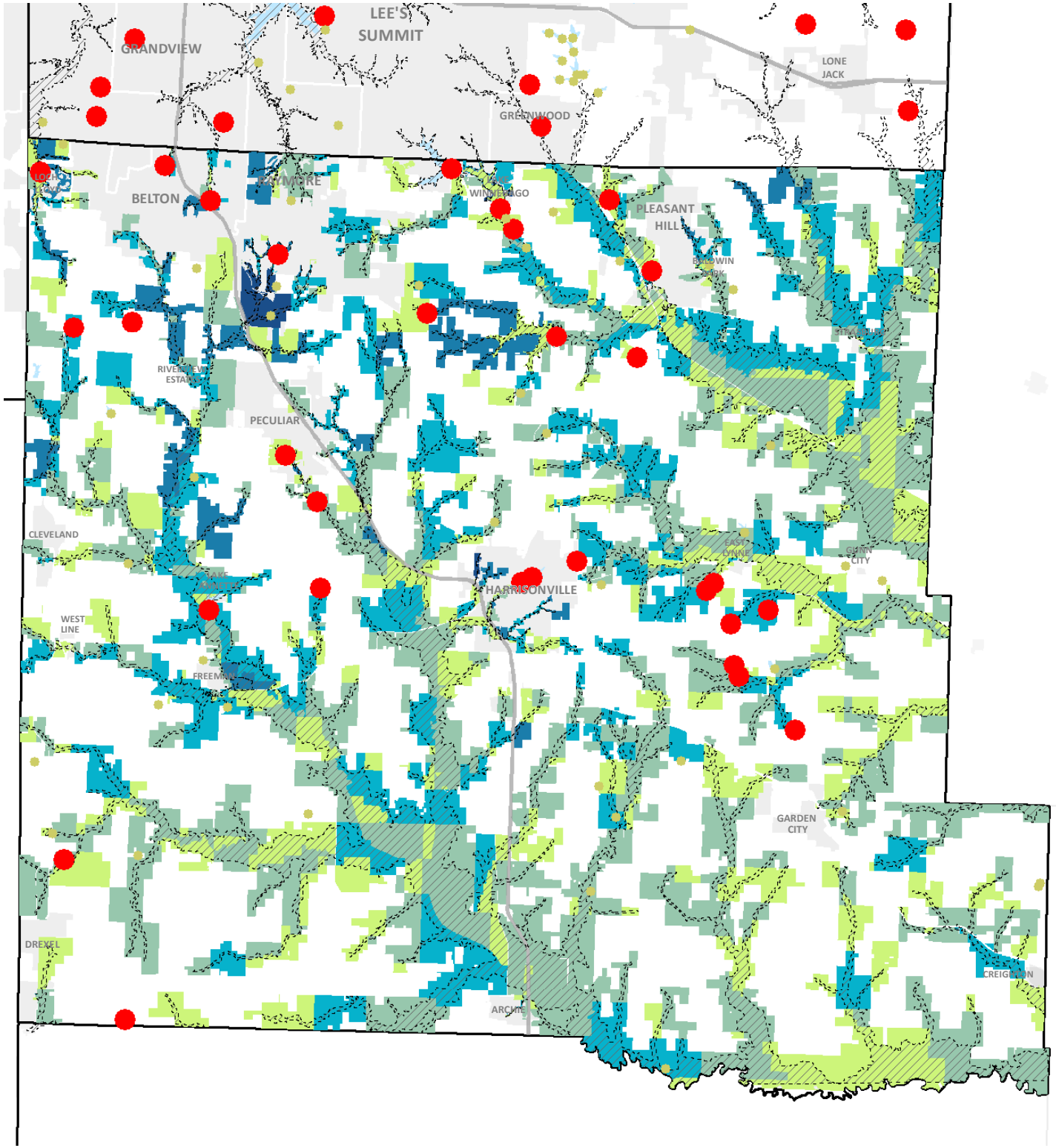
Buildings in Flood Boundary : 1,759

Buildings in Leveed Area : 0

Note: HAZUS estimates for General Building Stock are based on Census block level geographies.



Appendix C: Flood Analysis Maps by Jurisdiction
(48 Pages)



Cass County Flood Loss Estimates (Parcels)

Hazard Level of Dams
- Low
- Significant
- High
- HAZUS Flood Boundary

Parcel Improvement Value ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 6,673

Improvement Value : $566,109,470

Land Value : $180,925,380

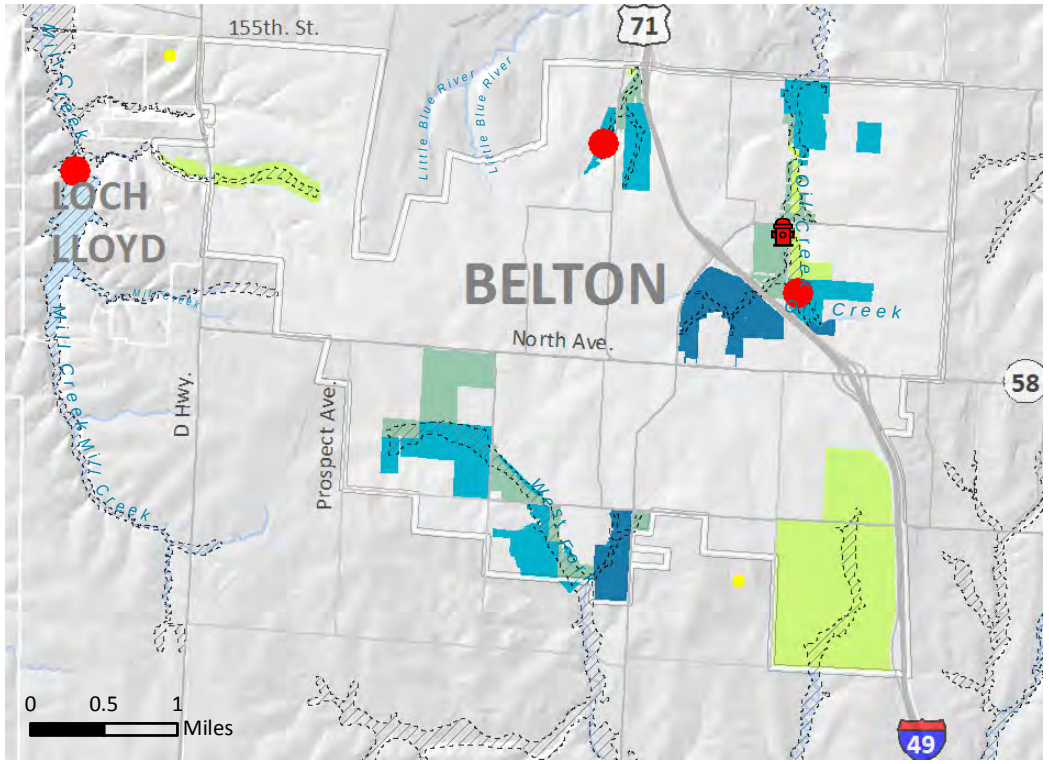
Total Value : $747,034,850

Buildings in Flood Boundary : 1,759

Buildings in Leveed Area : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county. Parcels have been aggregated/dissolved by census block geographies for comparison with HAZUS data.





Belton Flood Loss Estimates (Parcels)

Total affected parcels : 246

Total Imprvmt. Value : $24,699,980

Total Land Value : $8,882,310

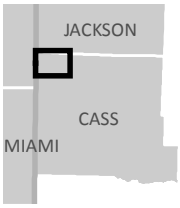
Total Value : $33,582,290

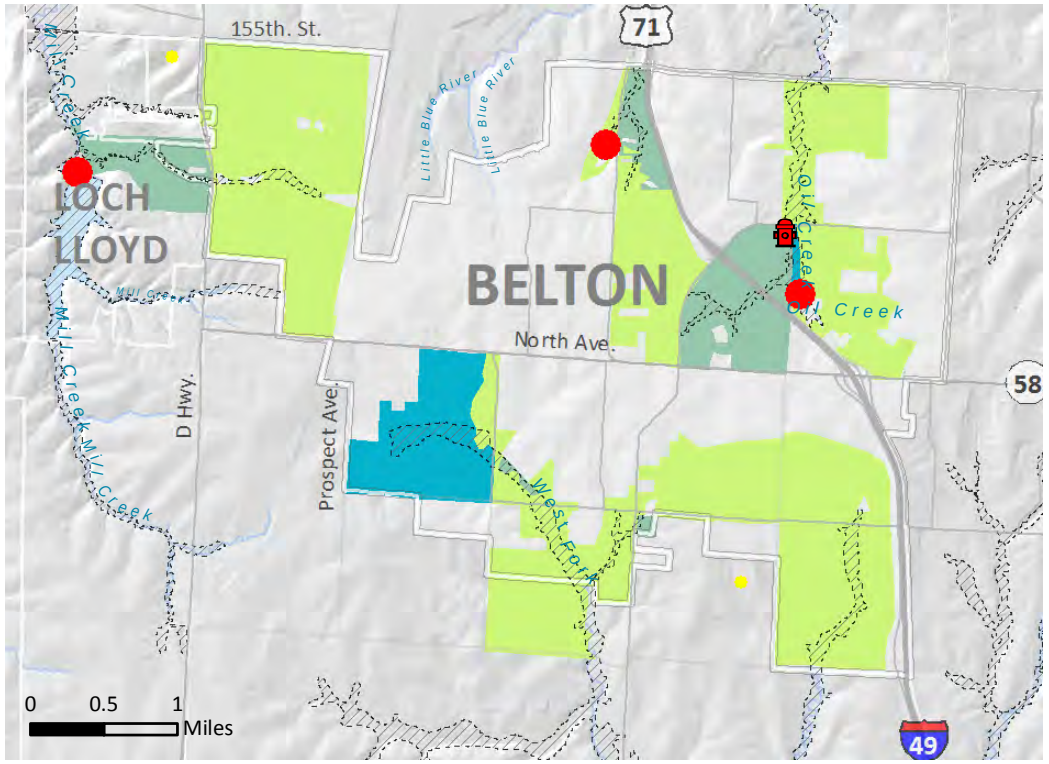
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 178

Note: Parcel estimates for loss are based on 2012 county parcel data for improvement value. Parcels have been aggregated / dissolved by census block geographies for comparison with HAZUS data.





Belton Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 63

Total Loss : $4,143,000

Building Loss : $1,618,000

Contents Loss : $2,412,000

Other Loss : $113,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 178

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

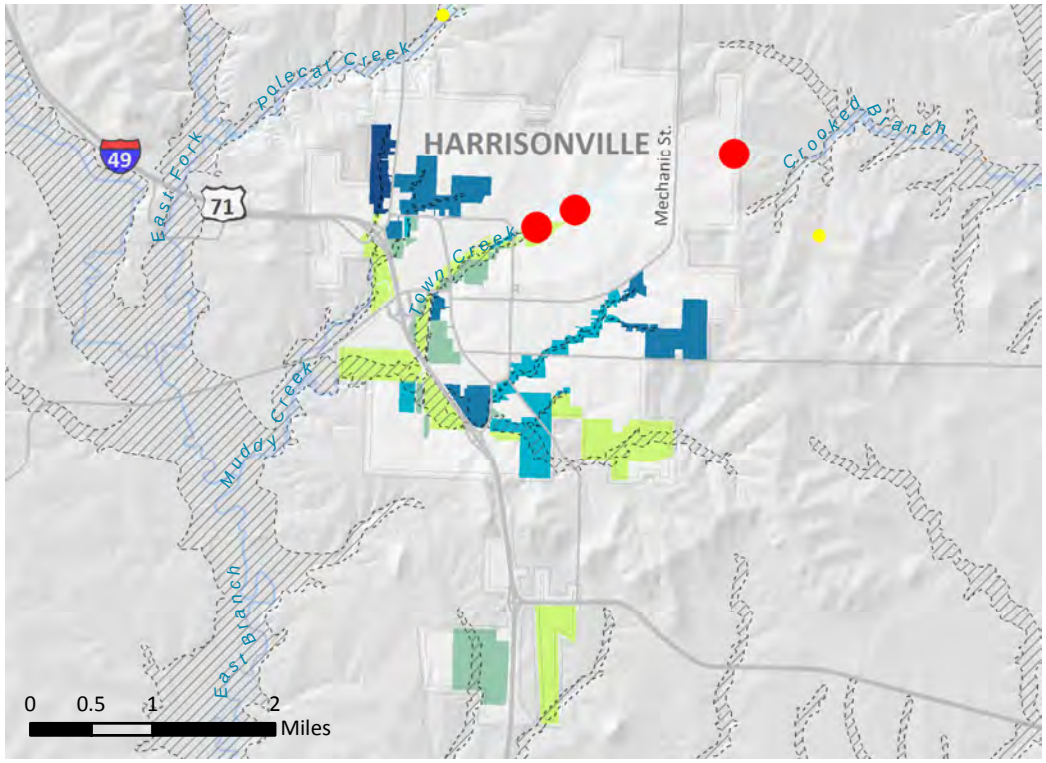
Critical Facilities in Flood Boundary

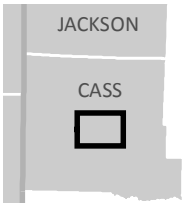
- Fire (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Harrisonville Flood Loss Estimates (Parcels)

Total affected parcels : 275

Total Imprvmt. Value : $50,390,790

Total Land Value : $12,774,270

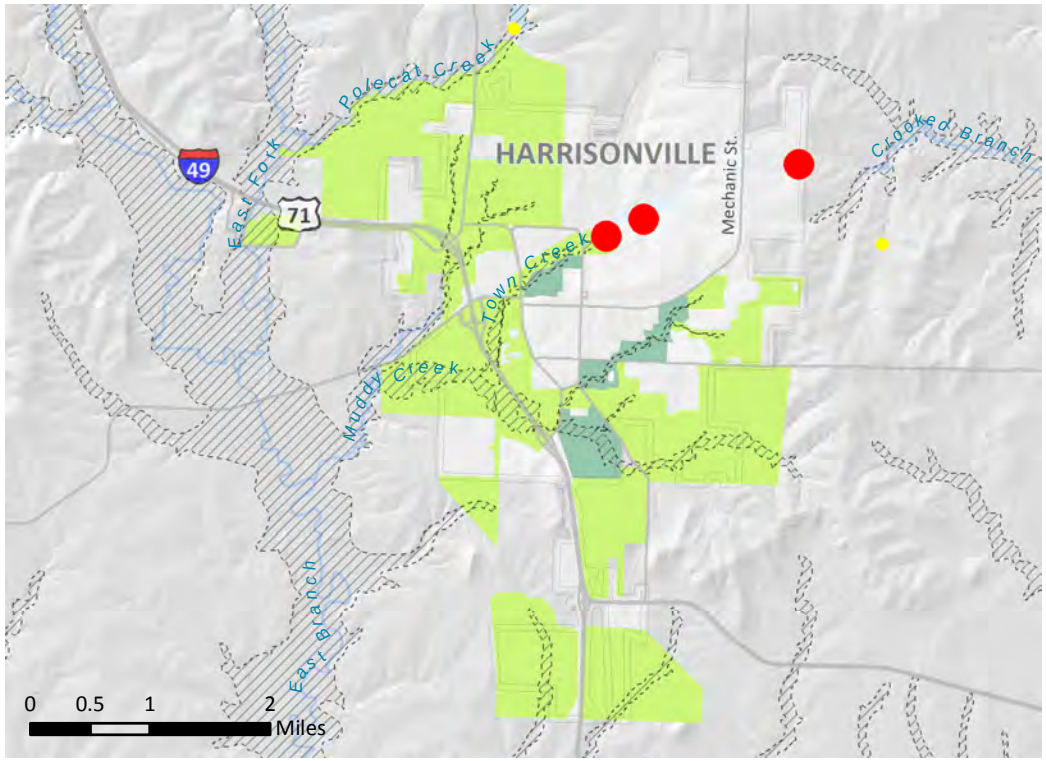
Total Value : $63,165,060

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 67

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Harrisonville Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 76

Total Loss : $2,862,000

Building Loss : $1,040,000

Contents Loss : $1,738,000

Other Loss : $113,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

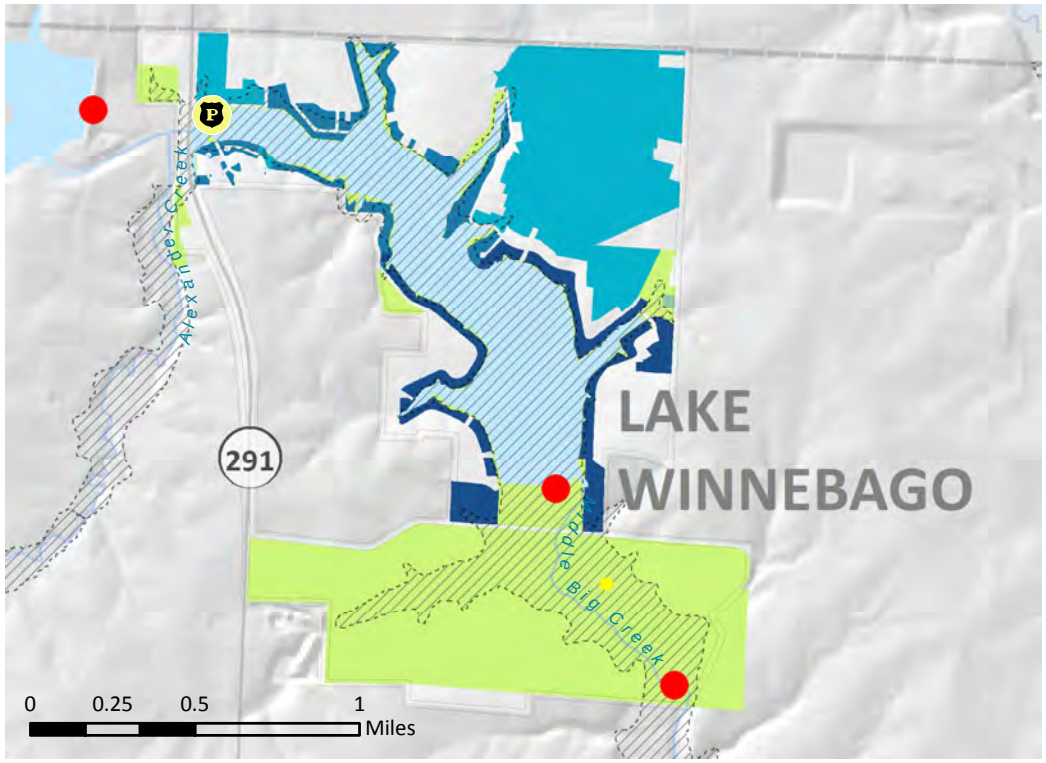
Buildings in Flood Boundary : 67

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary



JACKSON

CASS

Lake Winnebago Flood Loss Estimates (Parcels)

Total affected parcels : 320

Total Imprvmt. Value : $69,262,250

Total Land Value : $23,476,590

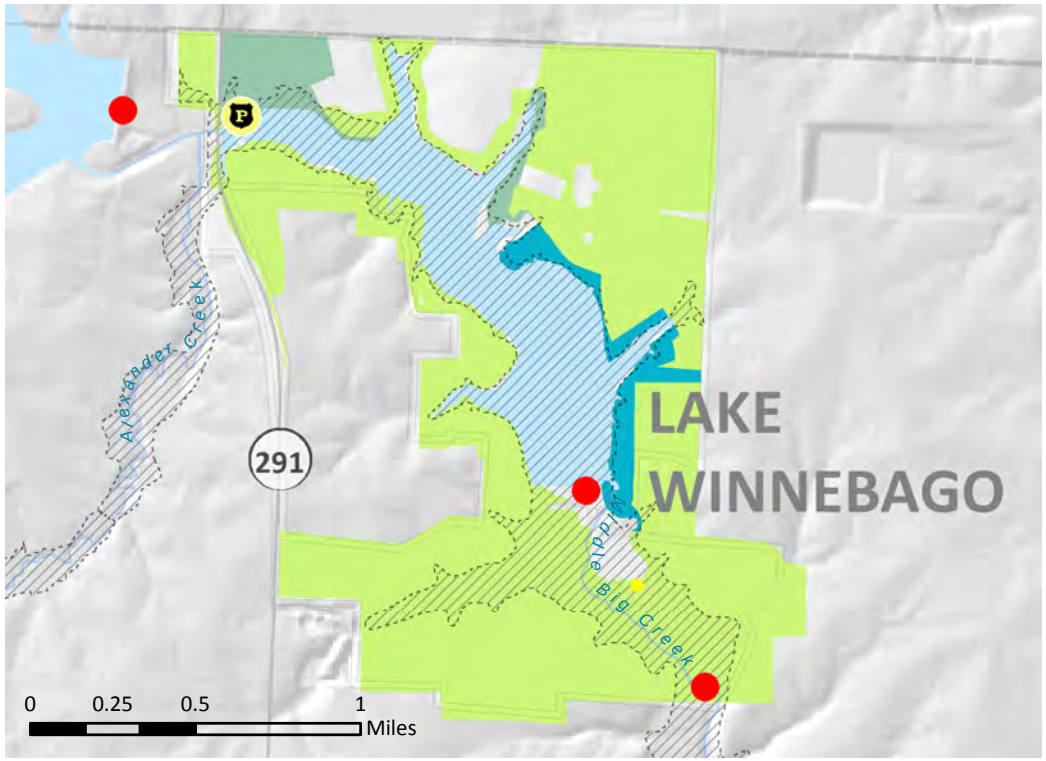
Total Value : $92,738,840

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 106

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Lake Winnebago Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 39

Total Loss : $1,755,000

Building Loss : $1,011,000

Contents Loss : $700,000

Other Loss : $44,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 106

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

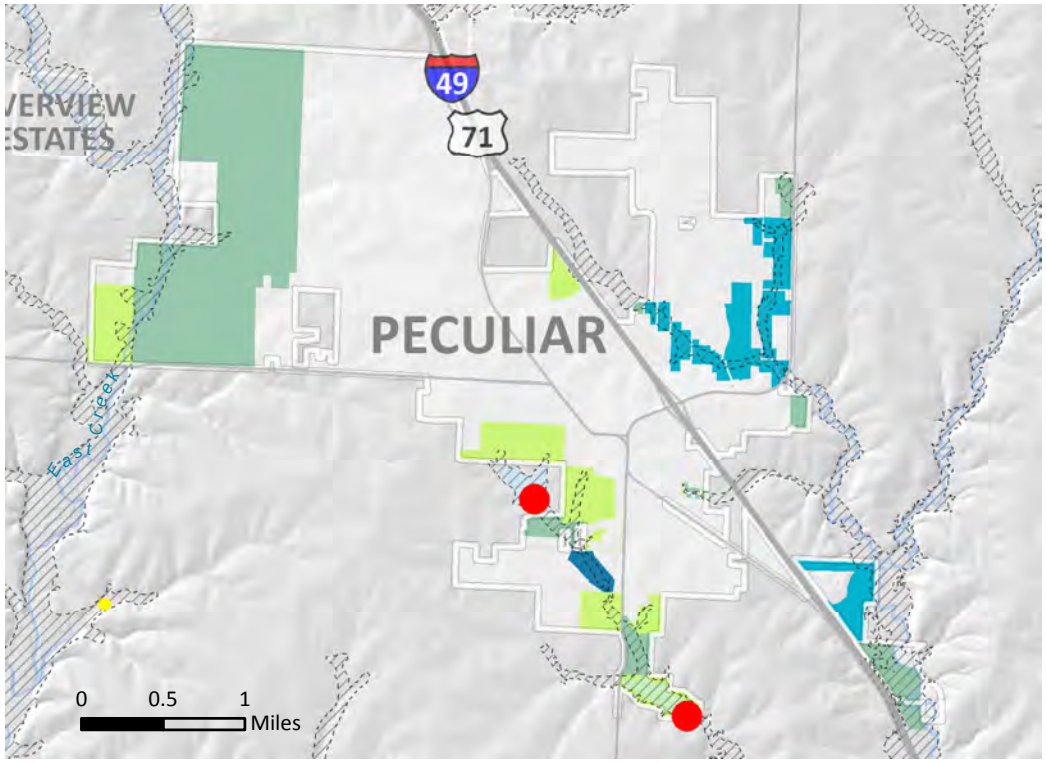
Critical Facilities in Flood Boundary

- Police (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary



Peculiar Flood Loss Estimates (Parcels)

Total affected parcels : 165

Total Imprvmt. Value : $13,861,310

Total Land Value : $3,667,210

Total Value : $17,528,520

Parcel Improvement Value ($)

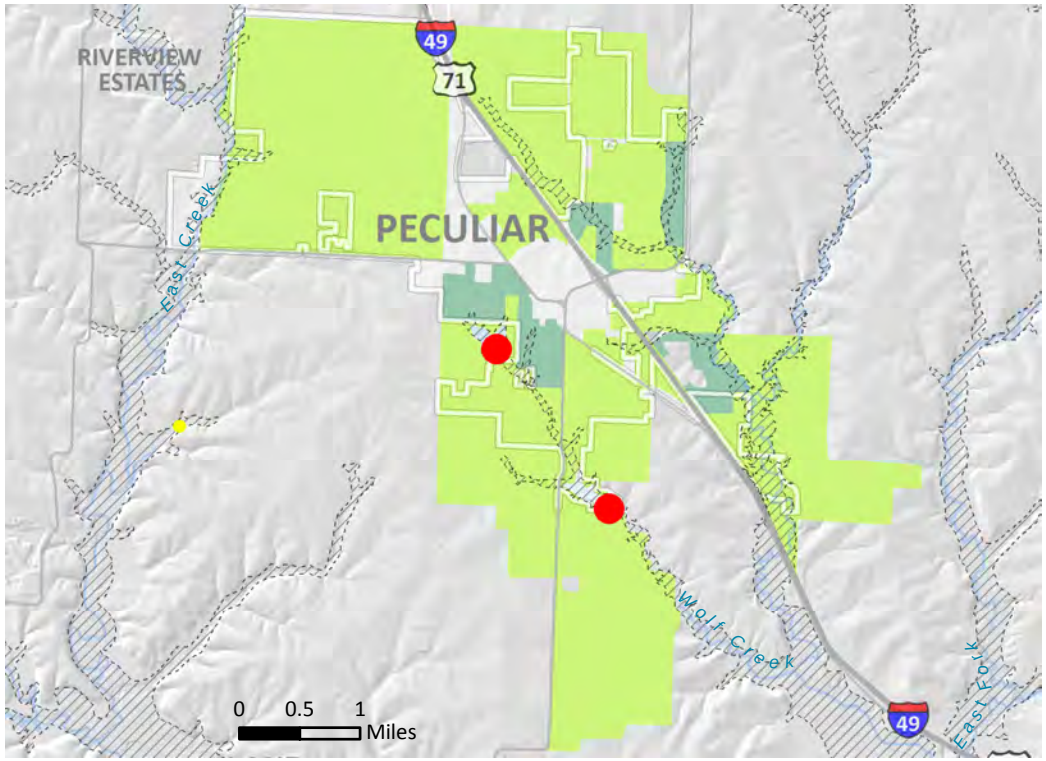
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 50

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

JACKSON

CASS



Peculiar Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 56

Total Loss : $1,768,000

Building Loss : $1,015,000

Contents Loss : $737,000

Other Loss : $16,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

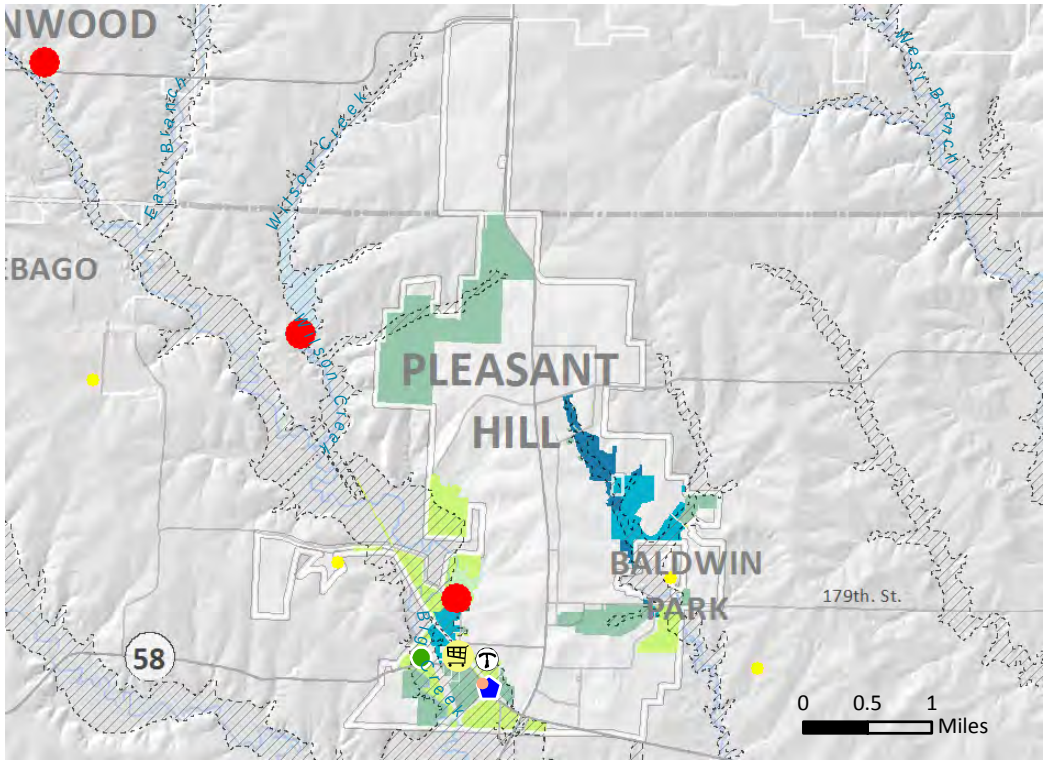
Buildings in Flood Boundary : 50

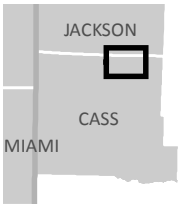
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Pleasant Hill Flood Loss Estimates (Parcels)

Total affected parcels : 365

Total Imprvmt. Value : $18,028,120

Total Land Value : $6,062,830

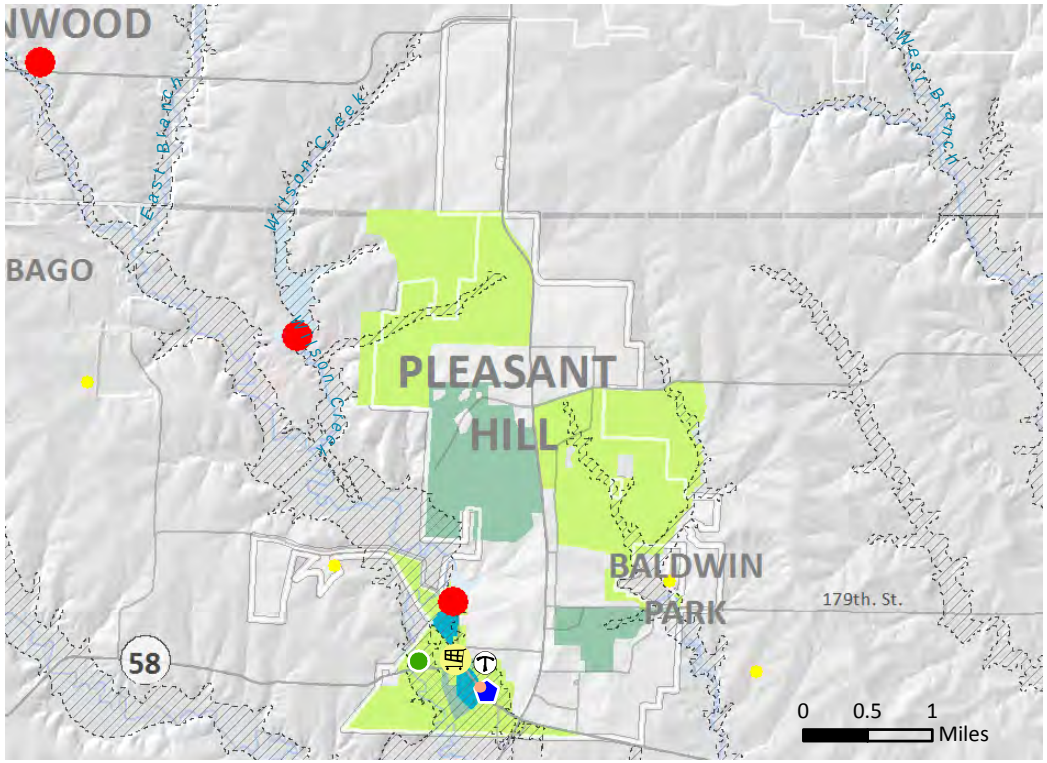
Total Value : $24,090,950

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 108

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Pleasant Hill Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 61

Total Loss : $5,723,000

Building Loss : $2,092,000

Contents Loss : $3,373,000

Other Loss : $258,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 108

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

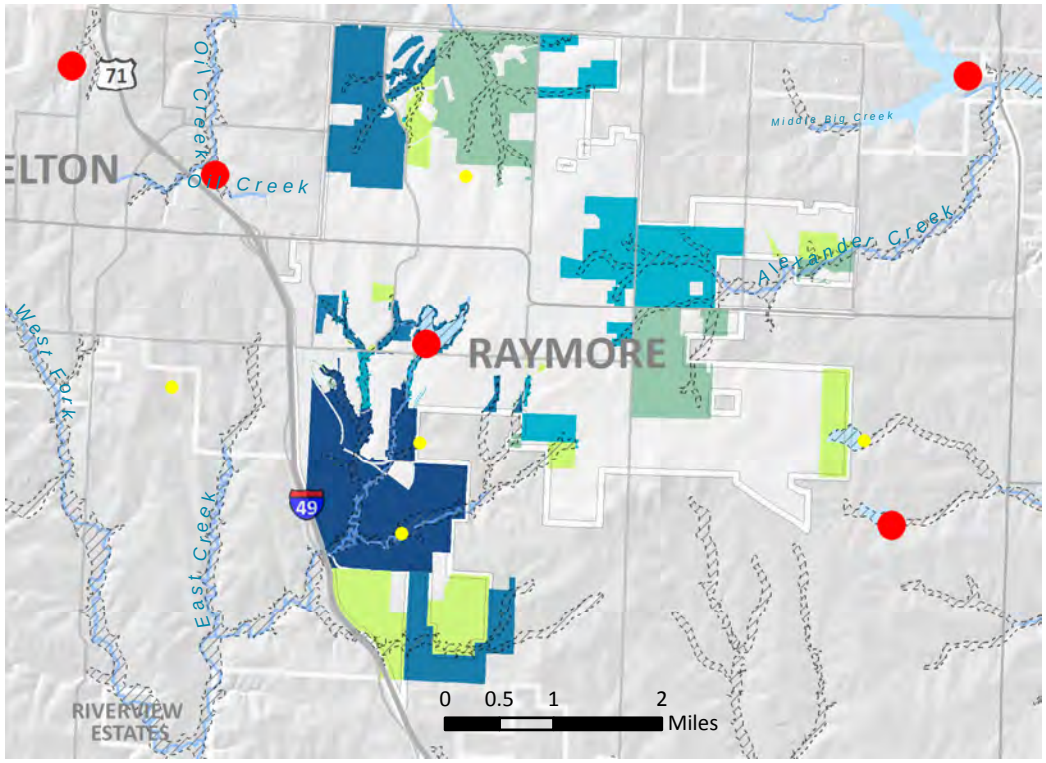
Critical Facilities in Flood Boundary

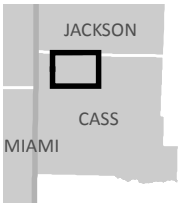
- Tier II (1)
- EPA FRS Facility (1)
- Shopping Center (1)
- Bridge (1)
- Trailer park (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Raymore Flood Loss Estimates (Parcels)

Total affected parcels : 501

Total Imprvmt. Value : $58,786,270

Total Land Value : $16,234,760

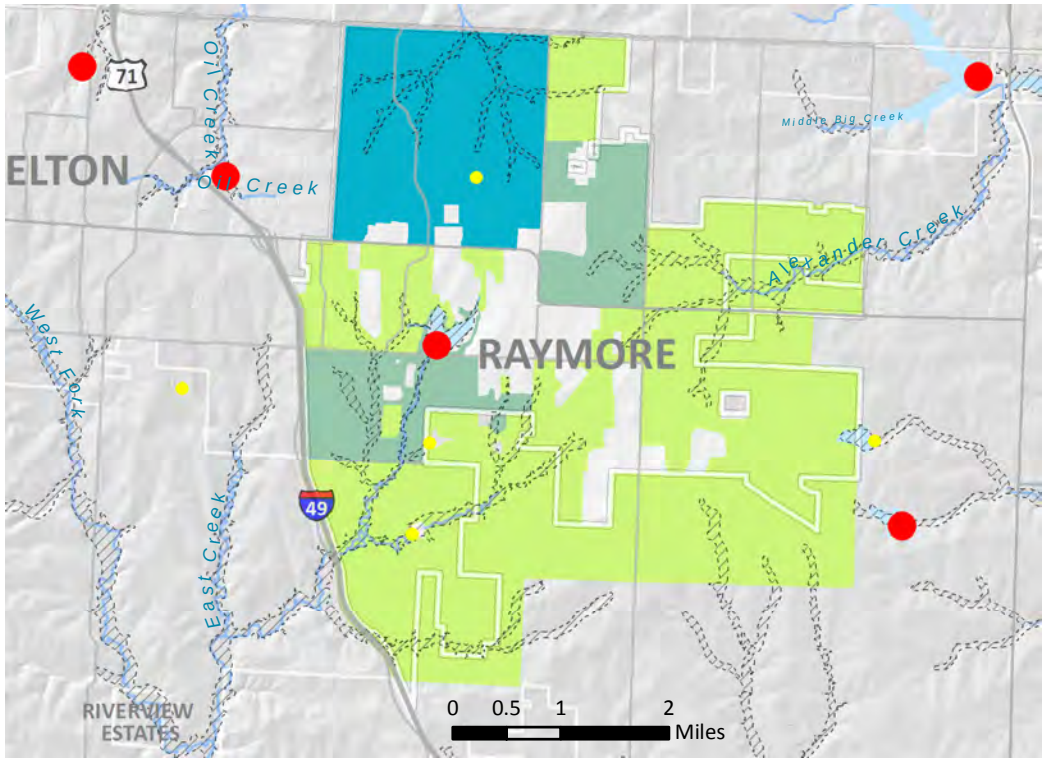
Total Value : $75,021,030

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 130

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Raymore Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 41

Total Loss : $2,201,000

Building Loss : $933,000

Contents Loss : $1,244,000

Other Loss : $24,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

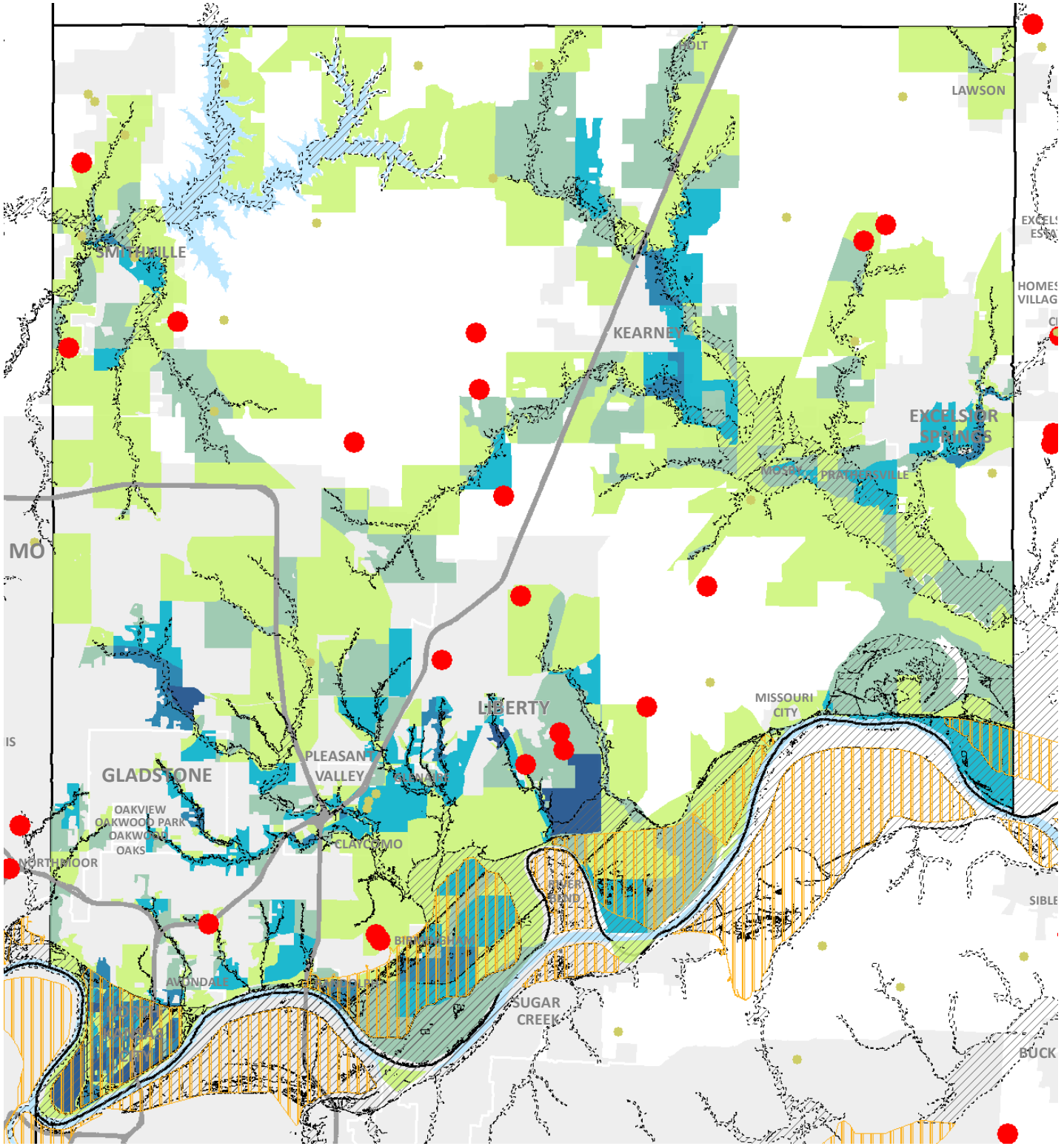
Buildings in Flood Boundary : 130

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary



Clay County Flood Loss Estimates (HAZUS)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Total Direct Economic Loss ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 1,394

Total Loss : $1,862,141,000

Building Loss : $621,025,000

Contents Loss : $1,147,230,000

Inventory Loss : $84,541,000

Wage Loss : $5,329,000

Income Loss : $2,392,000

Relocation Costs : $1,052,000

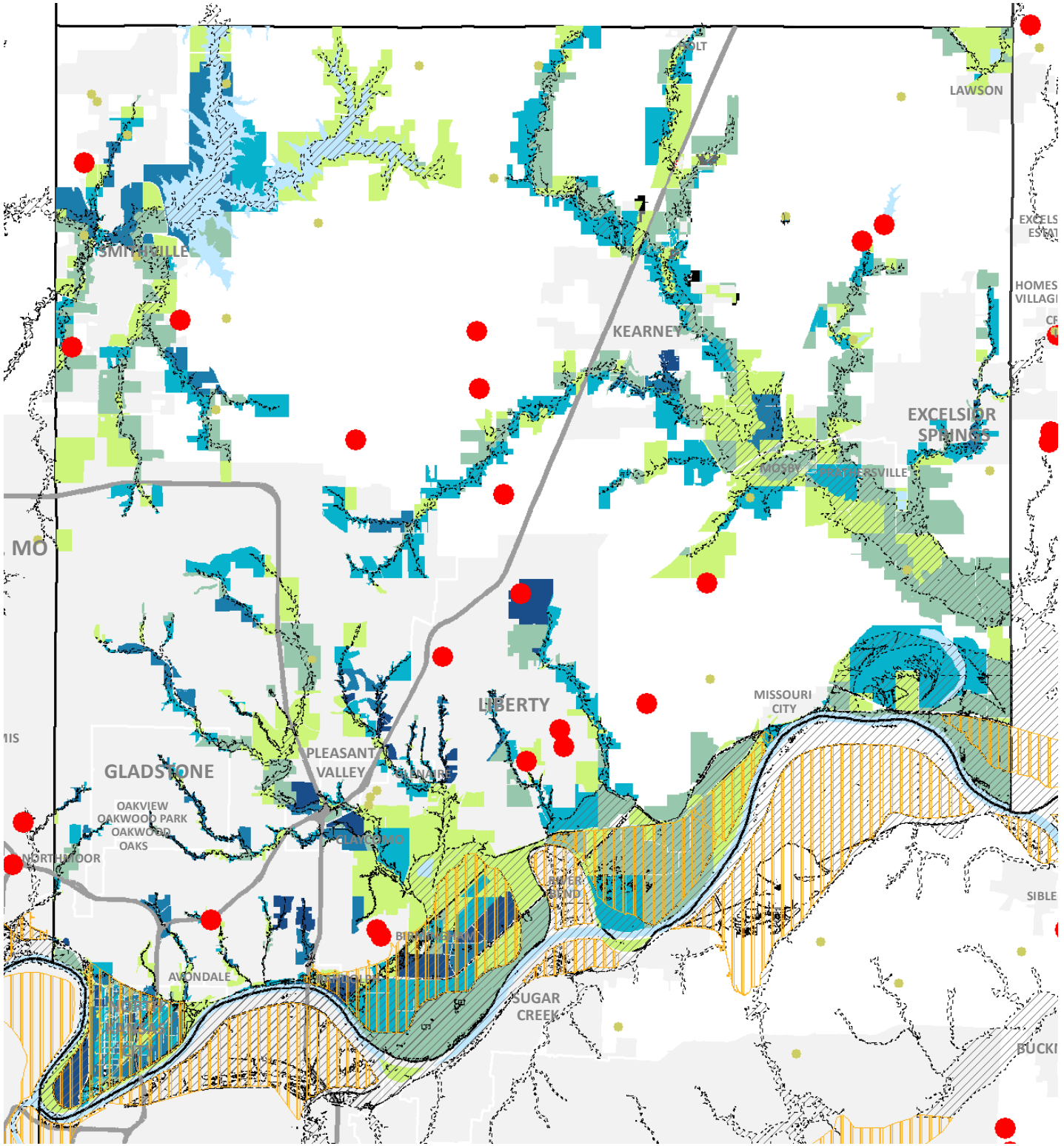
Rental Income Loss : $572,000

Buildings in Flood Boundary : 3,950

Buildings in Leveed Area : 2,606

Note: HAZUS estimates for General Building Stock are based on Census block level geographies.





Clay County Flood Loss Estimates (Parcels)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Parcel Improvement Value ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 7,010

Improvement Value : $1,258,726,345

Land Value : $629,118,420

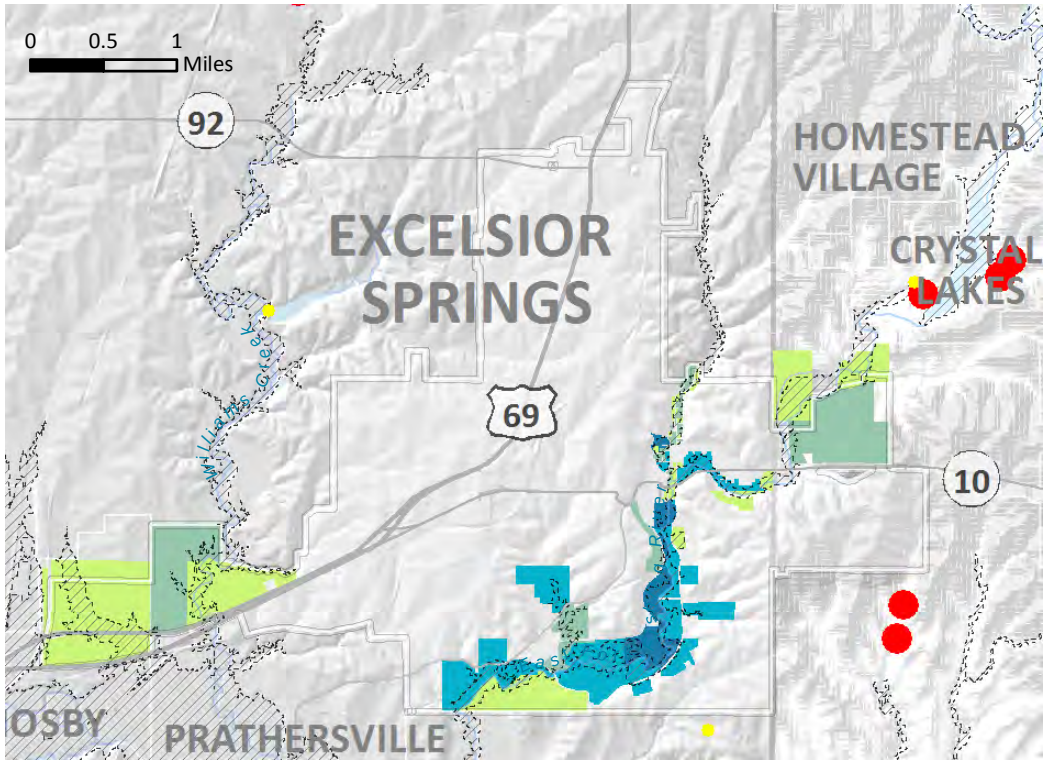
Total Value : $1,887,744,765

Buildings in Flood Boundary : 3,950

Buildings in Leveed Area : 2,606

Note: Parcel estimates for loss are based on 2012 county parcel data for improvement value. Parcels have been aggregated / dissolved by census block geographies for comparison with HAZUS data.





Excelsior Springs Flood Loss Estimates (Parcels)

Total affected parcels : 284

Total Imprvmt. Value : $22,940,495

Total Land Value : $8,099,330

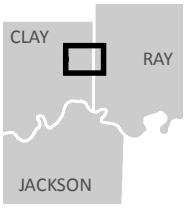
Total Value : $31,039,825

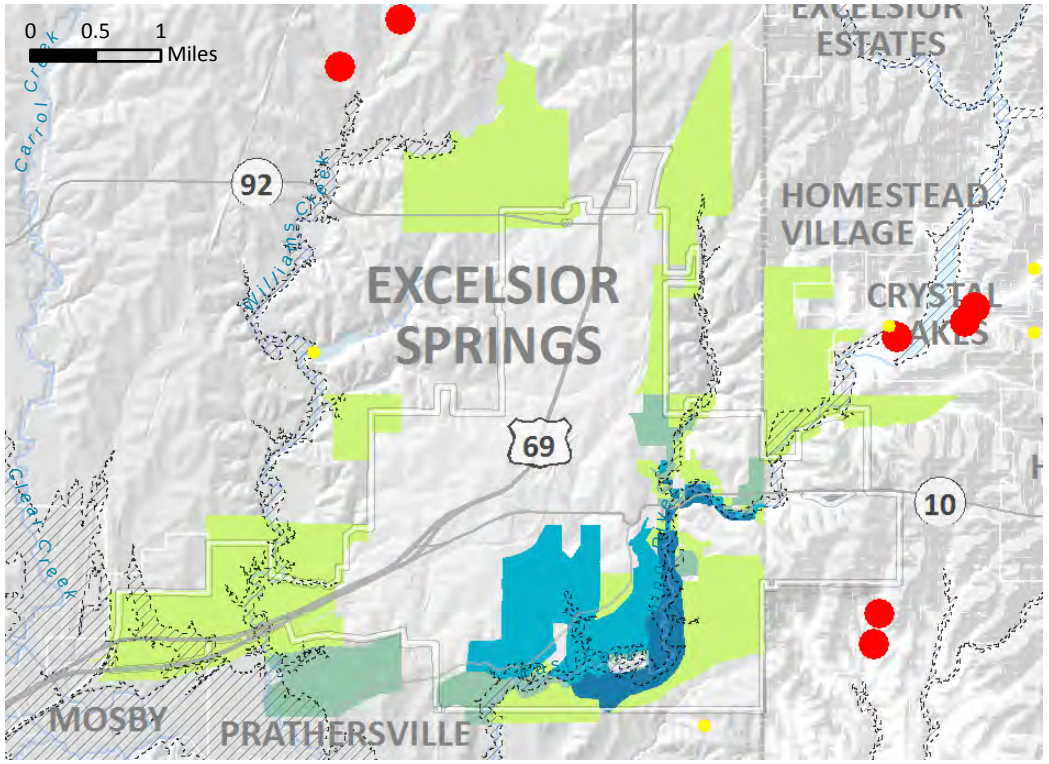
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 37

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.





Excelsior Springs Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 90

Total Loss : $44,357,000

Building Loss : $20,670,000

Contents Loss : $22,849,000

Other Loss : $838,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

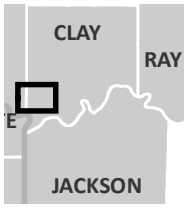
Buildings in Flood Boundary : 37

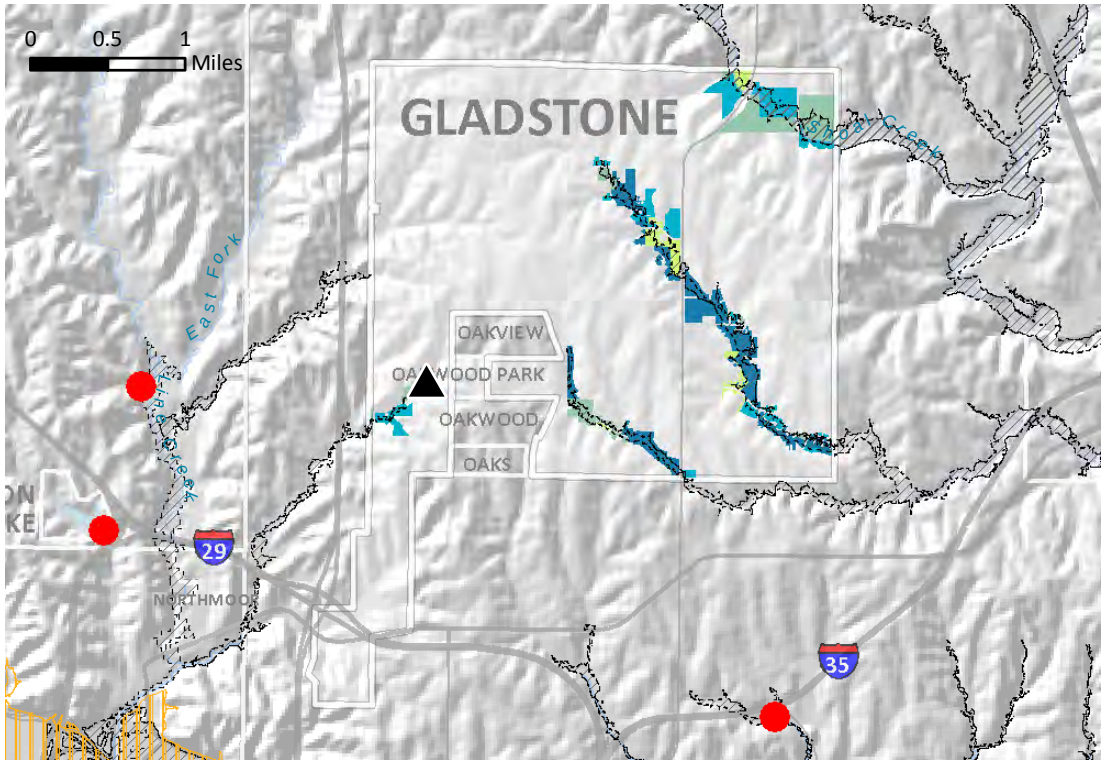
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Gladstone Flood Loss Estimates (Parcels)

Total affected parcels : 455

Total Imprvmt. Value : $55,988,300

Total Land Value : $21,821,200

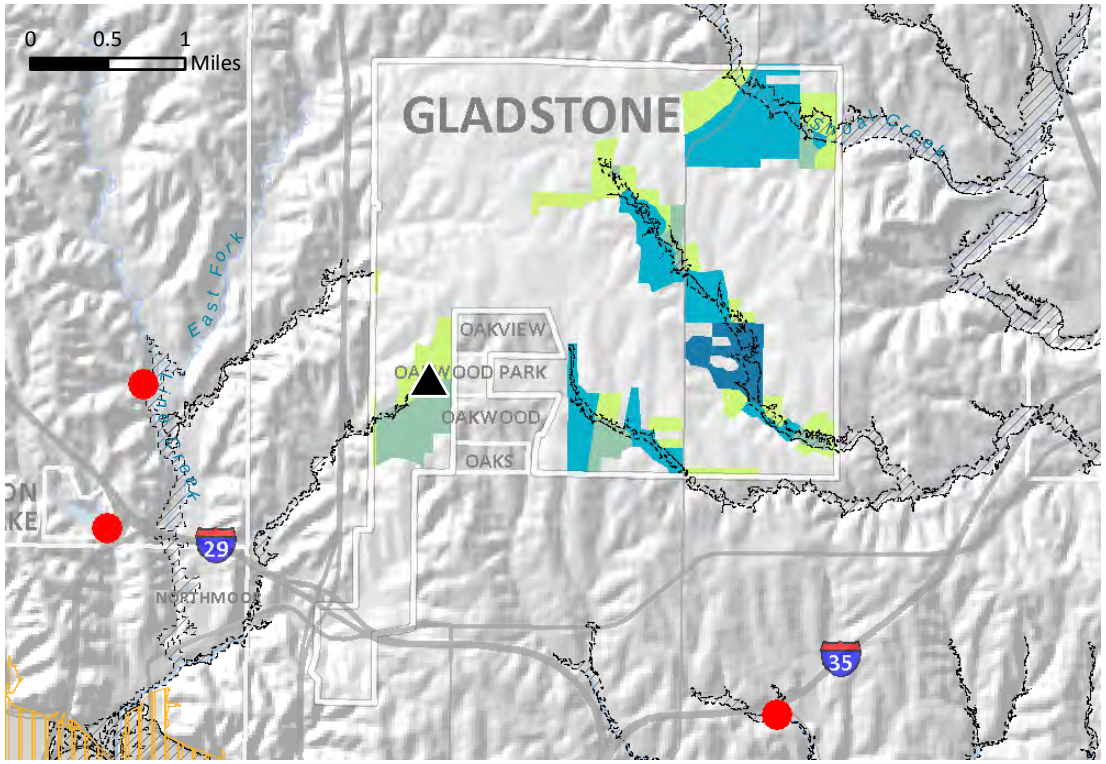
Total Value : $77,809,500

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 149

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Gladstone Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 56

Total Loss : $18,368,000

Building Loss : $10,239,000

Contents Loss : $7,999,000

Other Loss : $130,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 149

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary

- Apartment (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Kansas City - Clay Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 1,498

Total Imprvmt. Value : $457,659,700

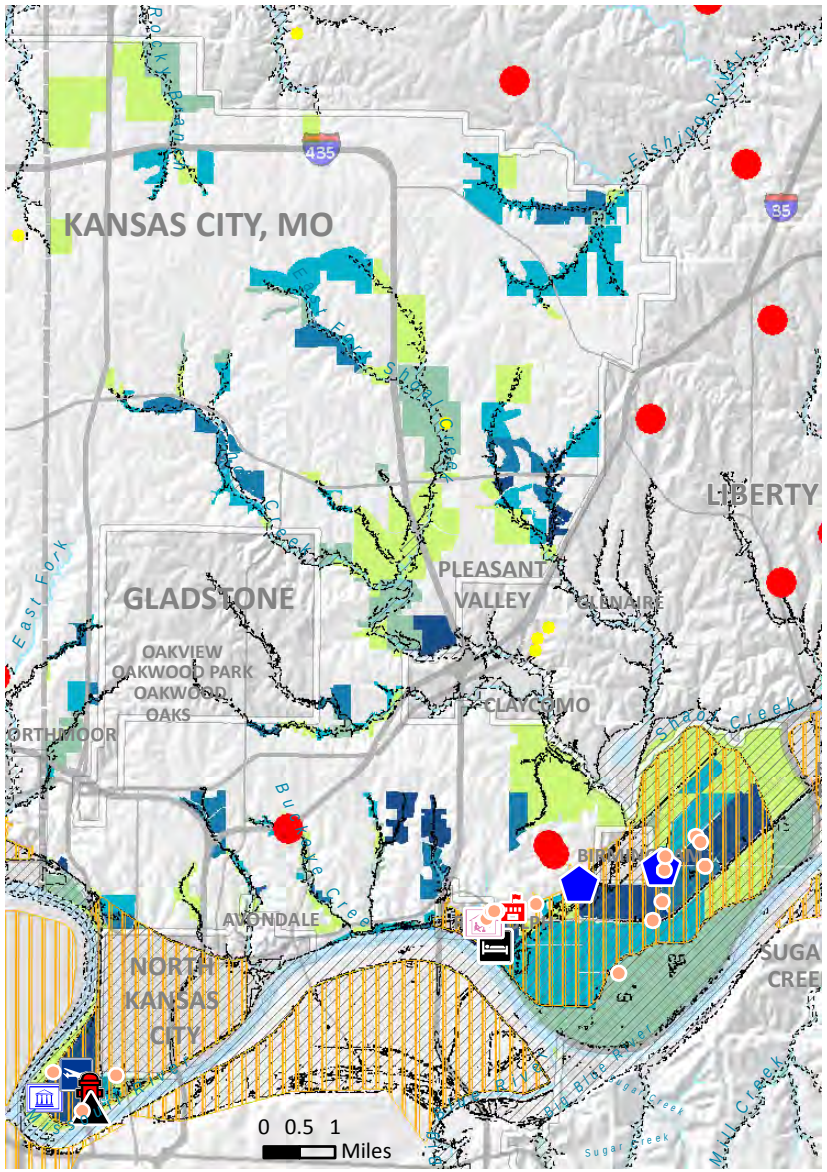
Total Land Value : $181,621,210

Total Value : $639,280,910

Buildings in Flood Boundary : 1,102

Buildings in Leveed Area : 784

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Critical Facilities in Flood Boundary or Leveed Area

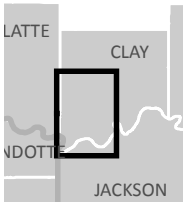
- Tier II (16)
- School (1)
- Day Care (2)
- Hotel (1)
- Apartment (1)
- EPA FRS Facility (2)
- Fire (1)
- Airports (1)
- Government (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary



Kansas City - Clay Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 401

Total Loss : $194,188,000

Building Loss : $74,782,000

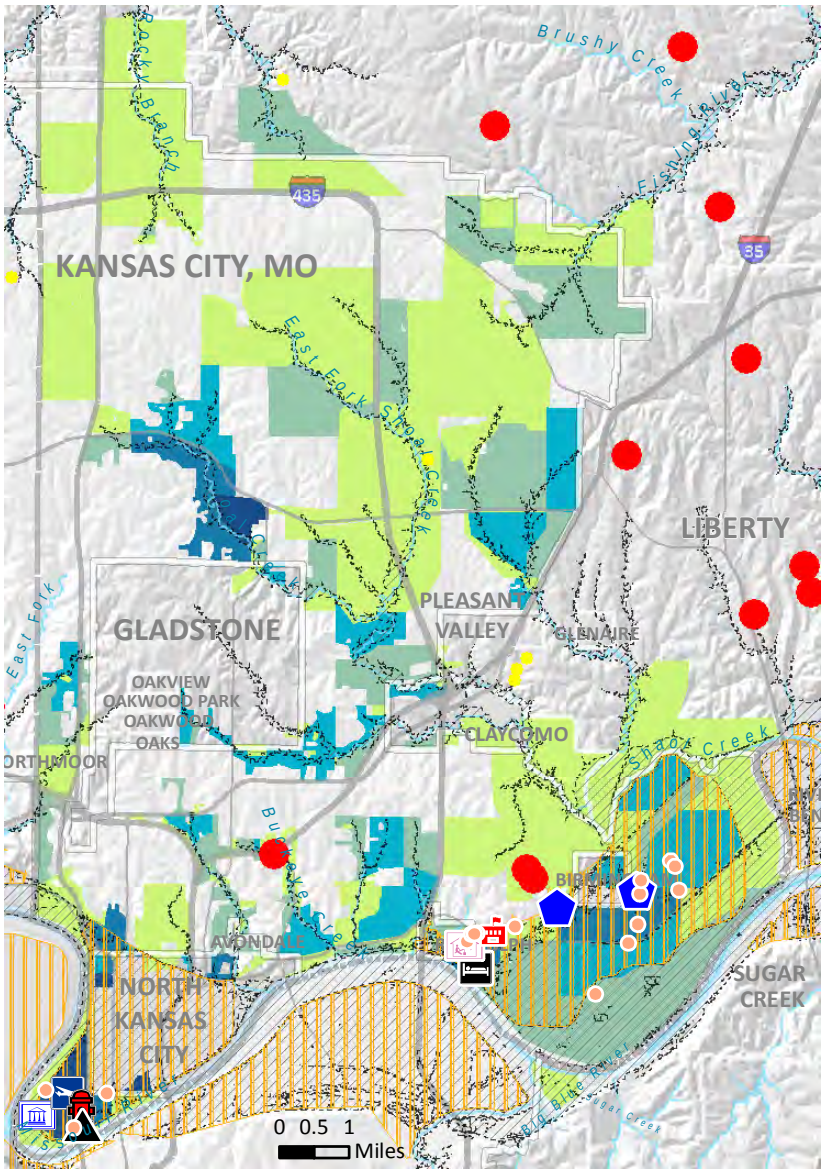
Contents Loss : $111,837,000

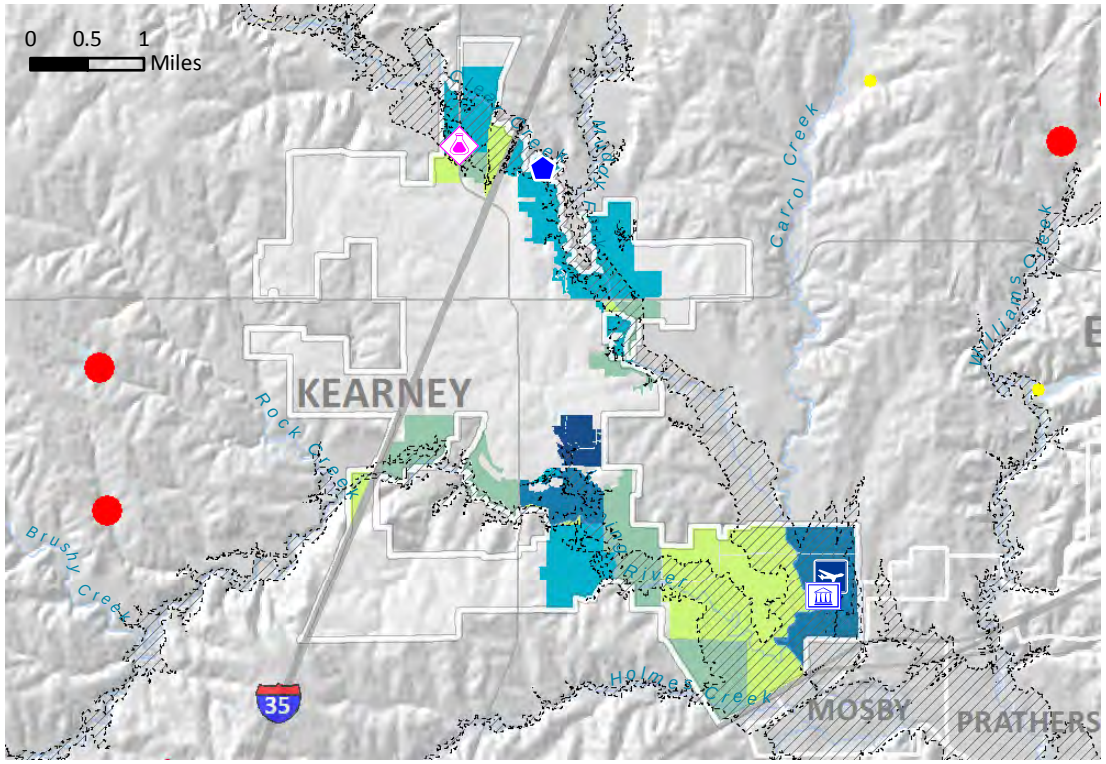
Other Loss : $7,569,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Buildings in Flood Boundary : 1,102

Buildings in Leveed Area : 784





Kearney Flood Loss Estimates (Parcels)

Total affected parcels : 177

Total Imprvmt. Value : $61,680,400

Total Land Value : $14,726,800

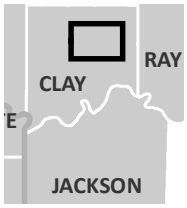
Total Value : $76,407,200

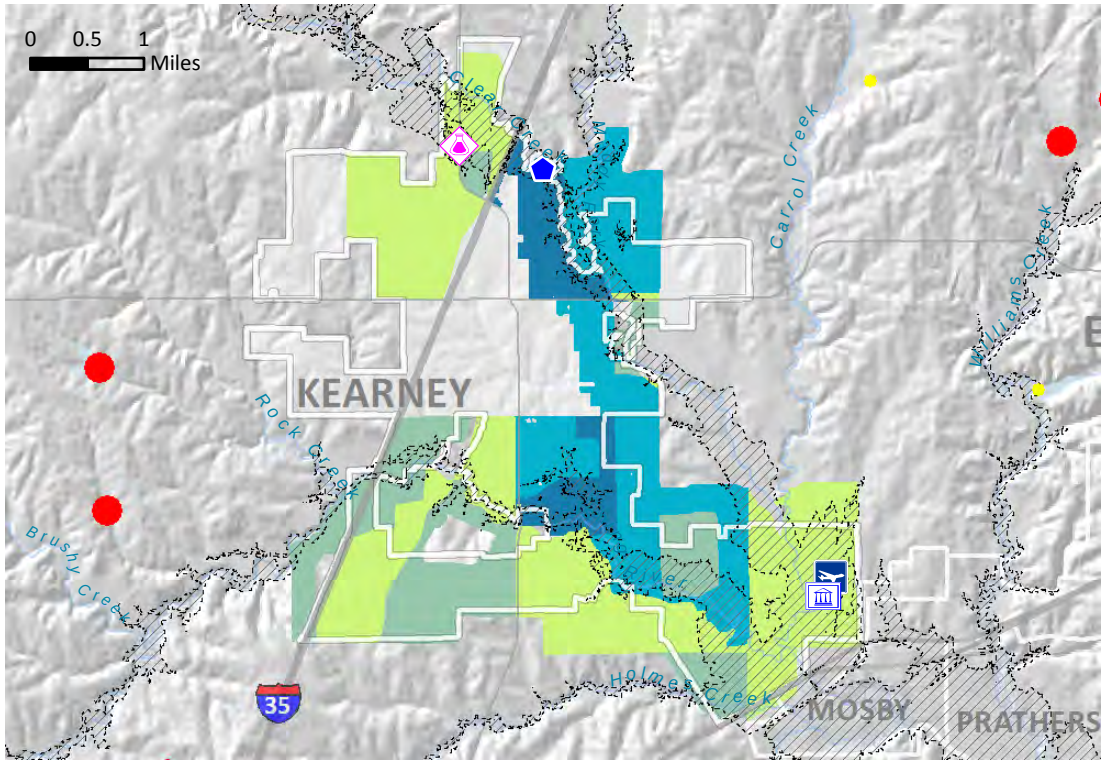
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 61

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.





Kearney Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 39

Total Loss : $26,550,000

Building Loss : $10,828,000

Contents Loss : $15,207,000

Other Loss : $515,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 61

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

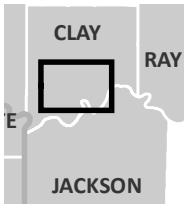
Critical Facilities in Flood Boundary

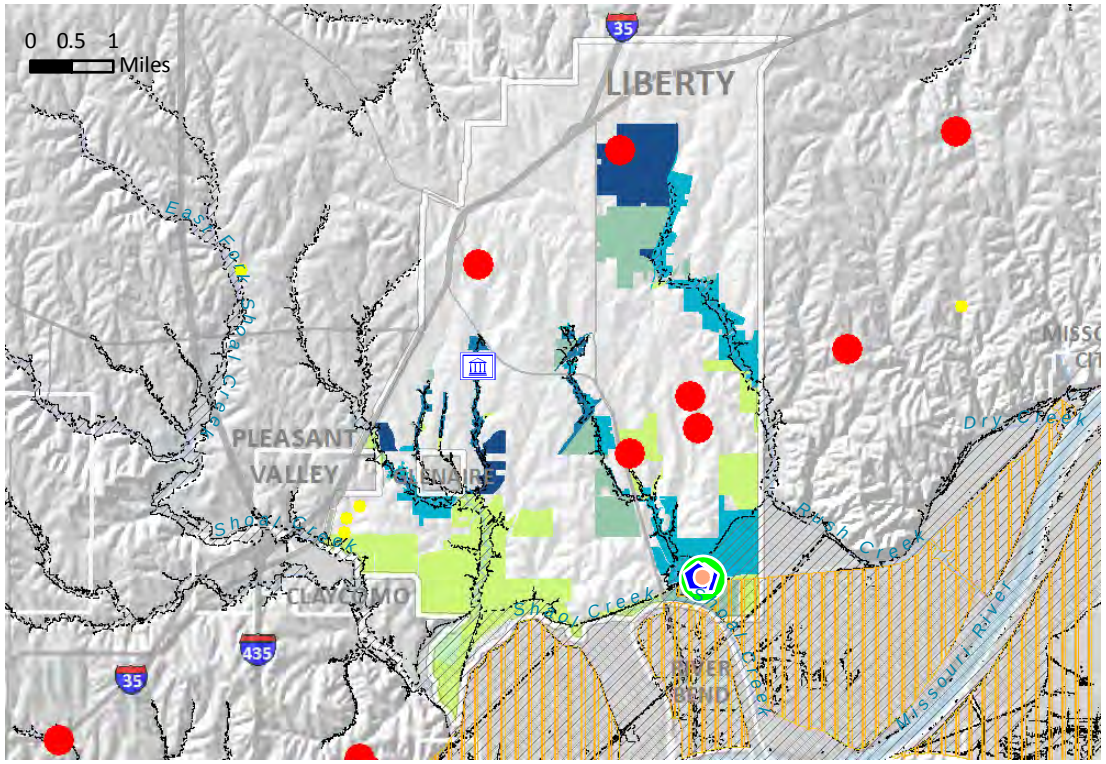
- Government (1)
- EPA FRS Facility (1)
- RMP Facility (1)
- Airport (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Liberty Flood Loss Estimates (Parcels)

Total affected parcels : 641

Total Imprvmt. Value : $130,012,700

Total Land Value : $50,112,400

Total Value : $180,125,100

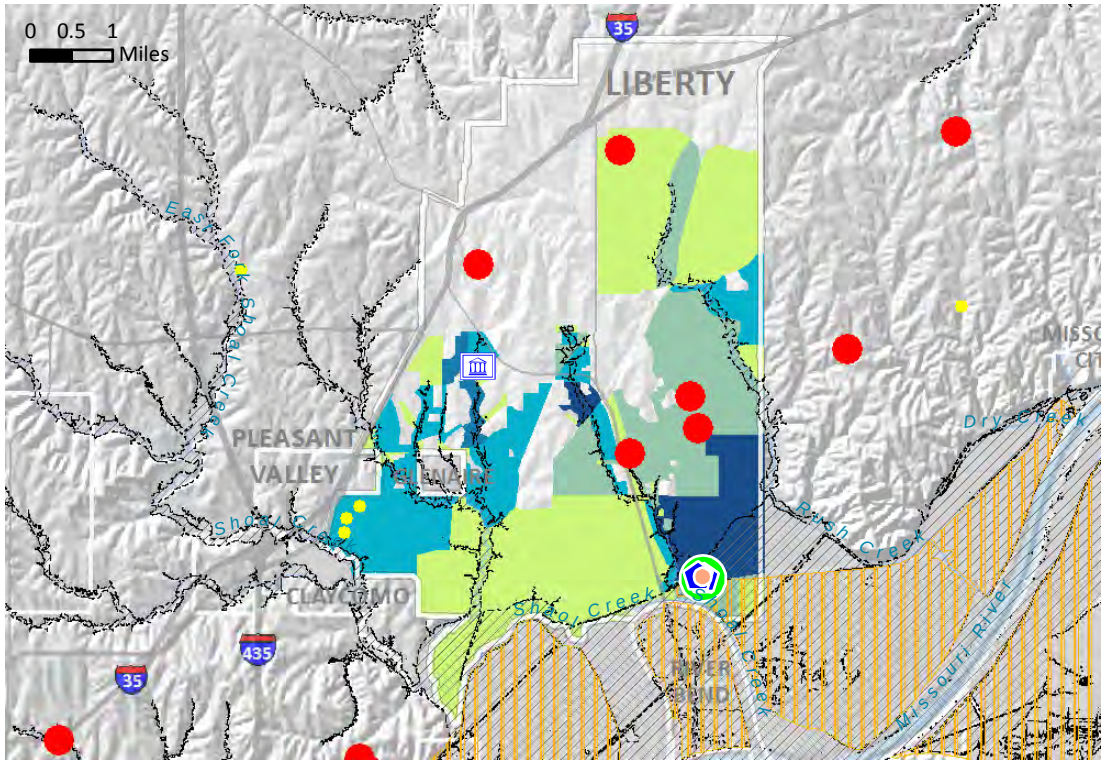
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 209

Buildings in Leveed Area : 1

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Liberty Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 92

Total Loss : $52,552,000

Building Loss : $23,704,000

Contents Loss : $27,687,000

Other Loss : $1,161,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 209

Buildings in Leveed Area : 1

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary

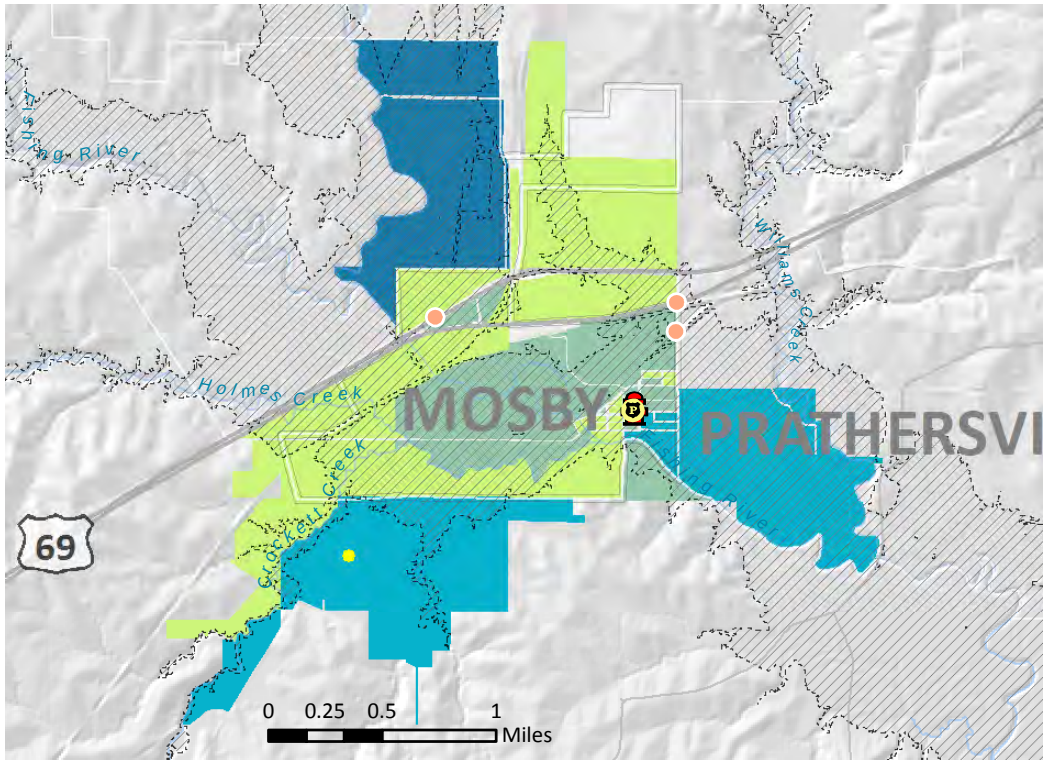
- Tier II (1)
- Government (1)
- EPA FRS (3)
- Superfund NPL (1)

Hazard Level of Dams

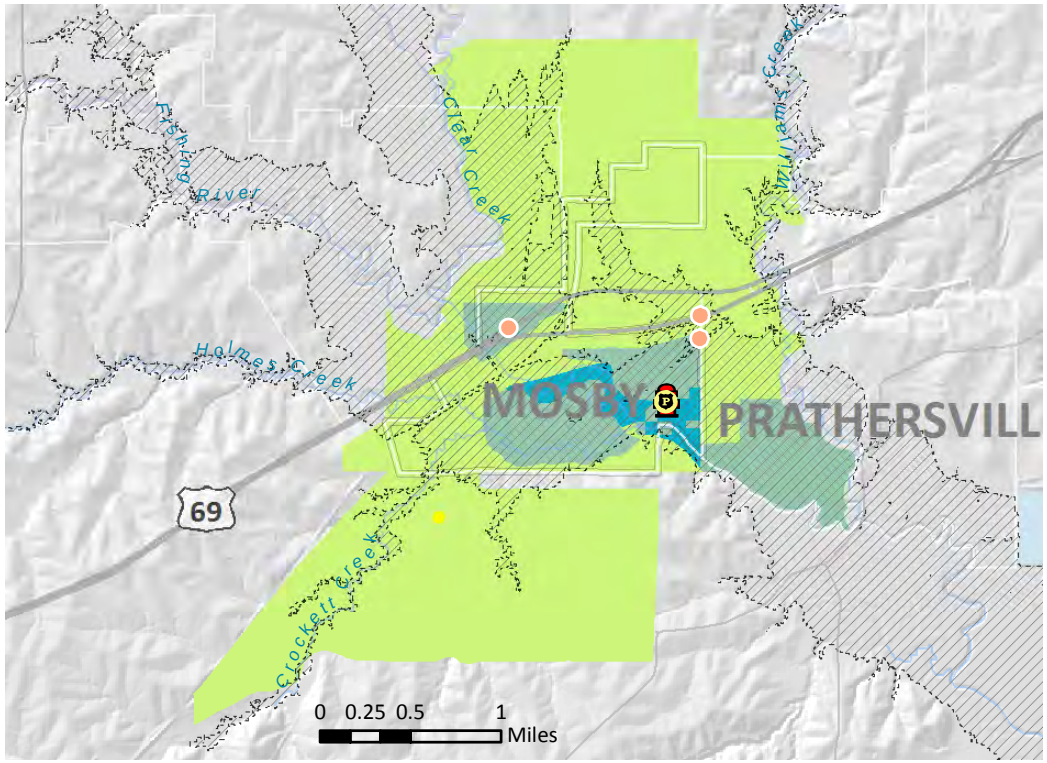
- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary







Mosby Flood
Loss Estimates (Parcels)

Total affected parcels : 173

Total Imprvmt. Value : $4,554,000

Total Land Value : $3,078,000

Total Value : $7,632,000

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 135

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

Mosby Flood
Loss Estimates (HAZUS)

Total affected Census Blocks : 53

Total Loss : $9,066,000

Building Loss : $4,708,000

Contents Loss : $4,057,000

Other Loss : $301,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 135

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

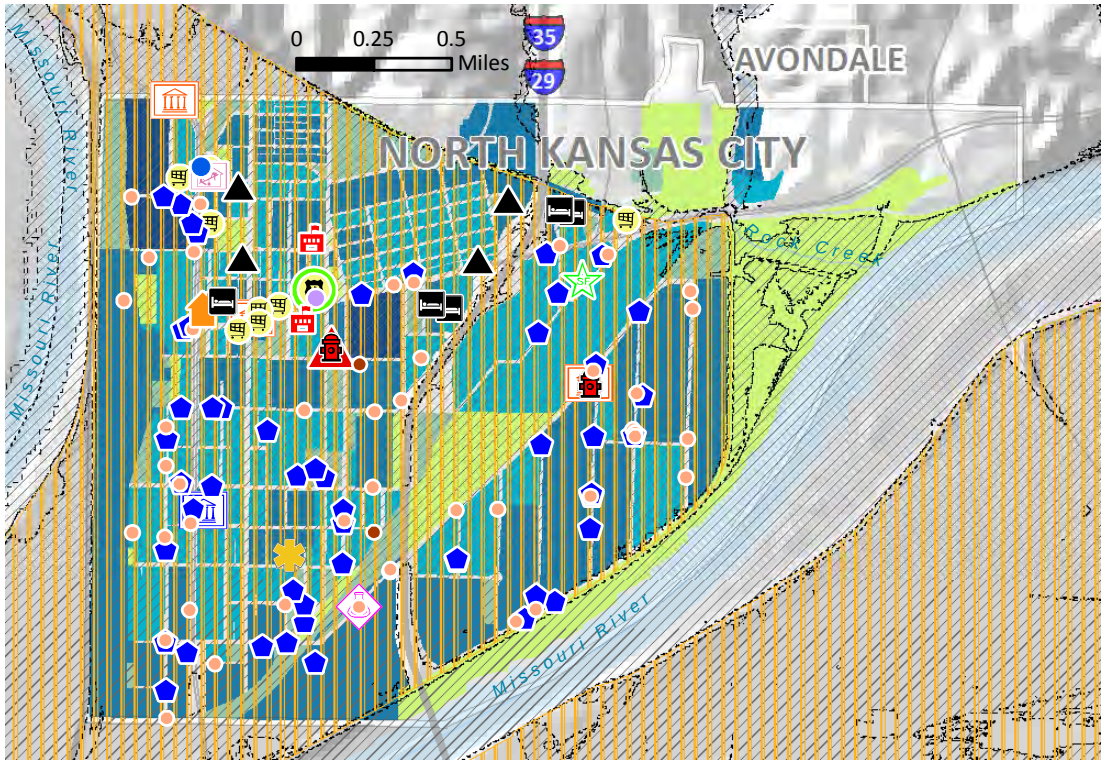
Critical Facilities in Flood Boundary

- Tier II (3)
- Police (1)
- Fire (2)

Hazard Level of Dams

- Low
- Significant
- High

Clay 2013 HAZUS Flood Boundary



North Kansas City Flood Loss Estimates (Parcels)

Total affected parcels : 1,796

Total Imprvmt. Value : $355,073,800

Total Land Value : $214,383,000

Total Value : $569,456,800

Parcel Improvement Value ($)

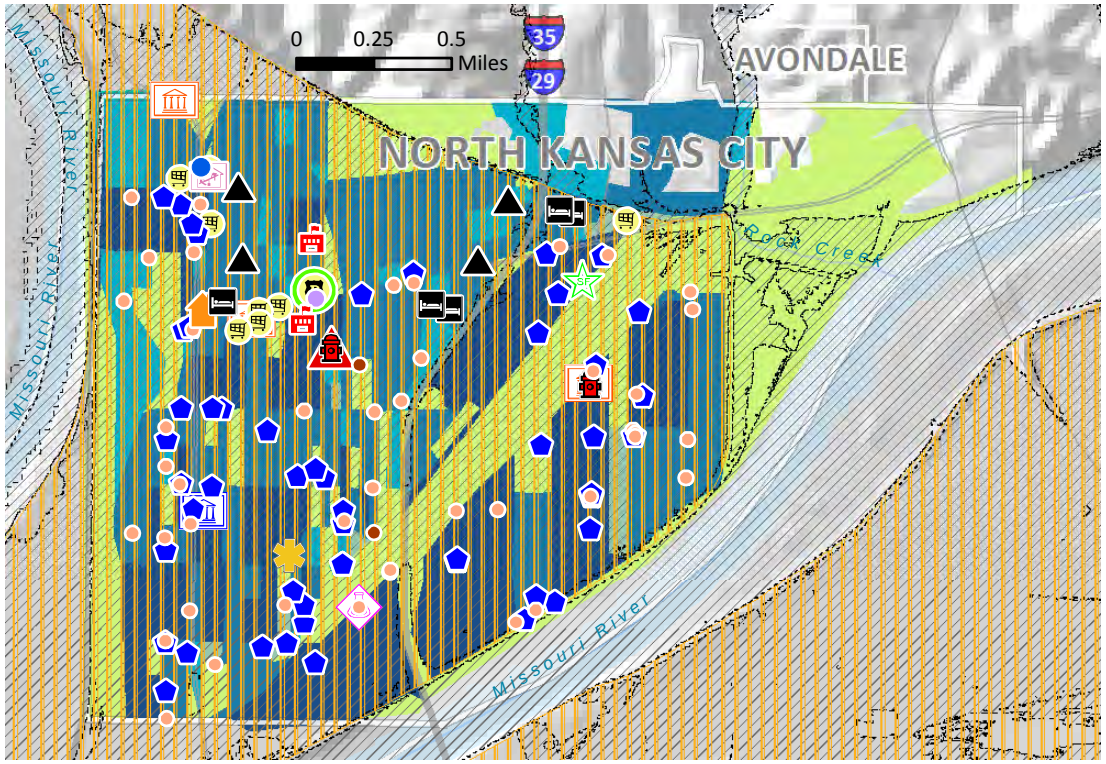
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1,828

Buildings in Leveed Area : 1,823

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.





North Kansas City Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 276

Total Loss : $26,550,000

Building Loss : $10,828,000

Contents Loss : $15,207,000

Other Loss : $515,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1,828

Buildings in Leveed Area : 1,823

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary or Leveed Area

- Historic Site (2)
- Grocery (small) (1)
- School (2)
- Apartment (4)
- Hotel (5)
- Daycare (1)
- Nursing Home (1)
- Tier II (44)
- EPA FRS Facility (55)
- Shopping Center (8)
- PSAPs (1)
- Fire (2)
- Police (1)
- Enhanced HazMat Team (1)
- EOCs (1)
- Meat Processing (1)
- Superfund NPL Facility (1)
- RMP Facility (1)
- Local Government (3)
- State Government (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Smithville Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 126

Total affected parcels : 341

Total Imprvmt. Value : $36,197,600

Total Land Value : $14,117,800

Total Value : $50,315,400

Note: Parcel estimates for loss are based on 2012 parcel data for improvement valueas provided by the county.

Critical Facilities in Flood Boundary

- Apartment (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary

Smithville Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 126

Total affected Census Blocks : 81

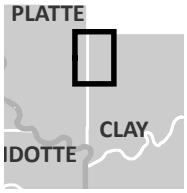
Total Loss : $18,332,000

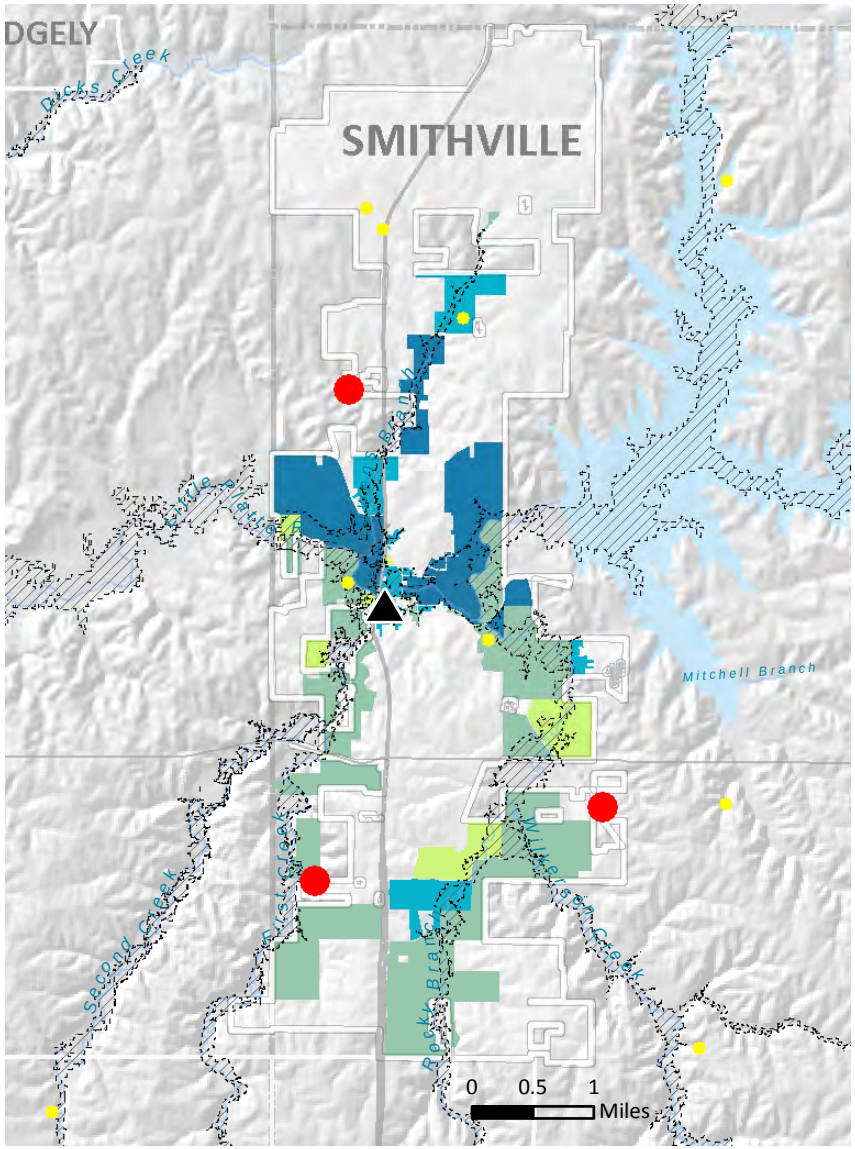
Building Loss : $8,217,000

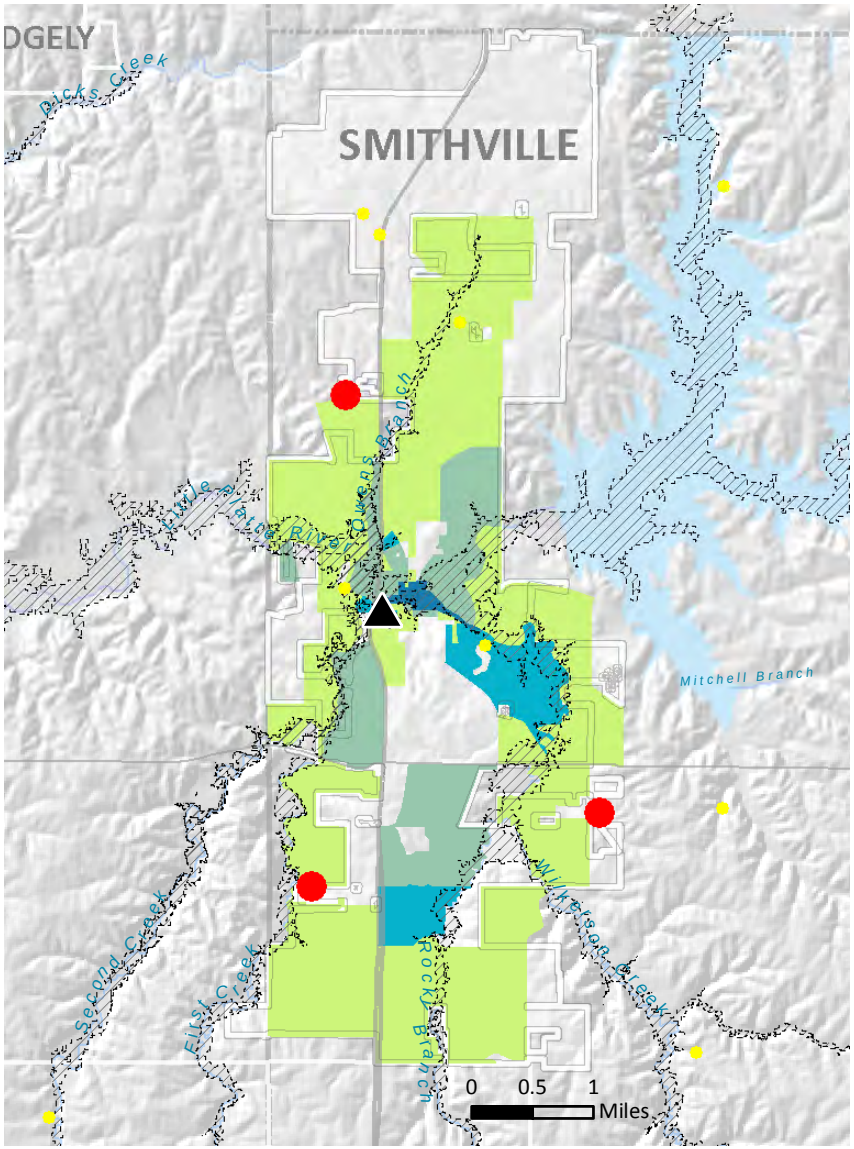
Contents Loss : $9,709,000

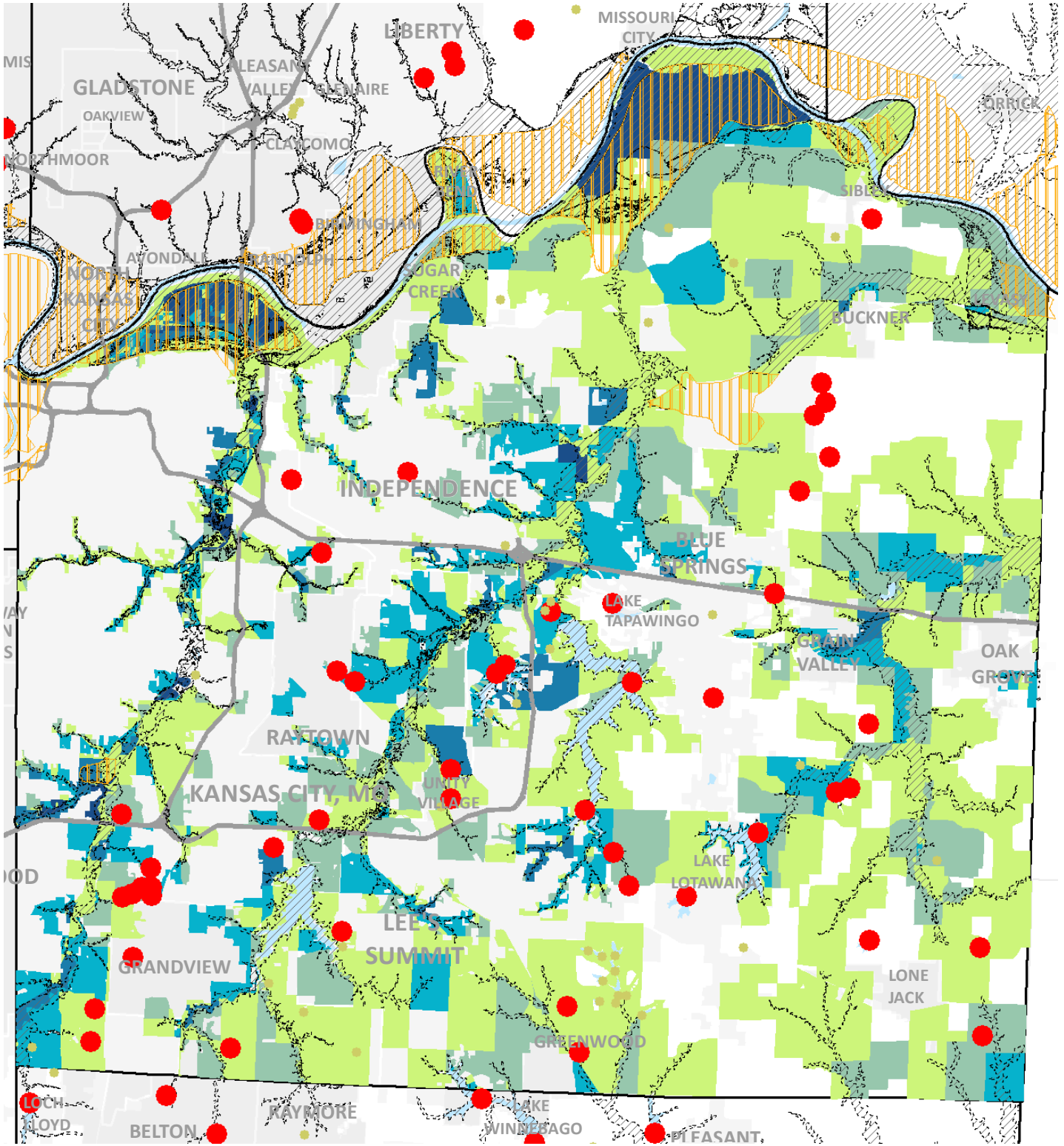
Other Loss : $406,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.









Jackson County Flood Loss Estimates (HAZUS)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Total Direct Economic Loss ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 2,231

Total Loss : $1,838,226,000

Building Loss : $681,877,000

Contents Loss : $1,078,501,000

Inventory Loss : $62,407,000

Wage Loss : $10,001,000

Income Loss : $3,092,000

Relocation Costs : $1,547,000

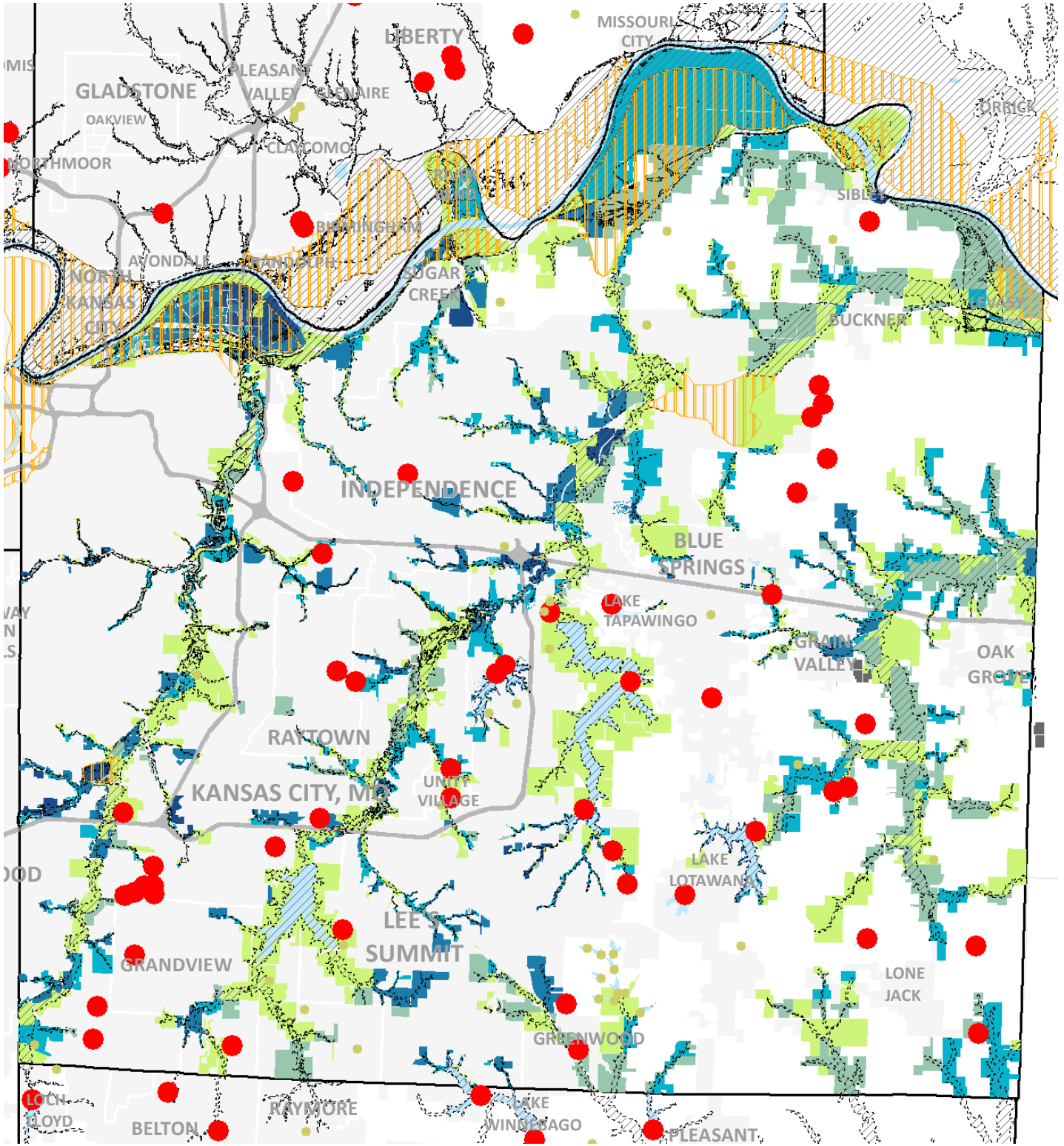
Rental Income Loss : $801,000

Buildings in Flood Boundary : 6,190

Buildings in Leveed Area : 3,016

Note: HAZUS estimates for General Building Stock are based on Census block level geographies.





Jackson County Flood Loss Estimates (Parcels)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Parcel Improvement Value ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 12,734

Improvement Value : $3,938,638,832

Land Value : $1,048,620,925

Total Value : $4,987,259,757

Buildings in Flood Boundary : 6,190

Buildings in Leveed Area : 3,016

Note: Parcel estimates for loss are based on 2012 county parcel data for improvement value. Parcels have been aggregated / dissolved by census block geographies for comparison with 2013 HAZUS data.



Blue Springs Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 81

Total affected parcels : 271

Total Imprvmt. Value : $30,013,790

Total Land Value : $6,798,020

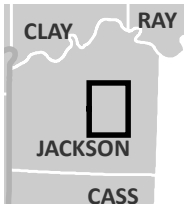
Total Value : $36,811,810

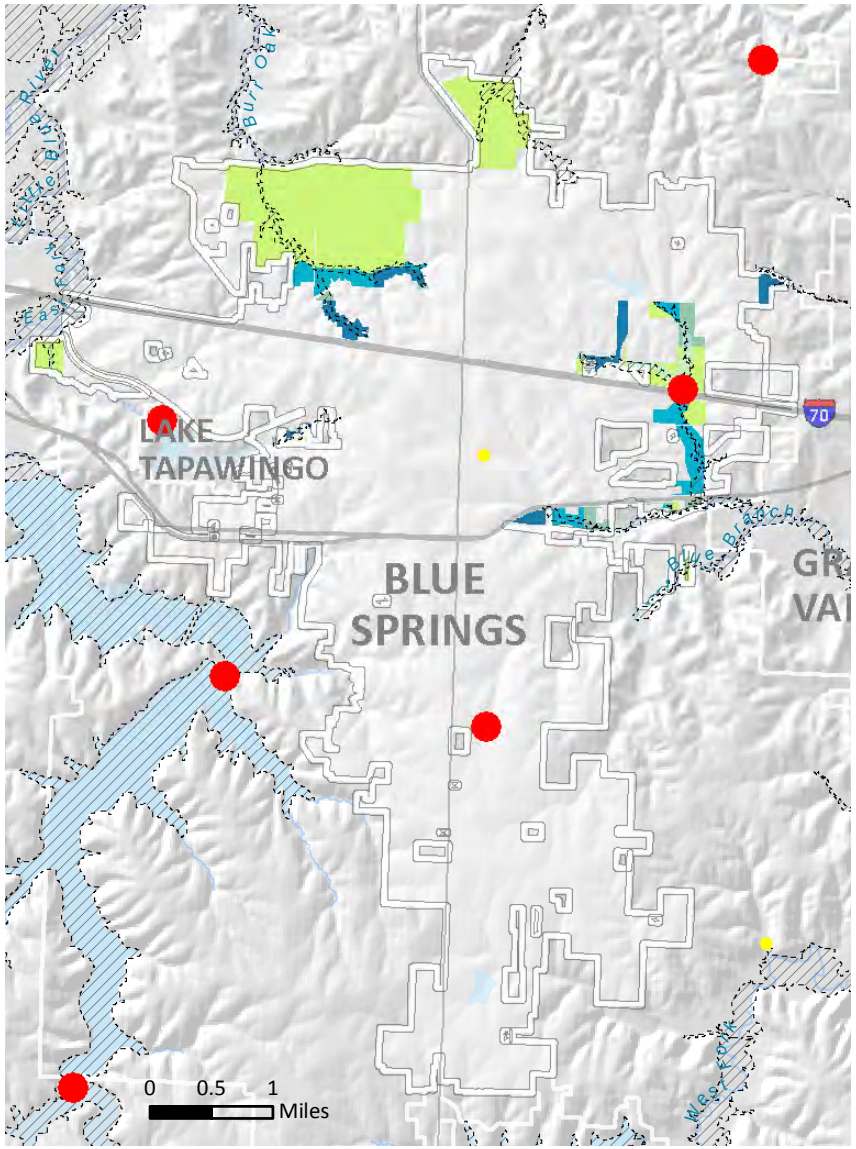
Note: Parcel estimates for loss are based on 2012 parcel data for improvement valueas provided by the county.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Blue Springs Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 81

Total affected Census Blocks : 54

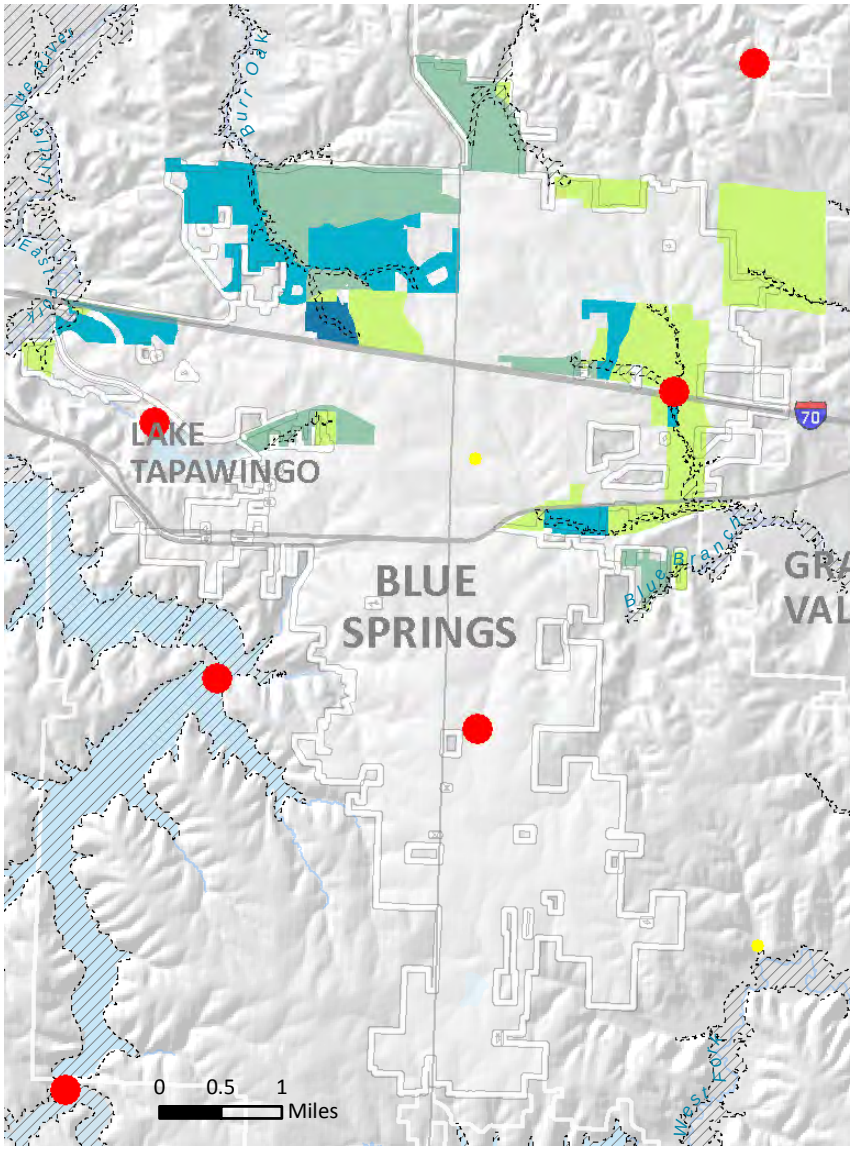
Total Loss : $8,738,000

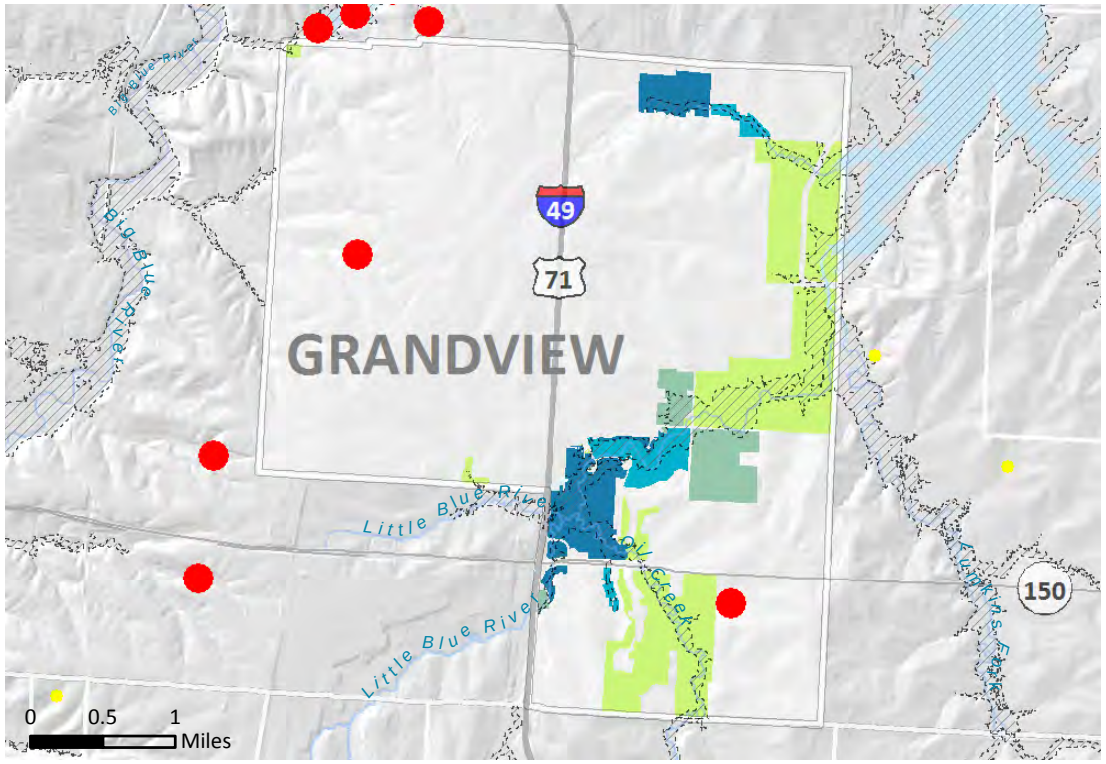
Building Loss : $4,359,000

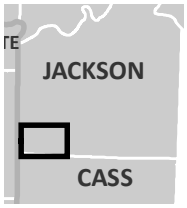
Contents Loss : $4,204,000

Other Loss : $175,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.







Grandview Flood Loss Estimates (Parcels)

Total affected parcels : 292

Total Imprvmt. Value : $17,288,395

Total Land Value : $4,828,494

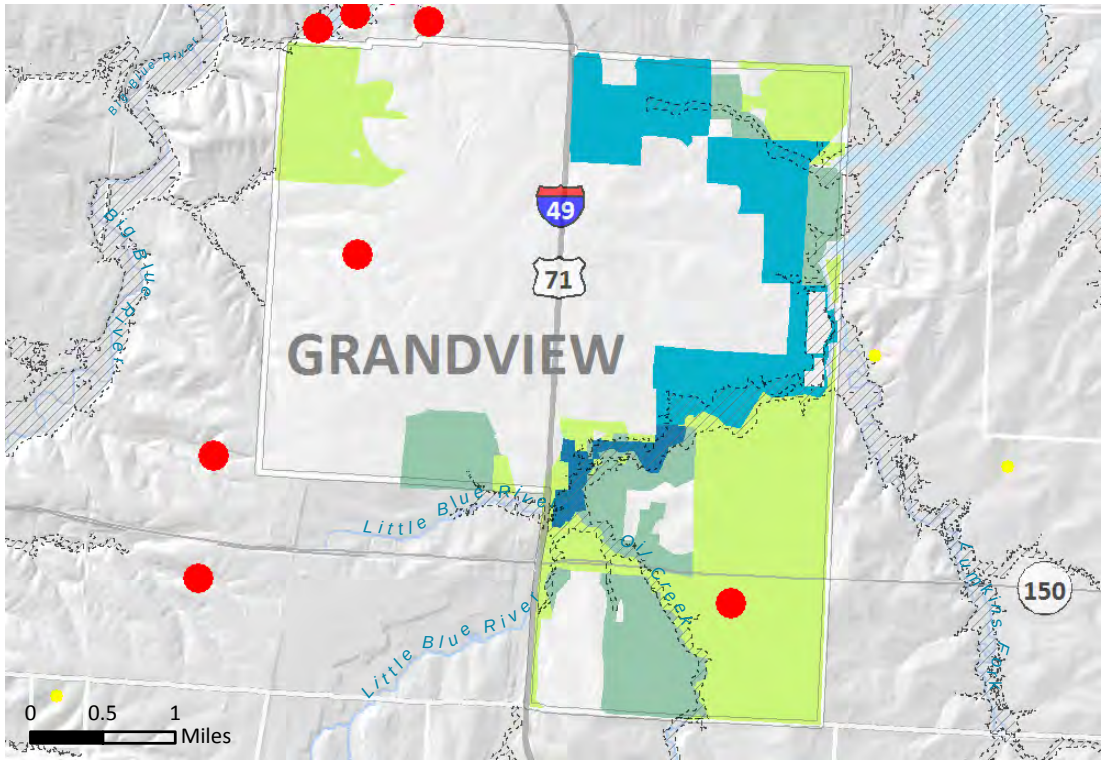
Total Value : $22,114,477

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 53

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Grandview Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 43

Total Loss : $11,397,000

Building Loss : $6,654,000

Contents Loss : $4,691,000

Other Loss : $52,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

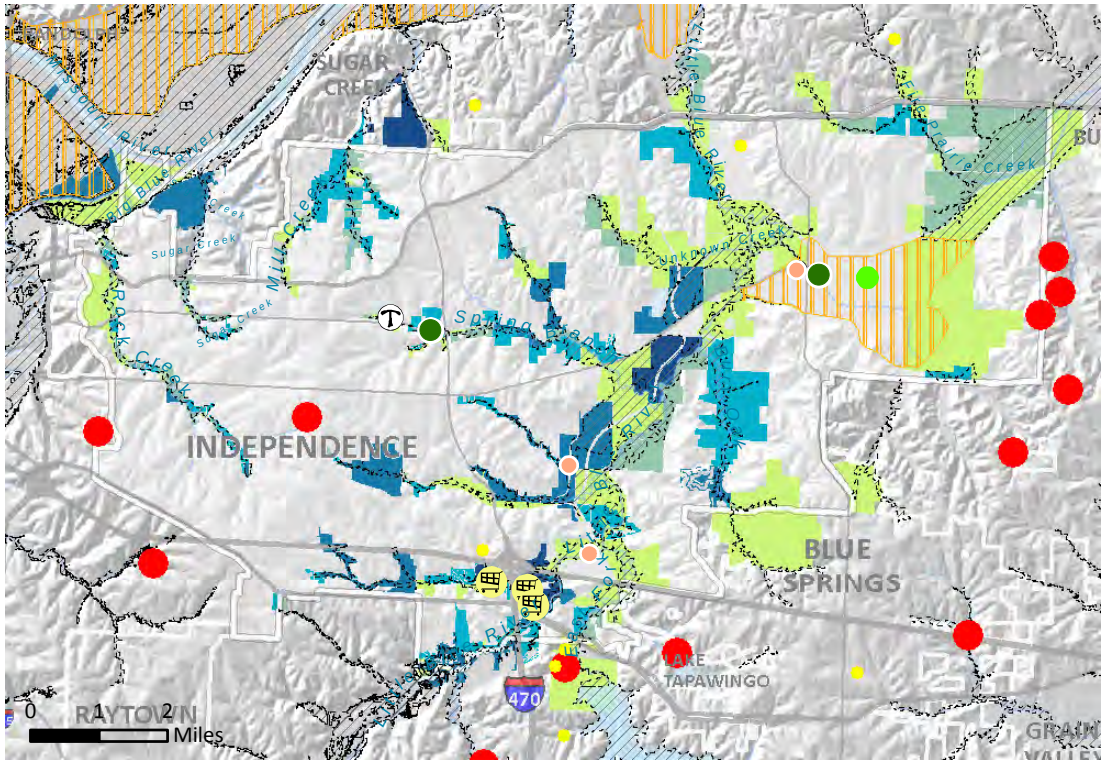
Buildings in Flood Boundary : 53

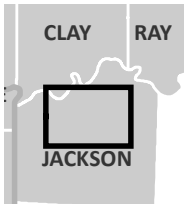
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

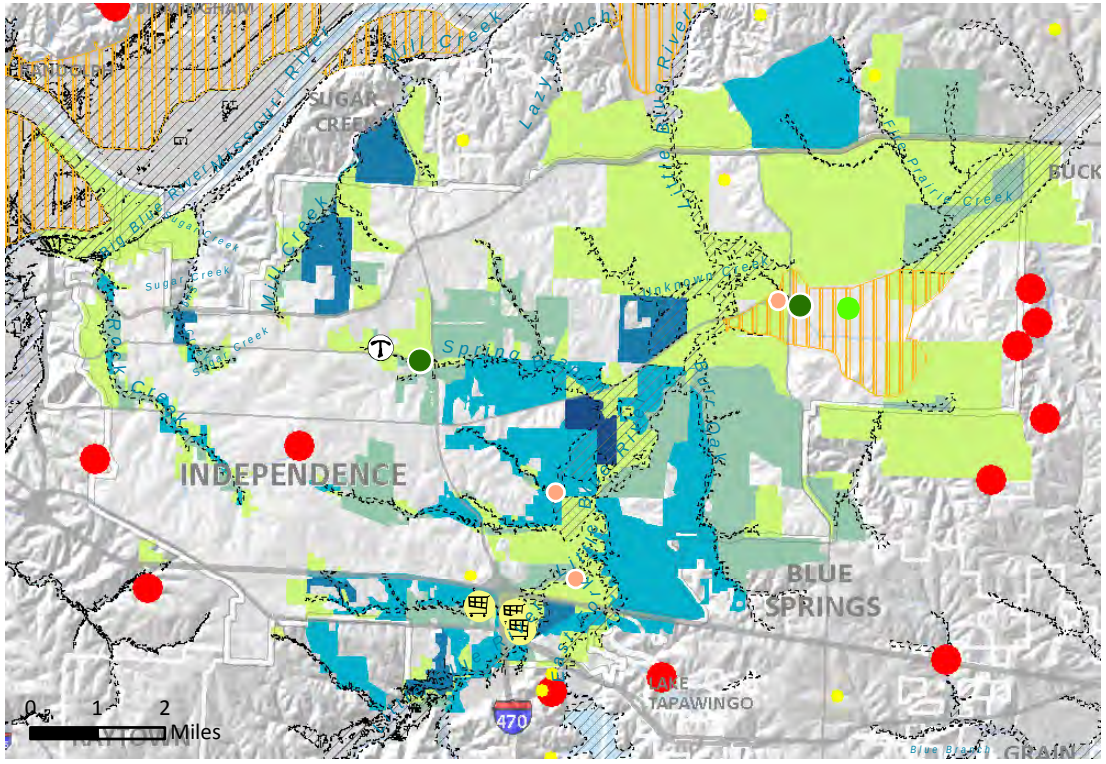
Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary







Independence Flood Loss Estimates (Parcels)

Total affected parcels : 2,489

Total Imprvmt. Value : $336,200,081

Total Land Value : $137,096,992

Total Value : $473,297,073

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1,133

Buildings in Leveed Area : 349

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county. EOCs are emergency operations centers.

Independence Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 397

Total Loss : $100,989,000

Building Loss : $43,247,000

Contents Loss : $55,752,000

Other Loss : $1,990,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1,133

Buildings in Leveed Area : 349

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary or Leveed Area

- Tier II (3)
- EPA FRS Facility (2)
- EOCs (1)
- Shopping Center (3)
- Trailer Park (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Kansas City - Jackson and Cass Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 4,554

Total Imprvmt. Value : $2,190,231,417

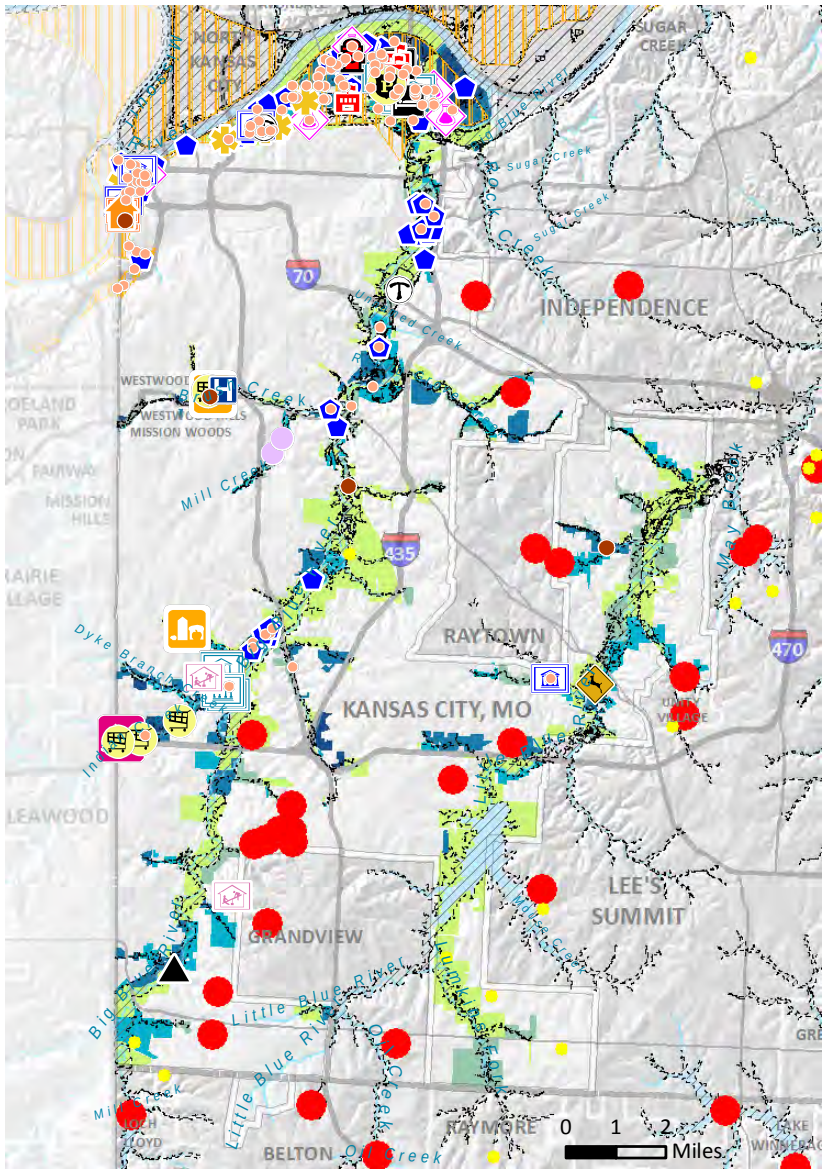
Total Land Value : $224,875,281

Total Value : $2,415,106,207

Buildings in Flood Boundary : 3,696

Buildings in Leveed Area : 2,620

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Critical Facilities in Flood Boundary or Leveed Area

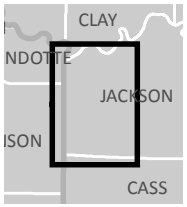
- Tier II (106)
- Historic Site (4)
- Public Housing (2)
- Hospital (1)
- Fire (1)
- Police (1)
- Game Propagation (1)
- Nursing Home (1)
- Day Care (2)
- School (3)
- Apartment (1)
- Hotel (2)
- Trailer Park (2)
- Local Government (2)
- State Government (5)
- Federal Govnmt. (13)
- Shopping Center (4)
- Meat Processing (5)
- RMP Facility (5)
- EPA FRS Facility (68)
- Grocery (small) (2)
- Grocery (large) (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary



Kansas City - Jackson and Cass Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 3,696

Buildings in Leveed Area : 2,620

Total affected Census Blocks : 1,032

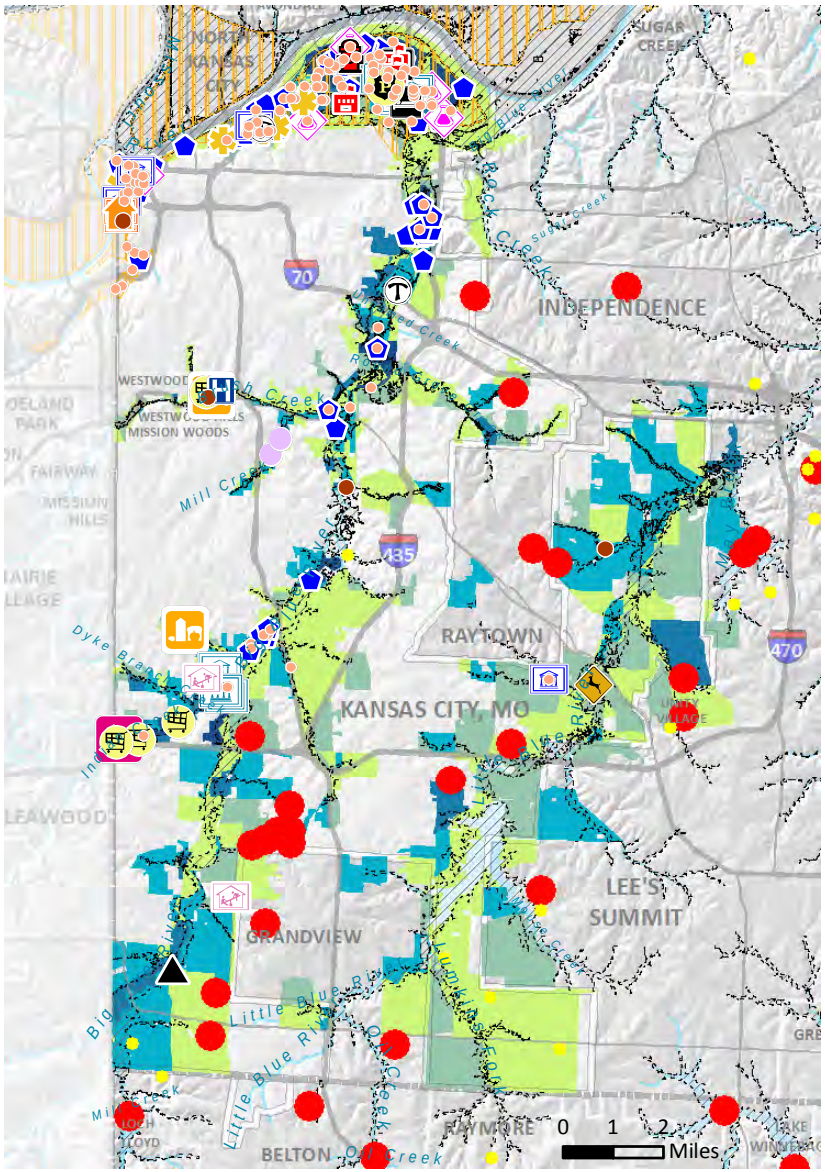
Total Loss : $1,540,732,000

Building Loss : $537,530,000

Contents Loss : $930,497,000

Other Loss : $72,705,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.



Lee's Summit Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 438

Total affected parcels : 1,953

Total Imprvmt. Value : $284,822,504

Total Land Value : $74,085,998

Total Value : $358,781,002

Note: Parcel estimates for loss are based on 2012 parcel data for improvement valueas provided by the county.

Critical Fac. in Flood Boundary

- Historic Site (1)
- Apartment (1)
- Fire (1)
- Local Government (1)

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary

Lee's Summit Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 438

Total affected Census Blocks : 238

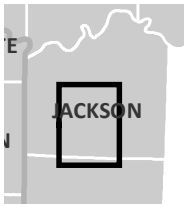
Total Loss : $81,837,000

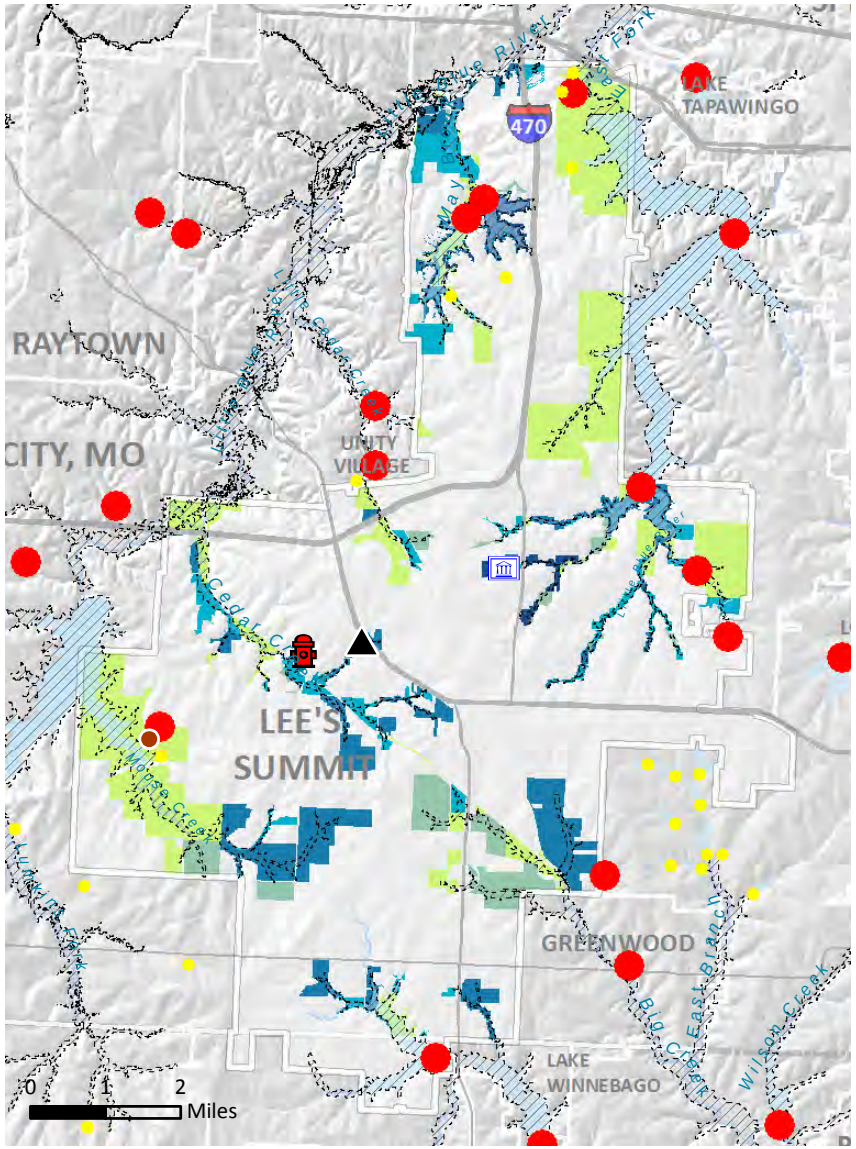
Building Loss : $46,078,000

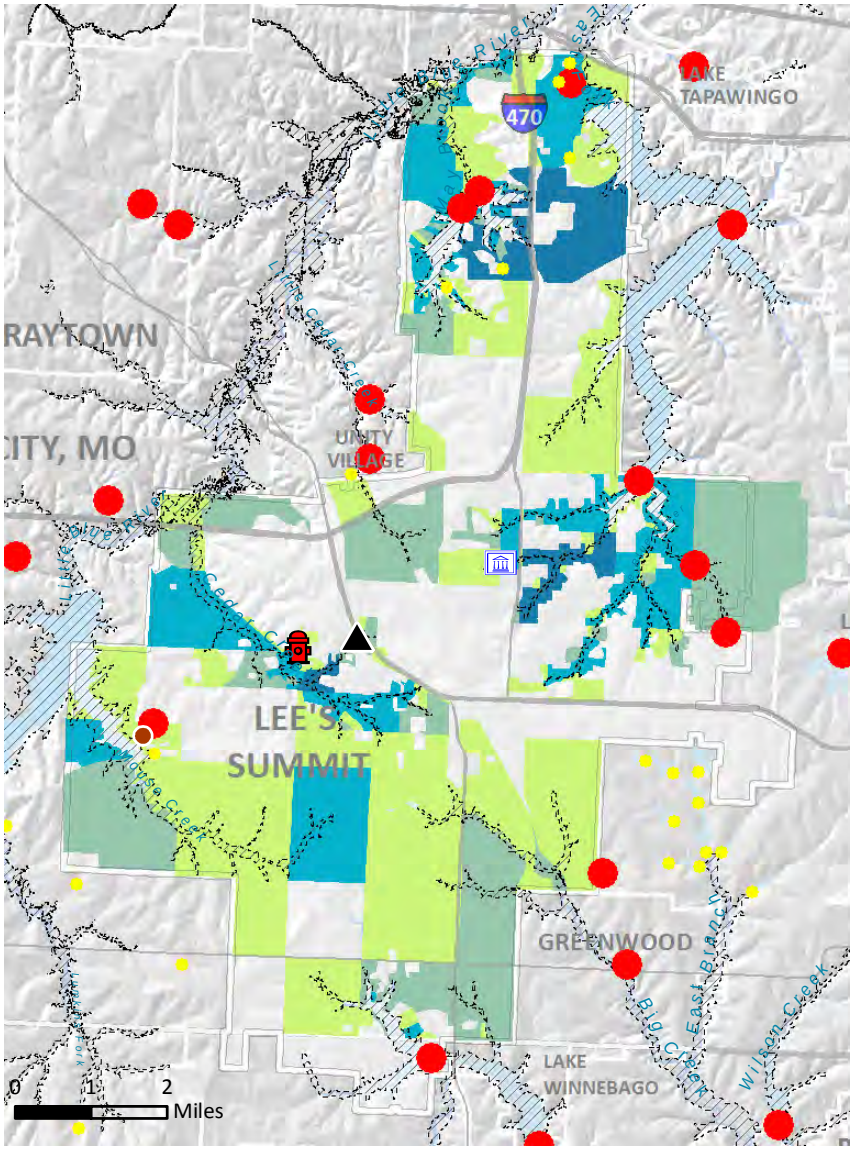
Contents Loss : $35,139,000

Other Loss : $620,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.







Oak Grove Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 3

Total affected parcels : 55

Total Imprvmt. Value : $2,268,418

Total Land Value : $671,666

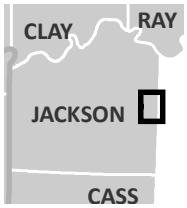
Total Value : $2,940,084

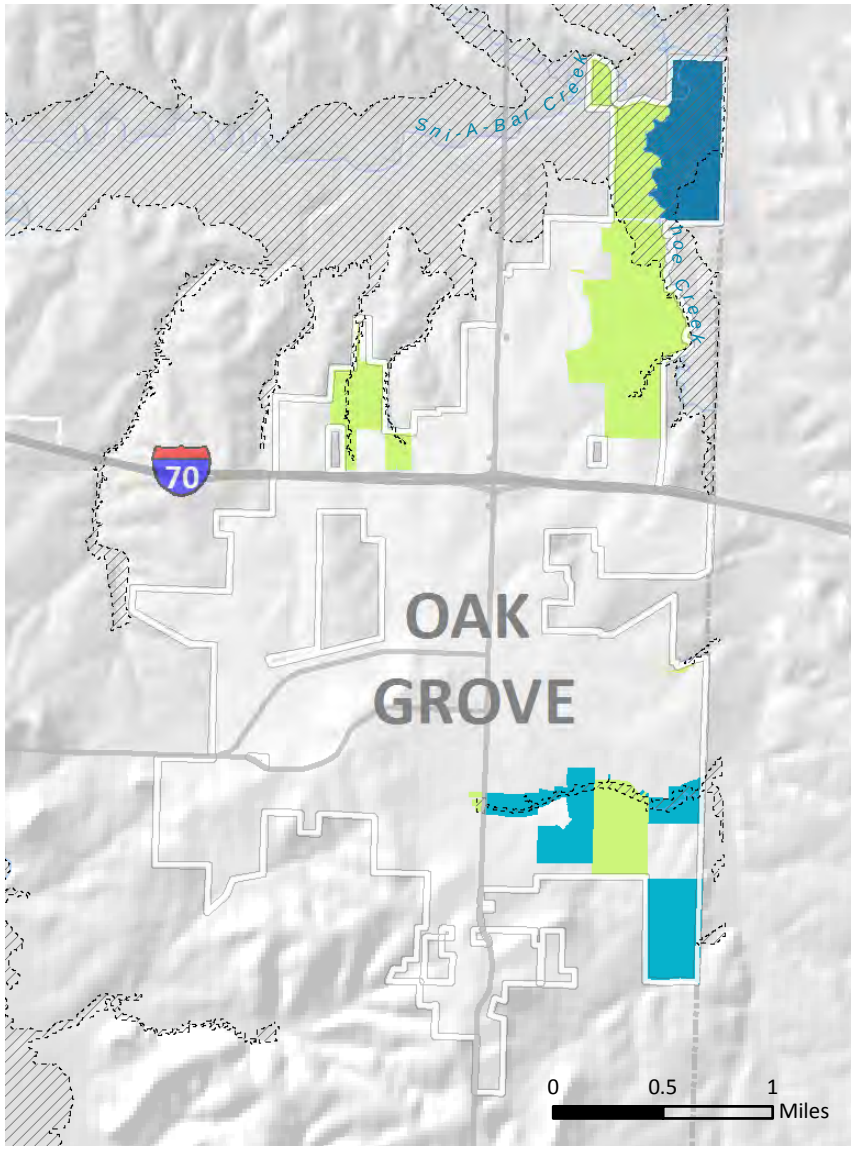
Note: Parcel estimates for loss are based on 2012 parcel data for improvement valueas provided by the county.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Oak Grove Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 3

Total affected Census Blocks : 11

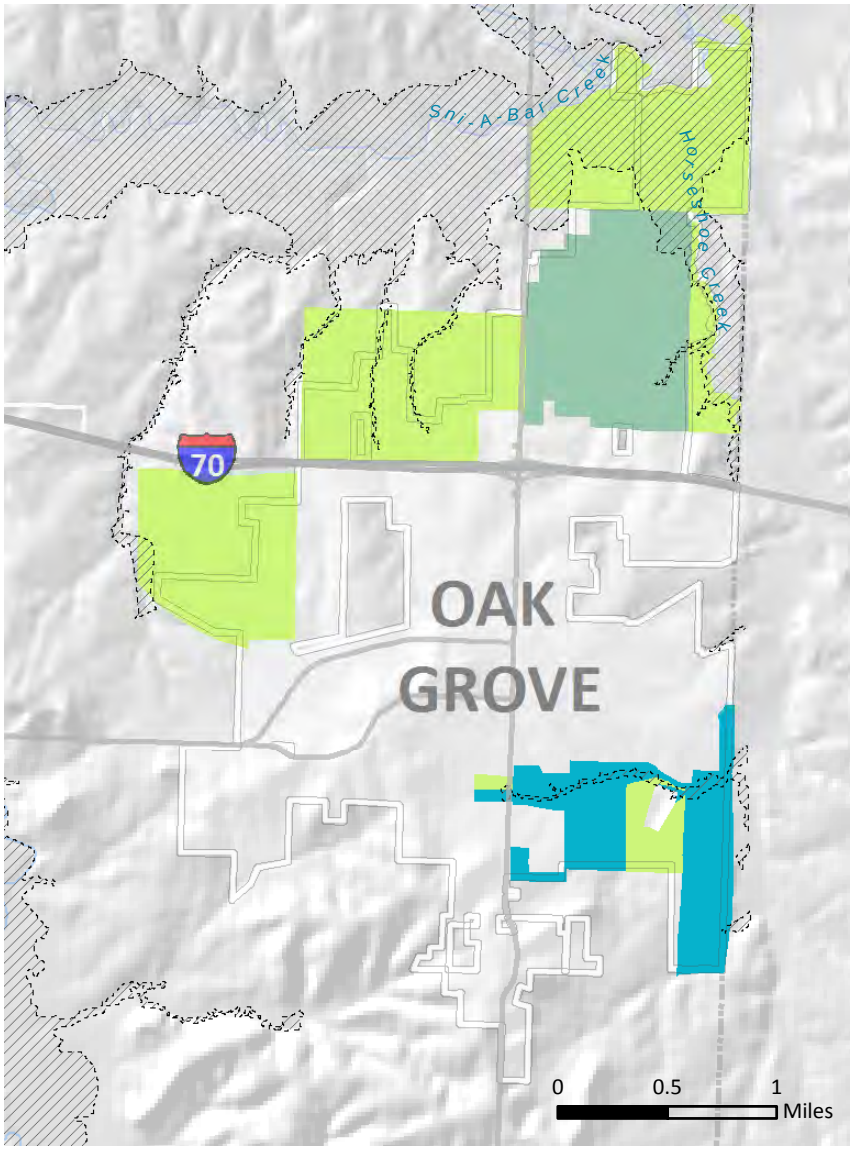
Total Loss : $1,664,000

Building Loss : $729,000

Contents Loss : $901,000

Other Loss : $34,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.



Raytown Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 43

Total affected parcels : 168

Total Imprvmt. Value : $11,201,060

Total Land Value : $2,433,420

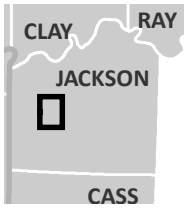
Total Value : $13,634,480

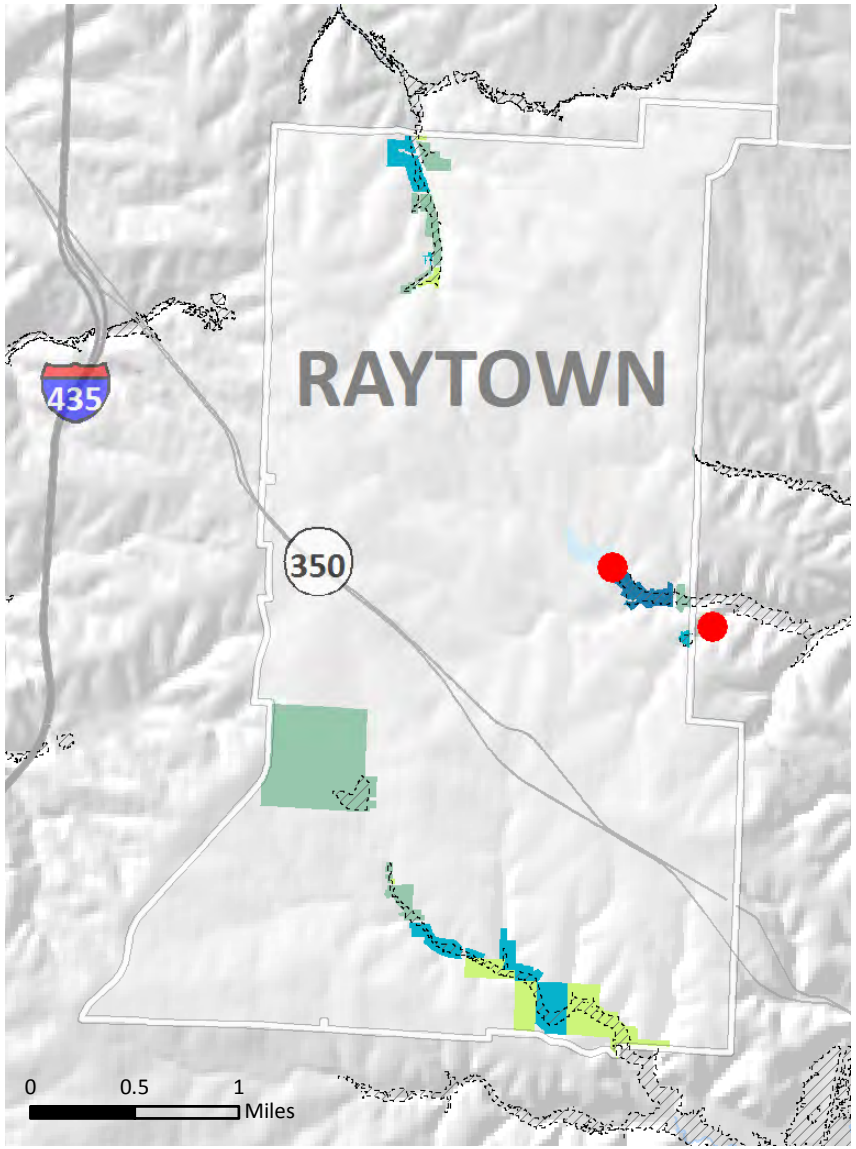
Note: Parcel estimates for loss are based on 2012 parcel data for improvement valueas provided by the county.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Raytown Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 43

Total affected Census Blocks : 32

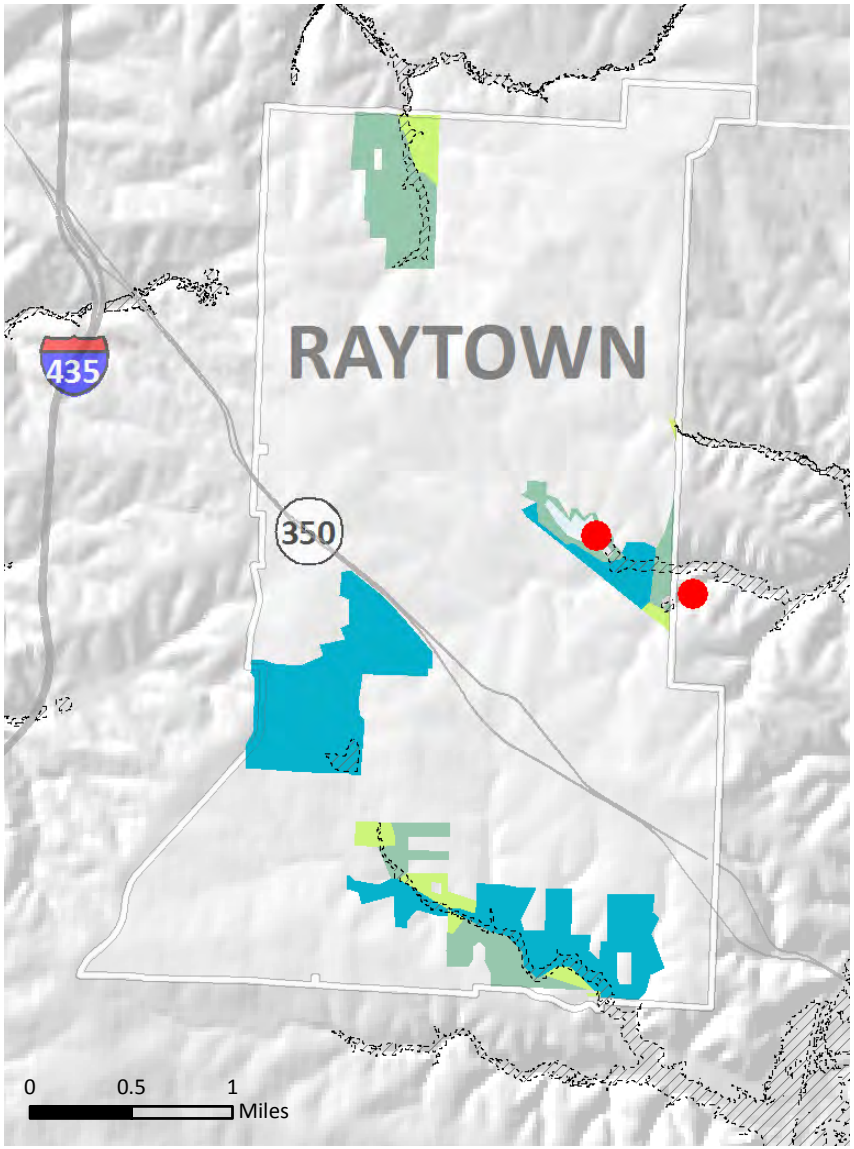
Total Loss : $7,983,000

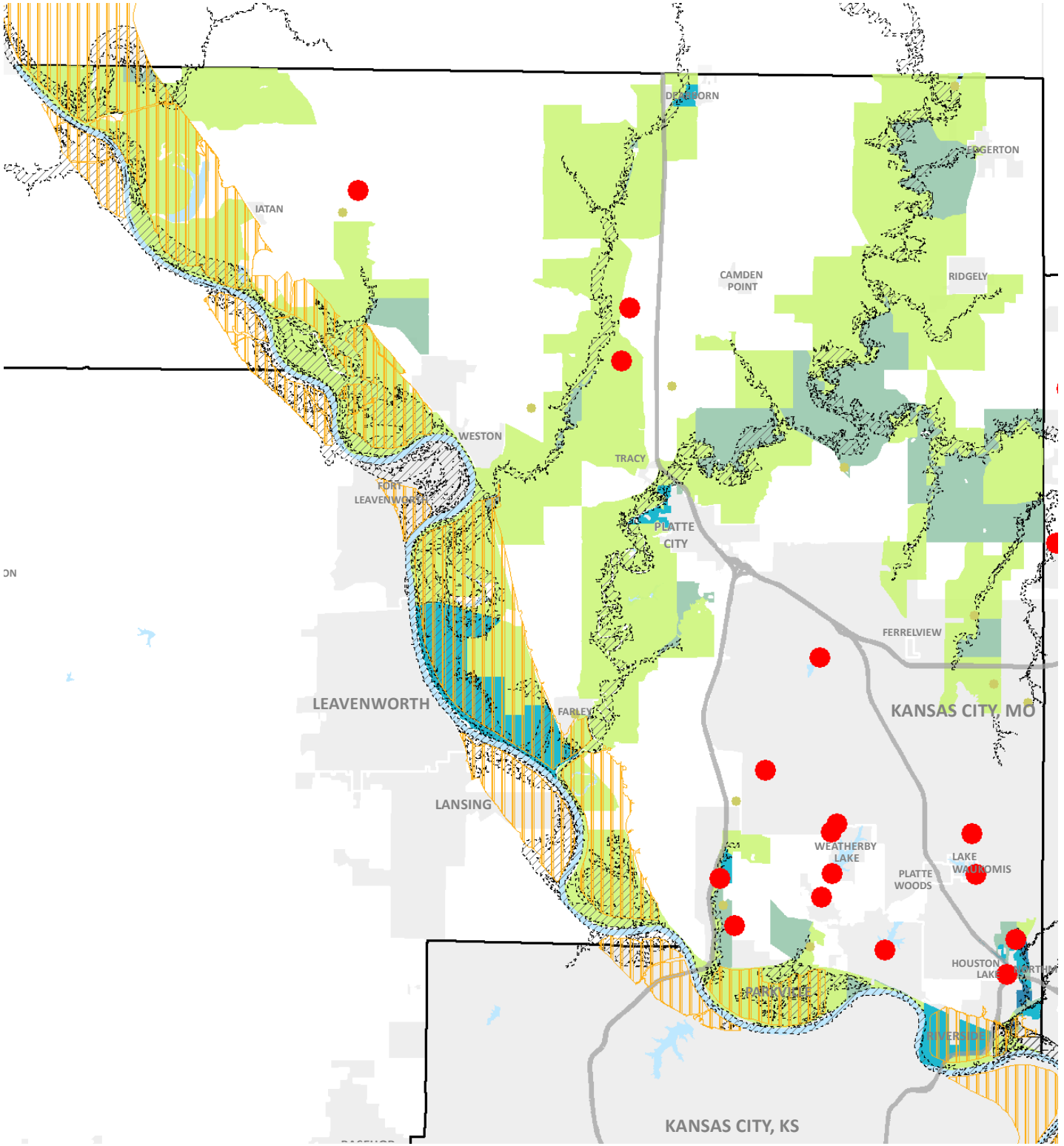
Building Loss : $4,589,000

Contents Loss : $3,288,000

Other Loss : $106,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.





Platte County Flood Loss Estimates (HAZUS)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Total Direct Economic Loss ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 390

Total Loss : $47,757,000

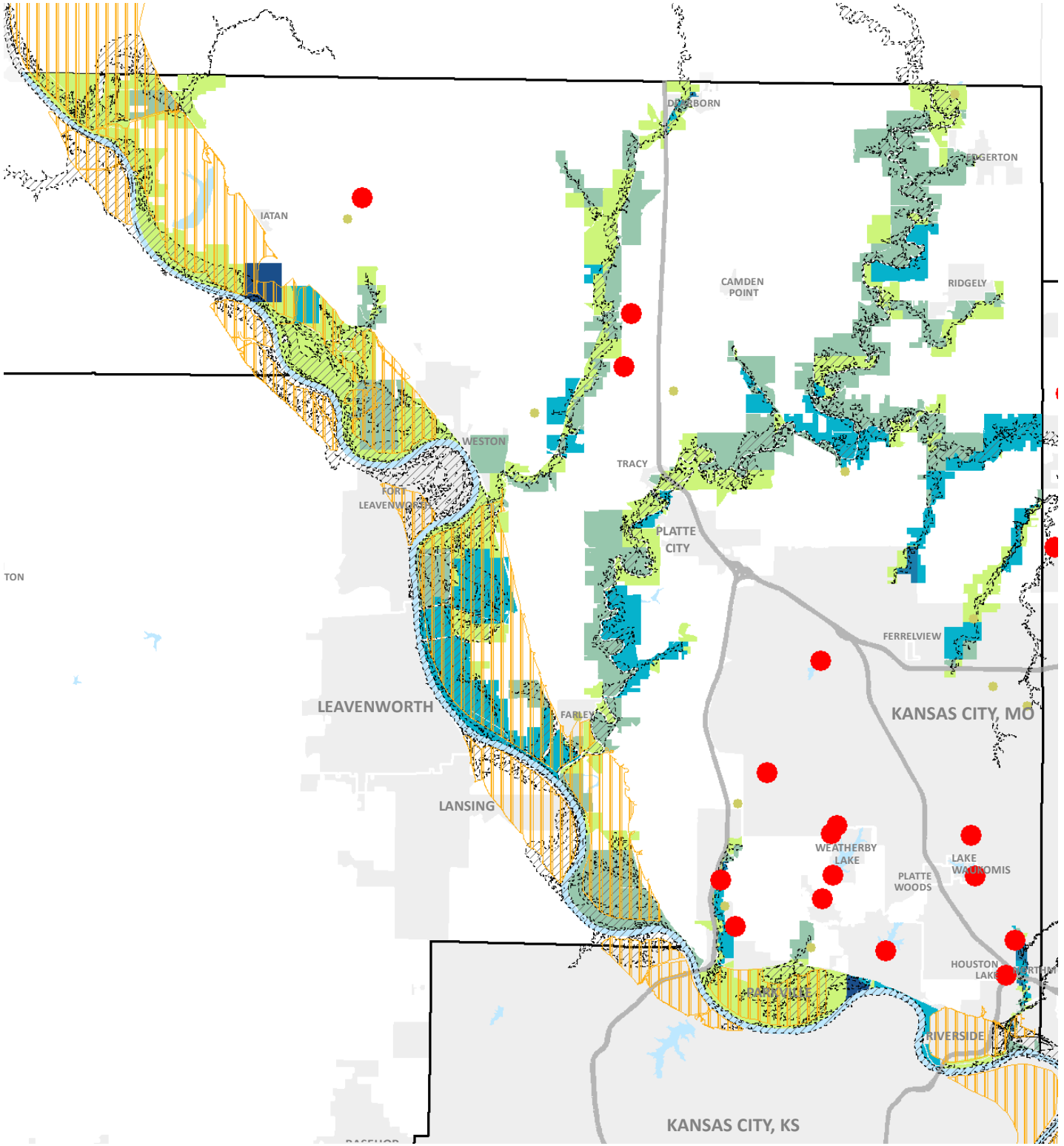
Building Loss : $22,671,000
Contents Loss : $24,073,000
Inventory Loss : $831,000
Wage Loss : $120,000
Income Loss : $38,000
Relocation Costs : $15,000
Rental Income Loss : $9,000

Buildings in Flood Boundary : 204

Buildings in Leveed Area : 645

Note: HAZUS estimates for General Building Stock are based on Census block level geographies.





Platte County Flood Loss Estimates (Parcels)

Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Parcel Improvement Value ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 1,453

Improvement Value : $376,320,921

Land Value : $55,998,007

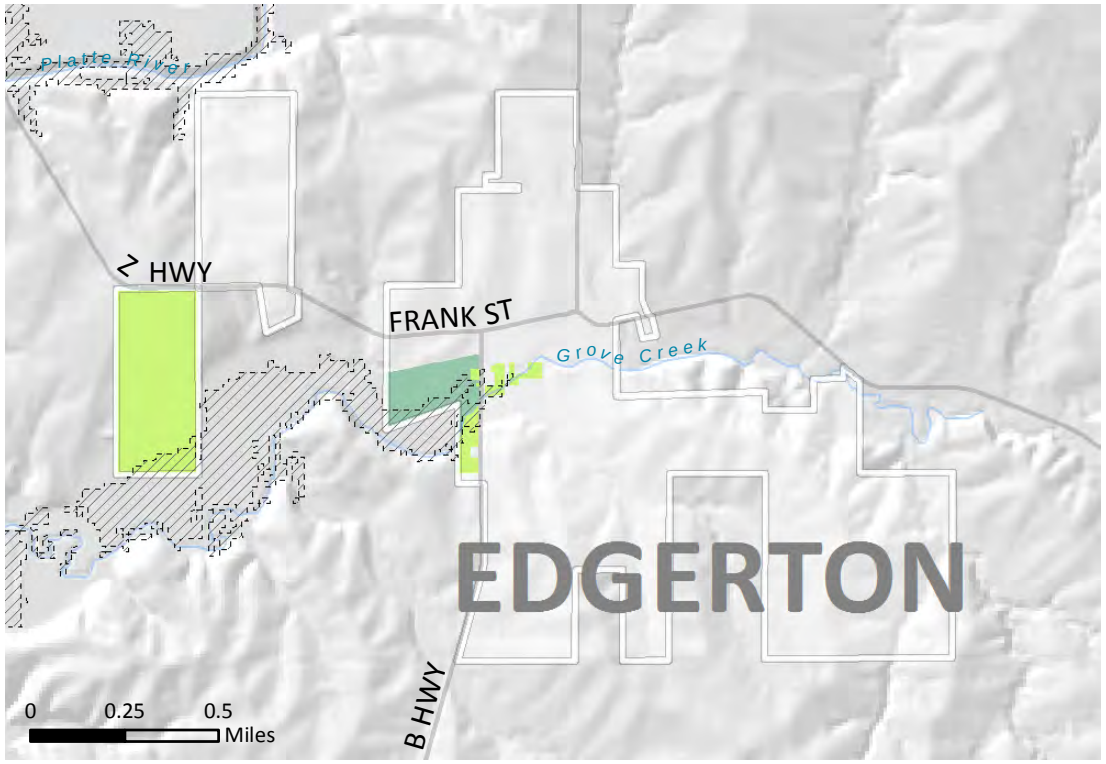
Total Value : $432,318,928

Buildings in Flood Boundary : 204

Buildings in Leveed Area : 645

Note: Parcel estimates for loss are based on 2012 county parcel data for improvement value. Parcels have been aggregated / dissolved by census block geographies for comparison with HAZUS data.





Edgerton Flood Loss Estimates (Parcels)

Total affected parcels : 12

Total Imprvmt. Value : $201,260

Total Land Value : $126,249

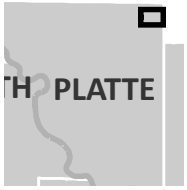
Total Value : $327,509

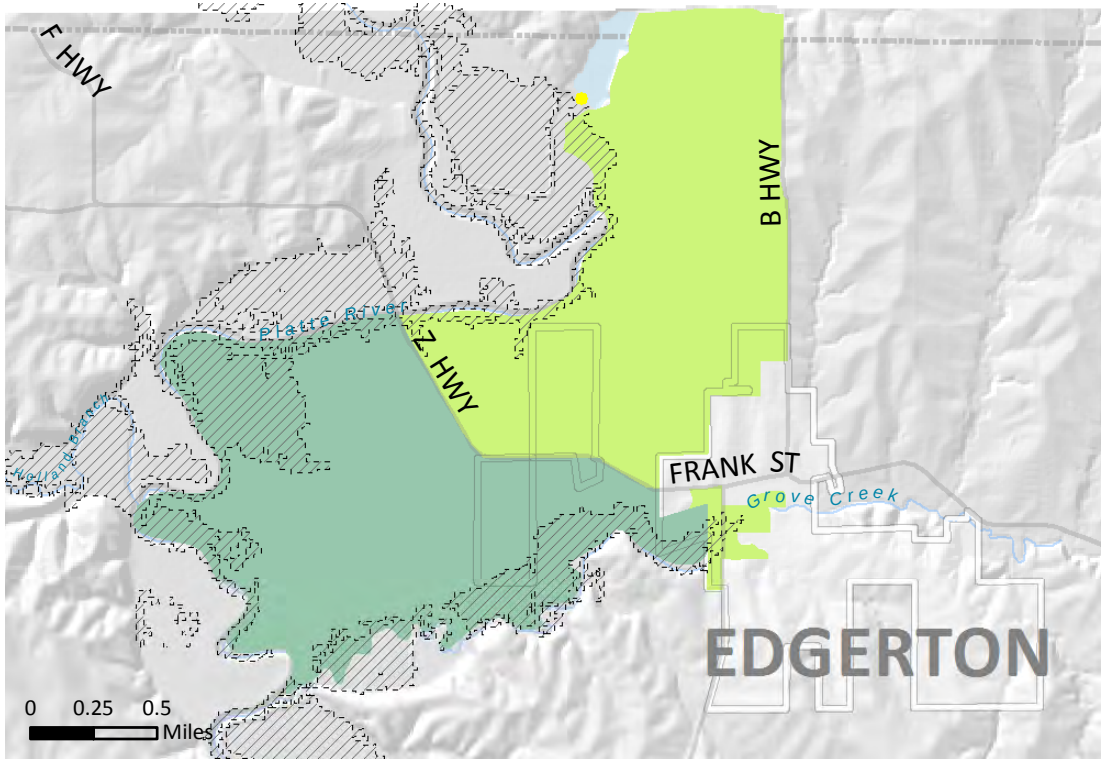
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.





Edgerton Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 10

Total Loss : $383,000

Building Loss : $108,000

Contents Loss : $274,000

Other Loss : $10,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

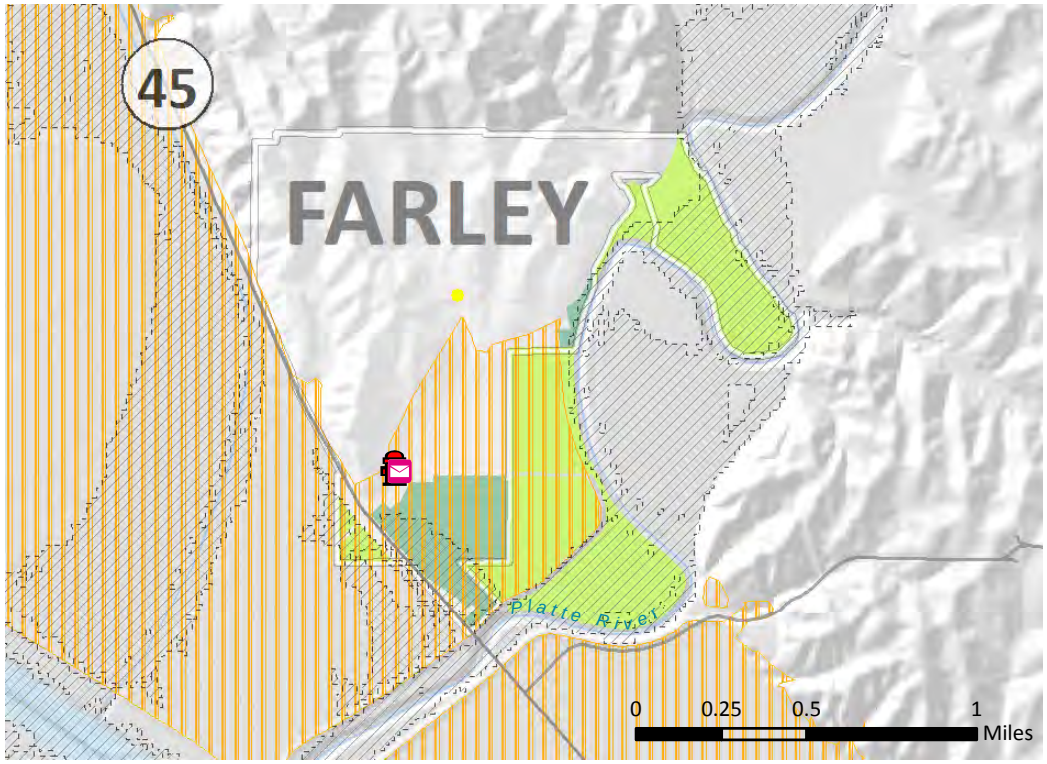
Buildings in Flood Boundary : 0

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

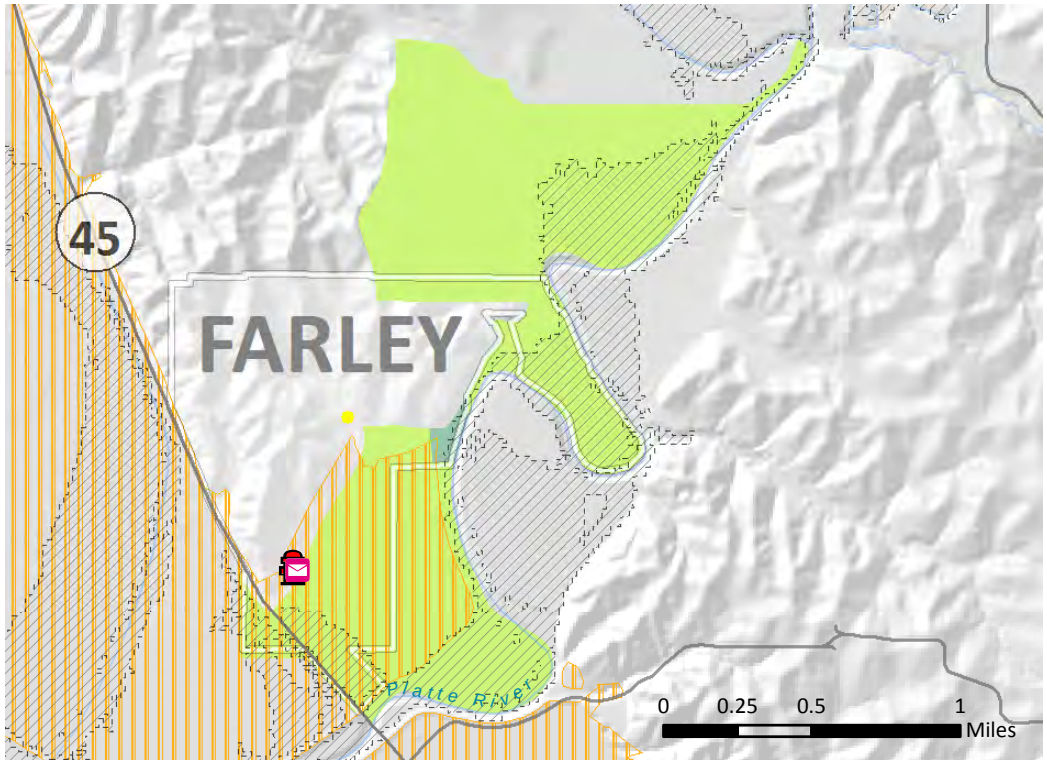
Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary







Farley Flood Loss Estimates (Parcels)

Total affected parcels : 23

Total Imprvmt. Value : $339,043

Total Land Value : $342,325

Total Value : $681,368

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1

Buildings in Leveed Area : 78

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

Farley Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 8

Total Loss : $171,000

Building Loss : $110,000

Contents Loss : $60,000

Other Loss : $1,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1

Buildings in Leveed Area : 78

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Leveed Area

- Post Office (1)
- Fire (1)

Hazard Level of Dams

- High
- Significant
- Low

2013 HAZUS Flood Boundary

Leveed Area



Ferrelview Flood Loss Estimates (Parcels)

Total affected parcels : 0

Total Imprvmt. Value : $0

Total Land Value : $0

Total Value : $0

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Ferrelview Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 0

Total Loss : $0

Building Loss : $0

Contents Loss : $0

Other Loss : $0

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

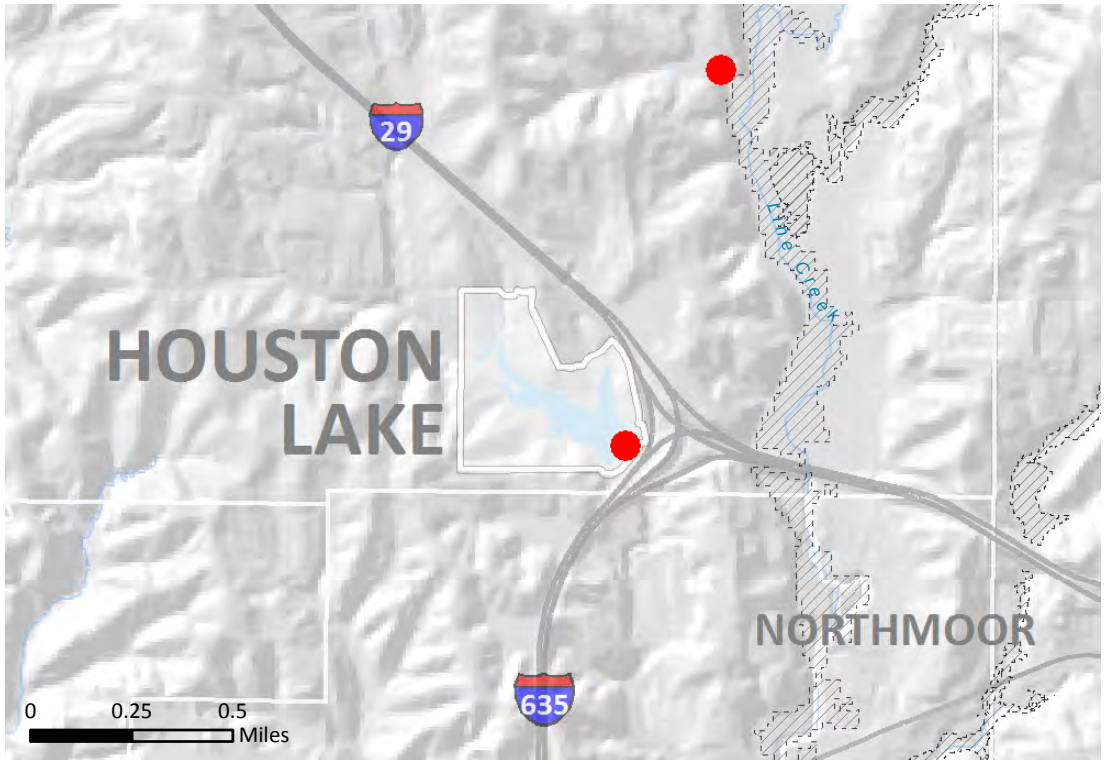
Buildings in Flood Boundary : 0

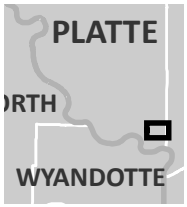
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Houston Lake Flood Loss Estimates (Parcels)

Total affected parcels : 0

Total Imprvmt. Value : $0

Total Land Value : $0

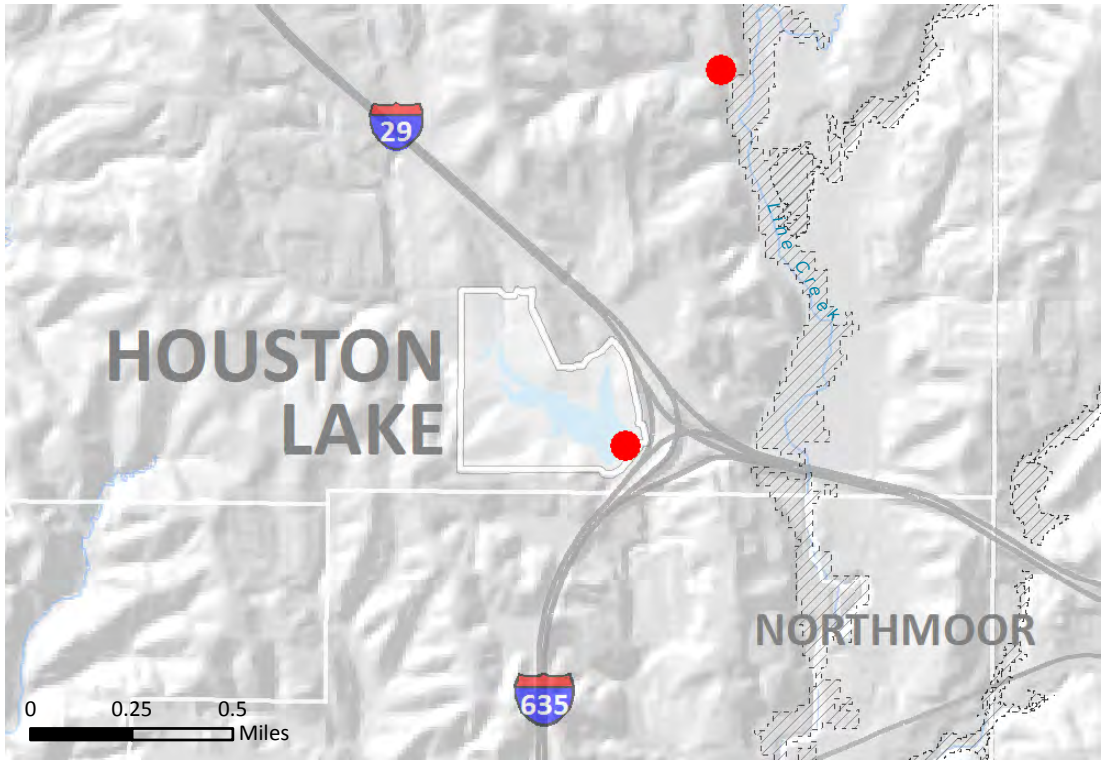
Total Value : $0

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Houston Lake Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 0

Total Loss : $0

Building Loss : $0

Contents Loss : $0

Other Loss : $0

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary

Kansas City - Platte Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 55

Total Imprvmt. Value : $13,463,143

Total Land Value : $3,200,914

Total Value : $16,664,057

Buildings in Flood Boundary : 21

Buildings in Leveed Area : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Kansas City - Platte Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 33

Total Loss : $17,426,000

Building Loss : $9,991,000

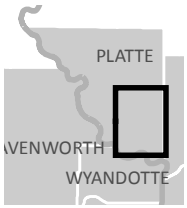
Contents Loss : $7,320,000

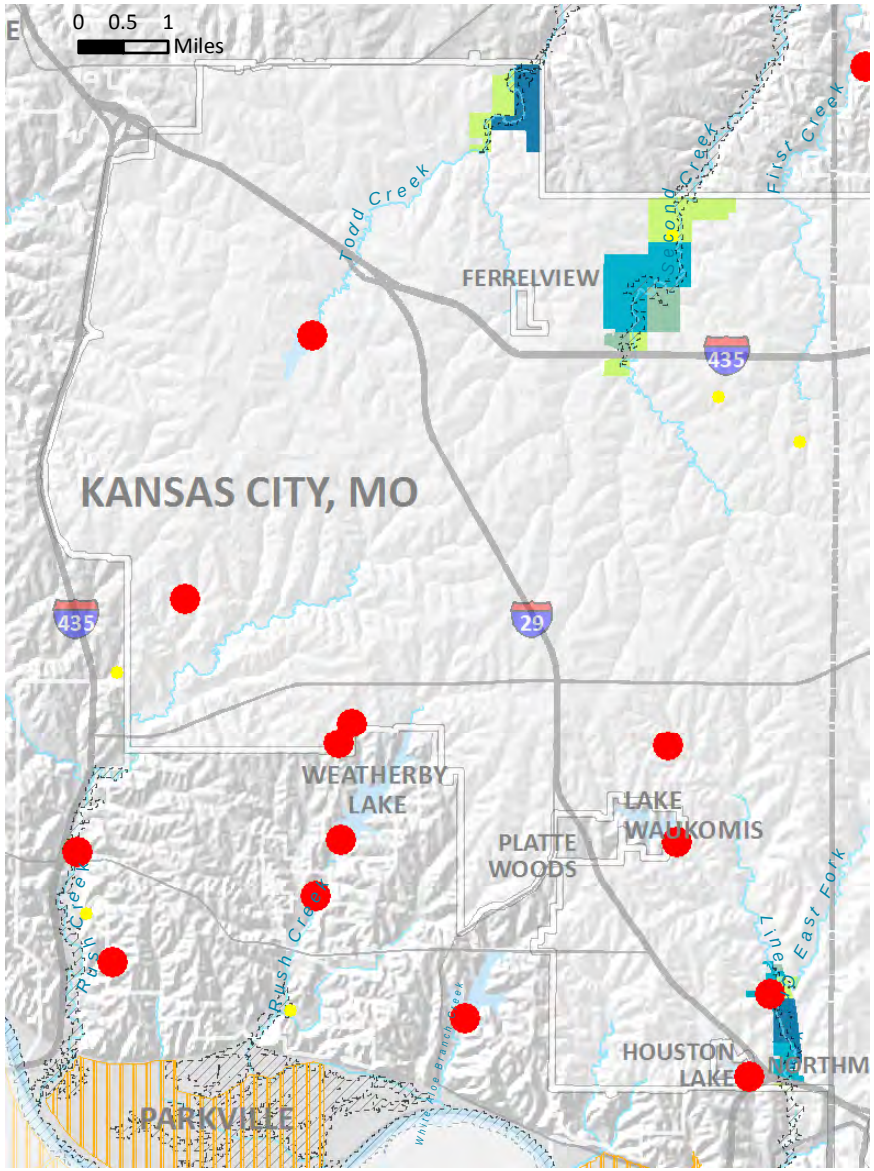
Other Loss : $115,000

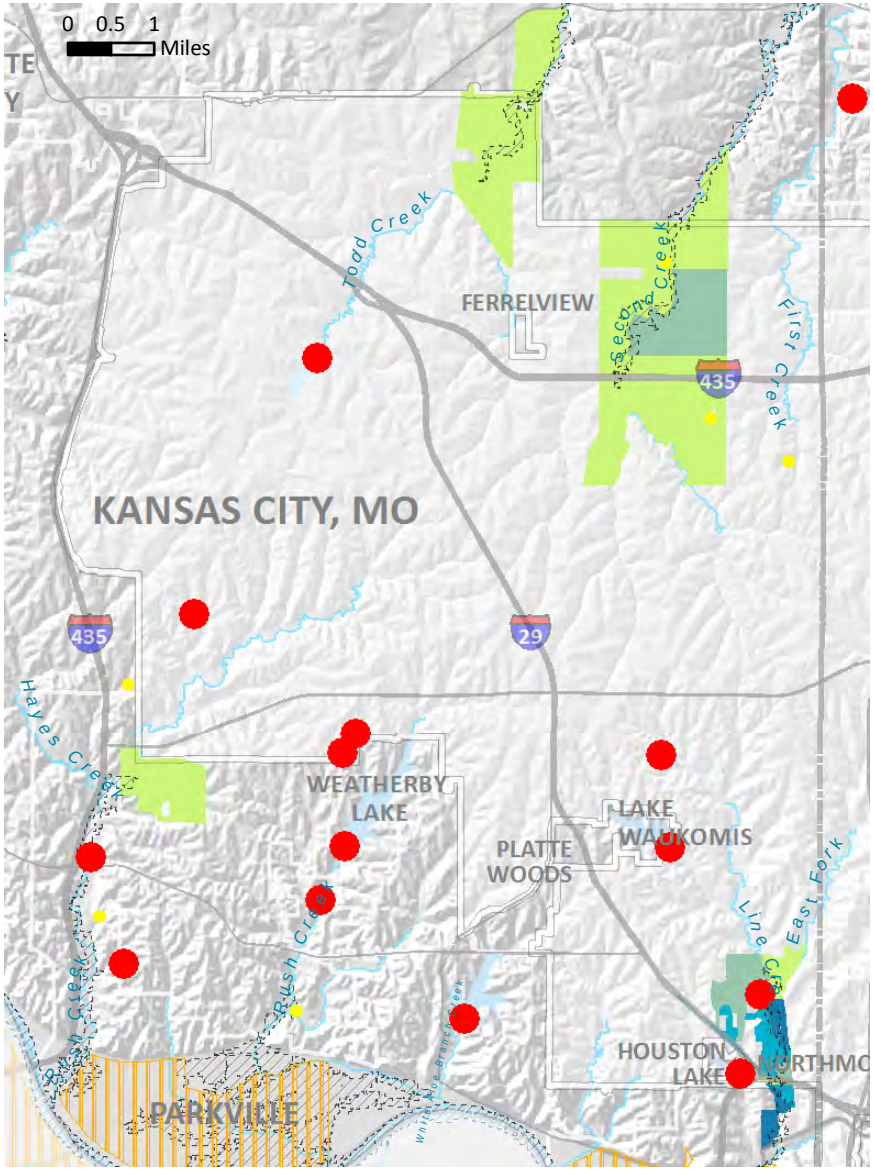
Buildings in Flood Boundary : 21

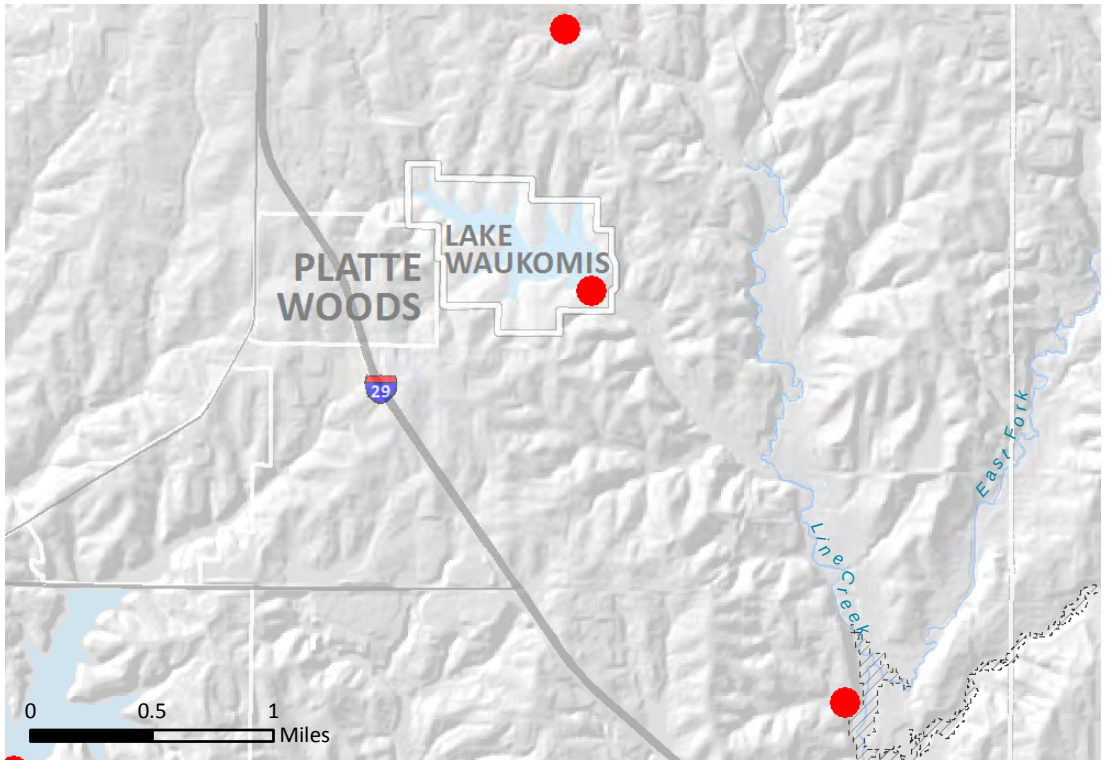
Buildings in Leveed Area : 0

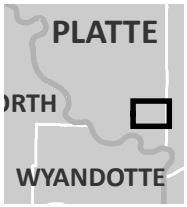
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.











Lake Waukomis Flood Loss Estimates (Parcels)

Total affected parcels : 0

Total Imprvmt. Value : $0

Total Land Value : $0

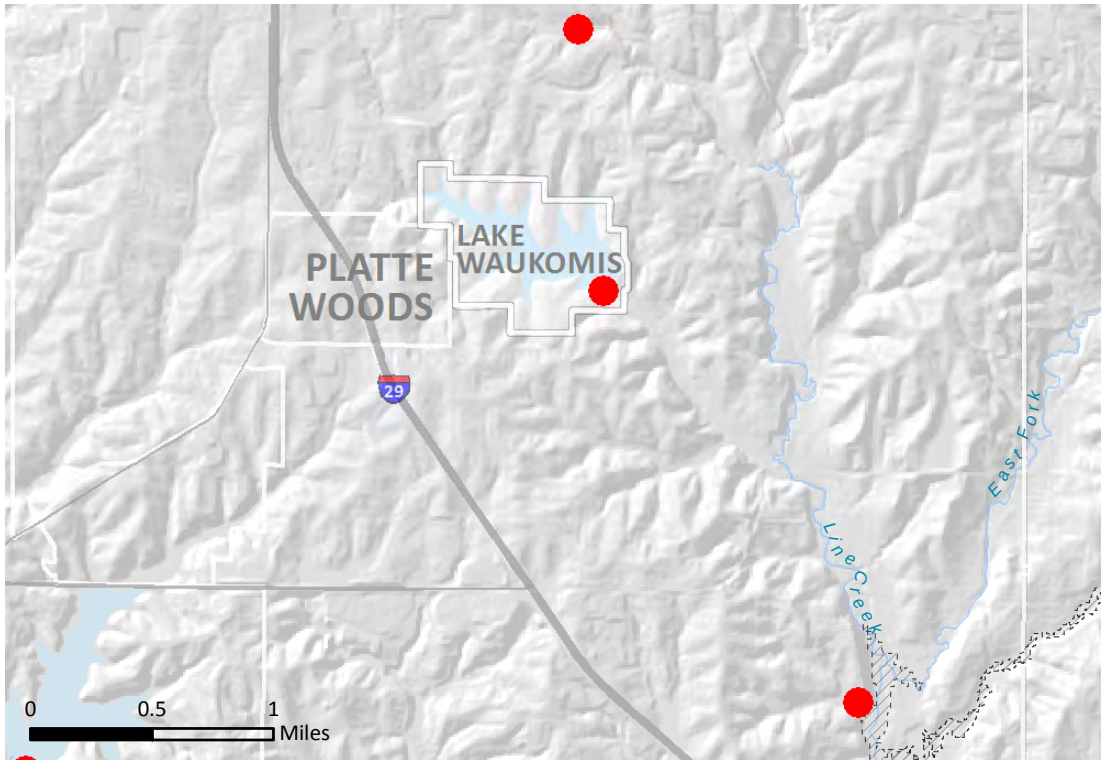
Total Value : $0

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Lake Waukomis Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 0

Total Loss : $0

Building Loss : $0

Contents Loss : $0

Other Loss : $0

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

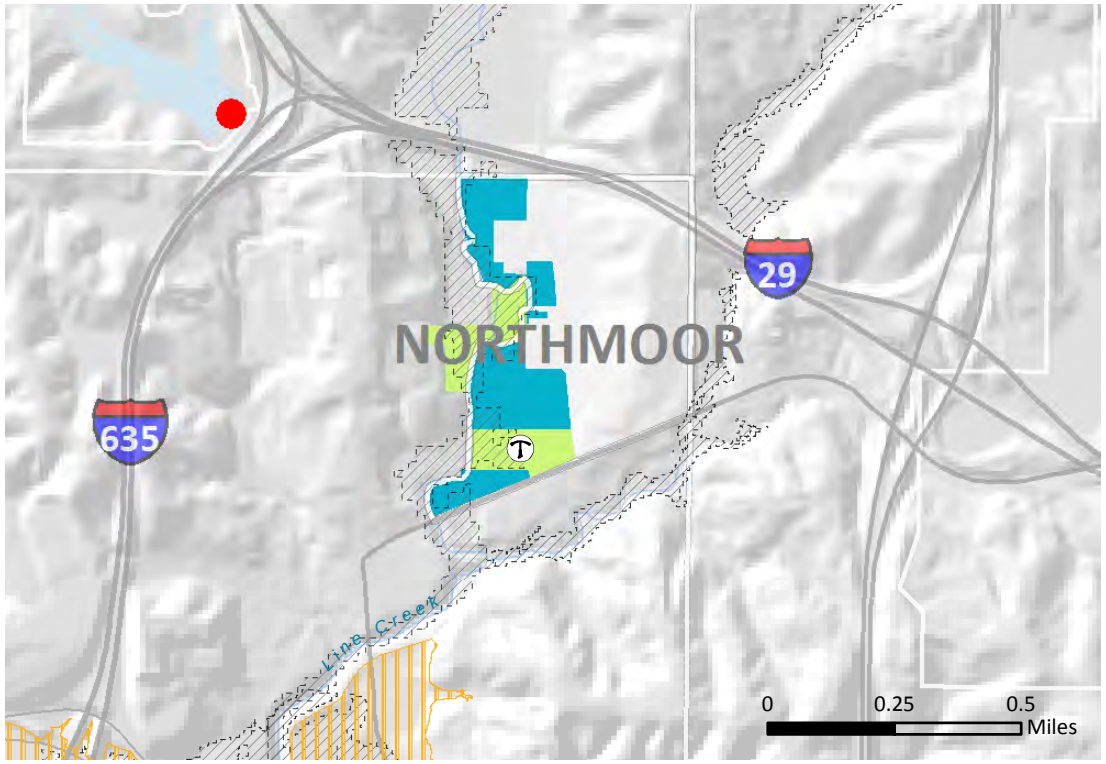
Buildings in Flood Boundary : 0

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary



Northmoor Flood Loss Estimates (Parcels)

Total affected parcels : 18

Total Imprvmt. Value : $3,461,553

Total Land Value : $1,421,780

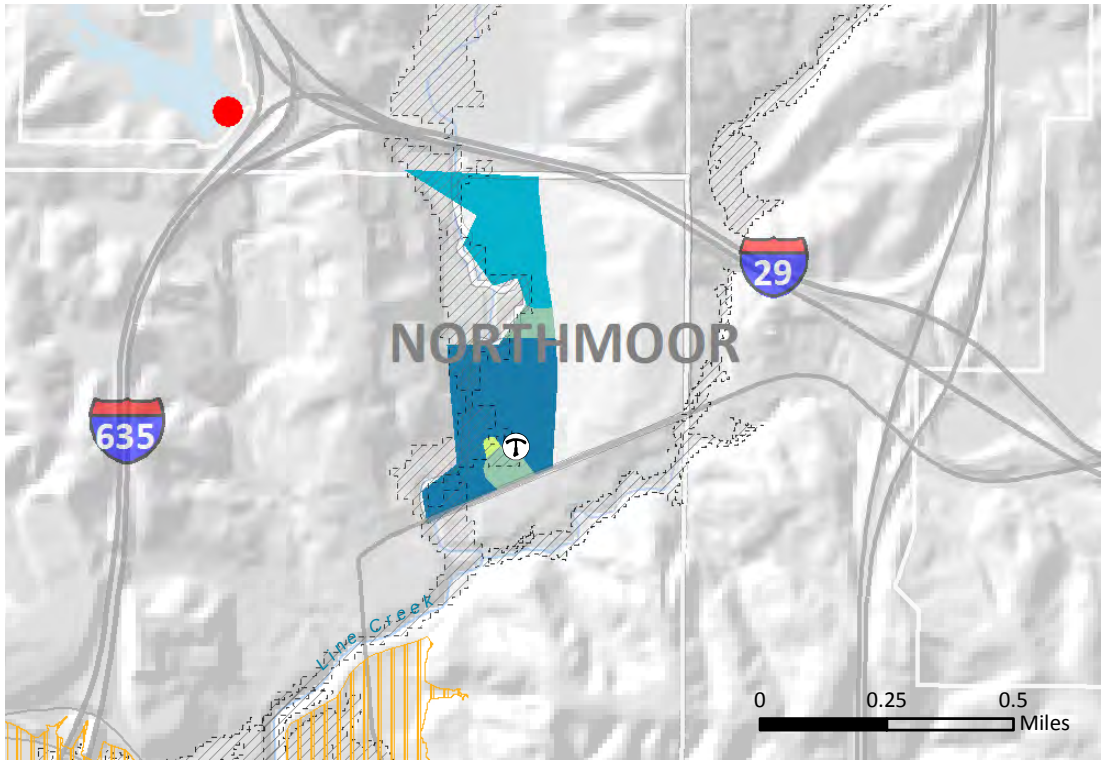
Total Value : $4,883,333

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 15

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Northmoor Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 5

Total Loss : $3,873,000

Building Loss : $1,578,000

Contents Loss : $2,173,000

Other Loss : $122,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 15

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary

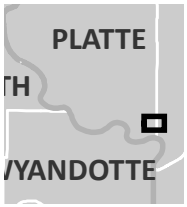
- Trailer Park (1)

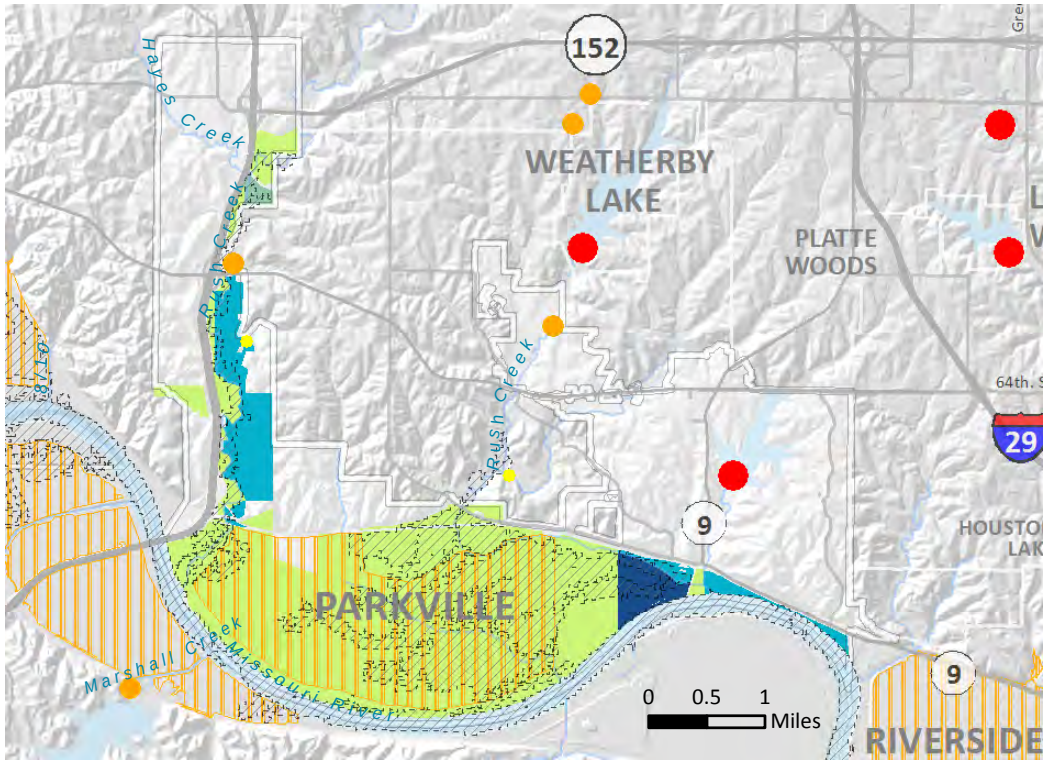
Hazard Level of Dams

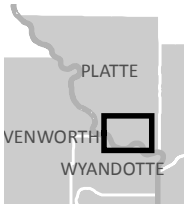
- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary







Parkville Flood Loss Estimates (Parcels)

Total affected parcels : 89

Total Imprvmt. Value : $19,509,064

Total Land Value : $3,564,631

Total Value : $23,073,695

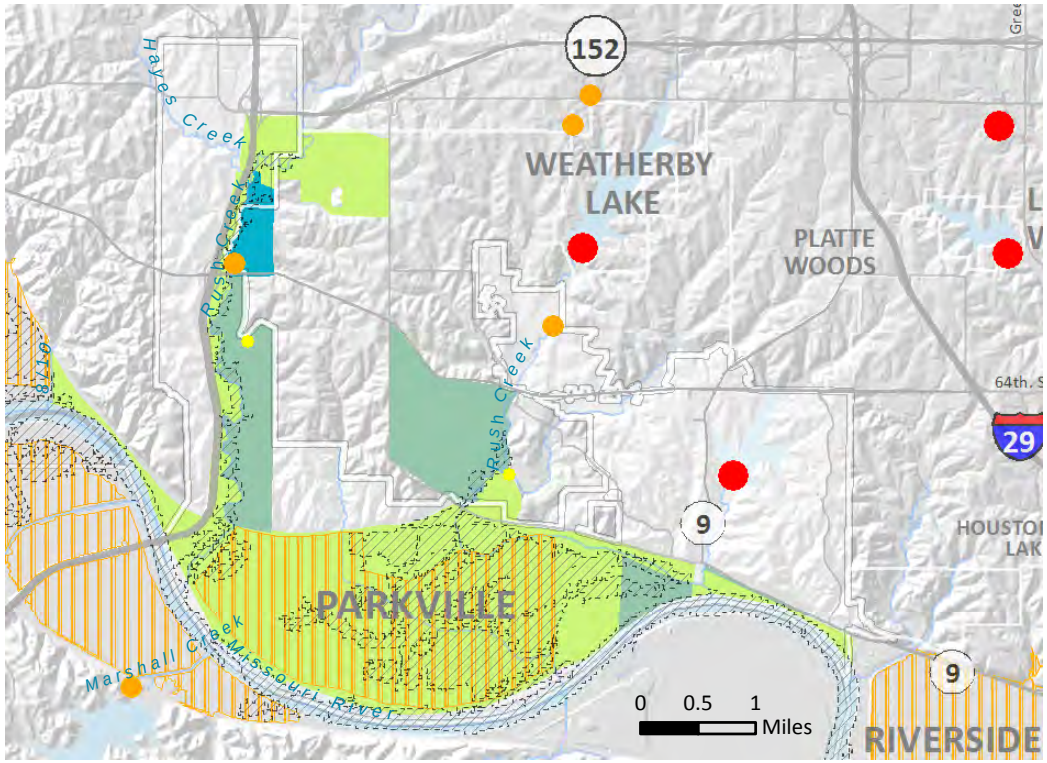
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 2

Buildings in Leveed Area : 2

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Parkville Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 30

Total Loss : $1,629,000

Building Loss : $909,000

Contents Loss : $713,000

Other Loss : $7,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 2

Buildings in Leveed Area : 2

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

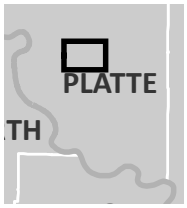
Hazard Level of Dams

- High
- Significant
- Low

2013 HAZUS Flood Boundary

Leveed Area





Platte City Flood Loss Estimates (Parcels)

Total affected parcels : 18

Total Imprvmt. Value : $1,363,114

Total Land Value : $920,798

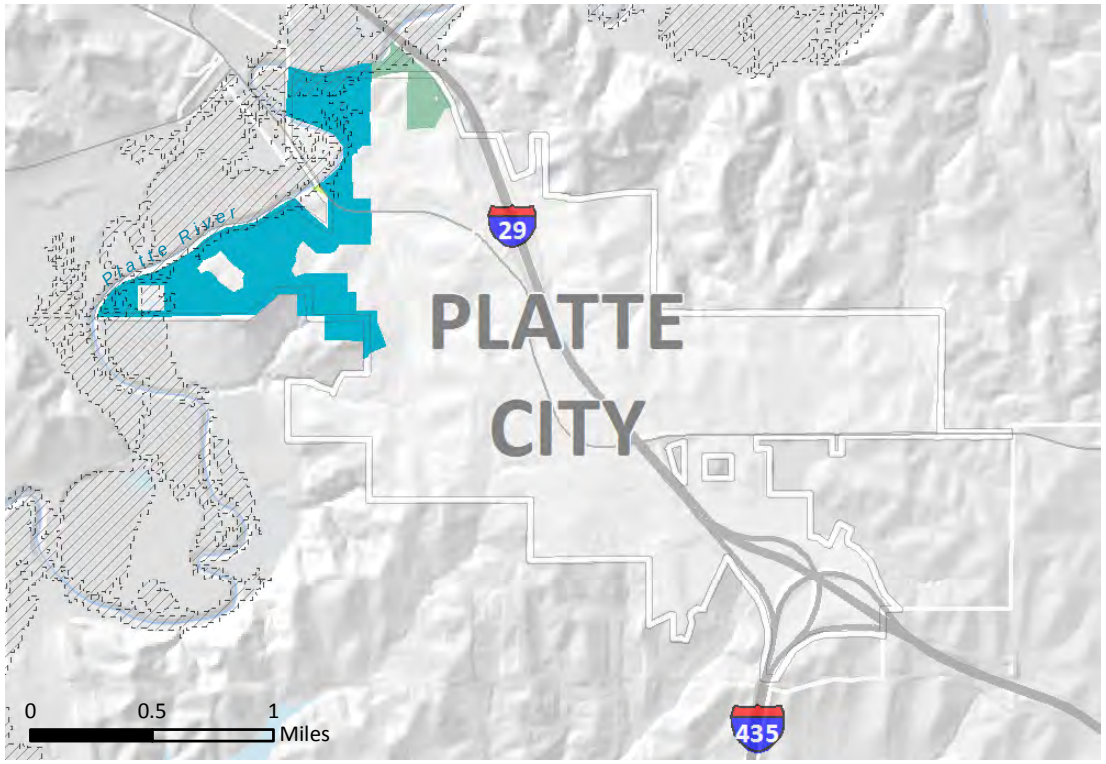
Total Value : $2,283,912

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Platte City Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 4

Total Loss : $2,174,000

Building Loss : $1,311,000

Contents Loss : $862,000

Other Loss : $1,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

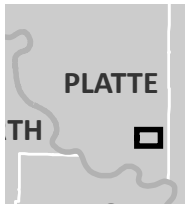
Buildings in Flood Boundary : 1

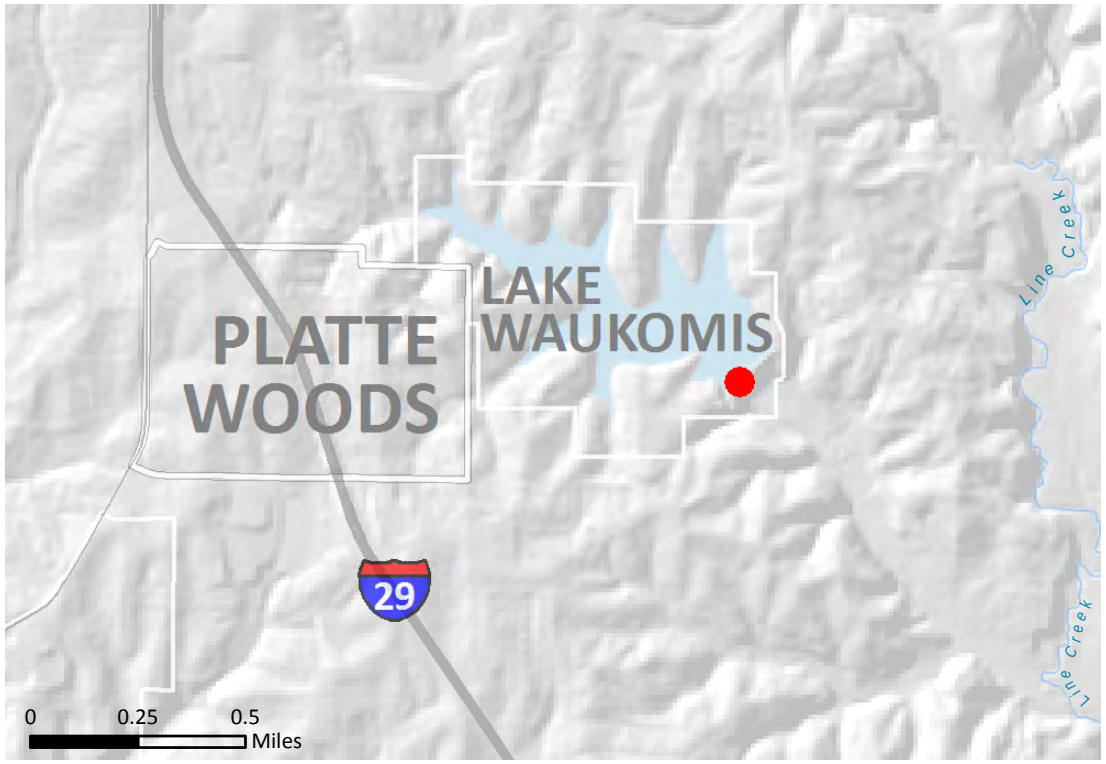
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Platte Woods Flood Loss Estimates (Parcels)

Total affected parcels : 0

Total Imprvmt. Value : $0

Total Land Value : $0

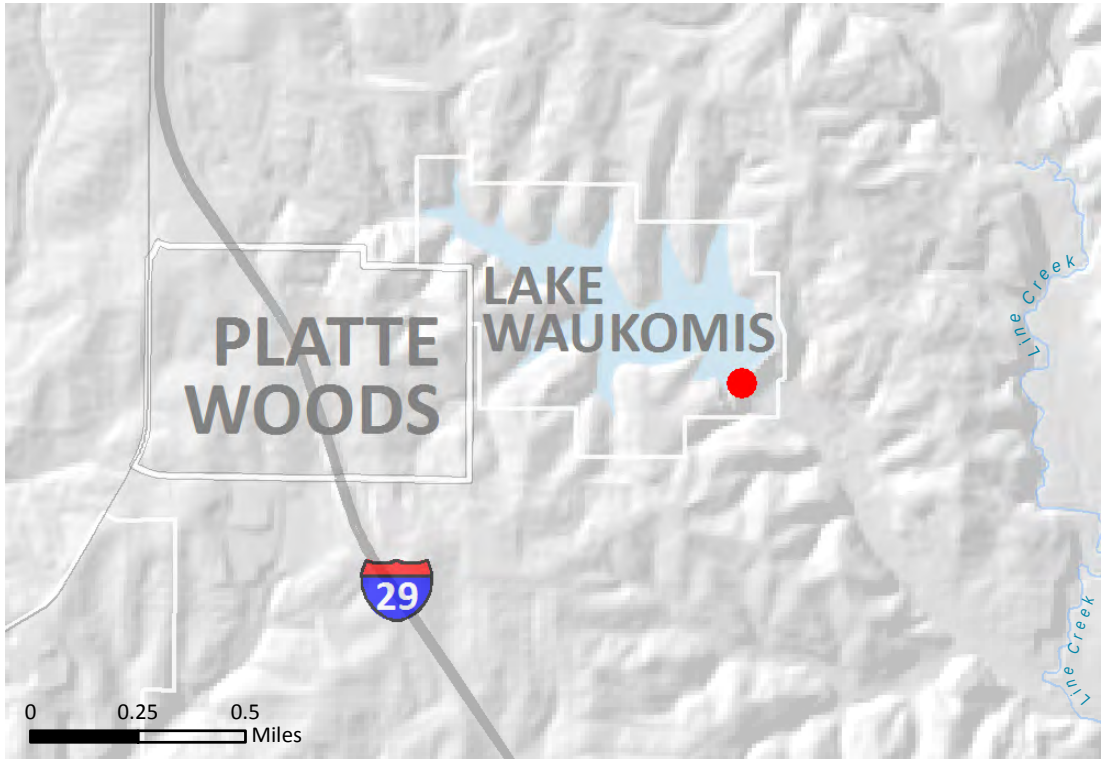
Total Value : $0

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Platte Woods Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 0

Total Loss : $0

Building Loss : $0

Contents Loss : $0

Other Loss : $0

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

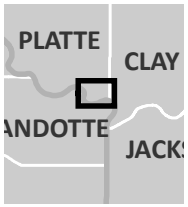
Buildings in Flood Boundary : 0

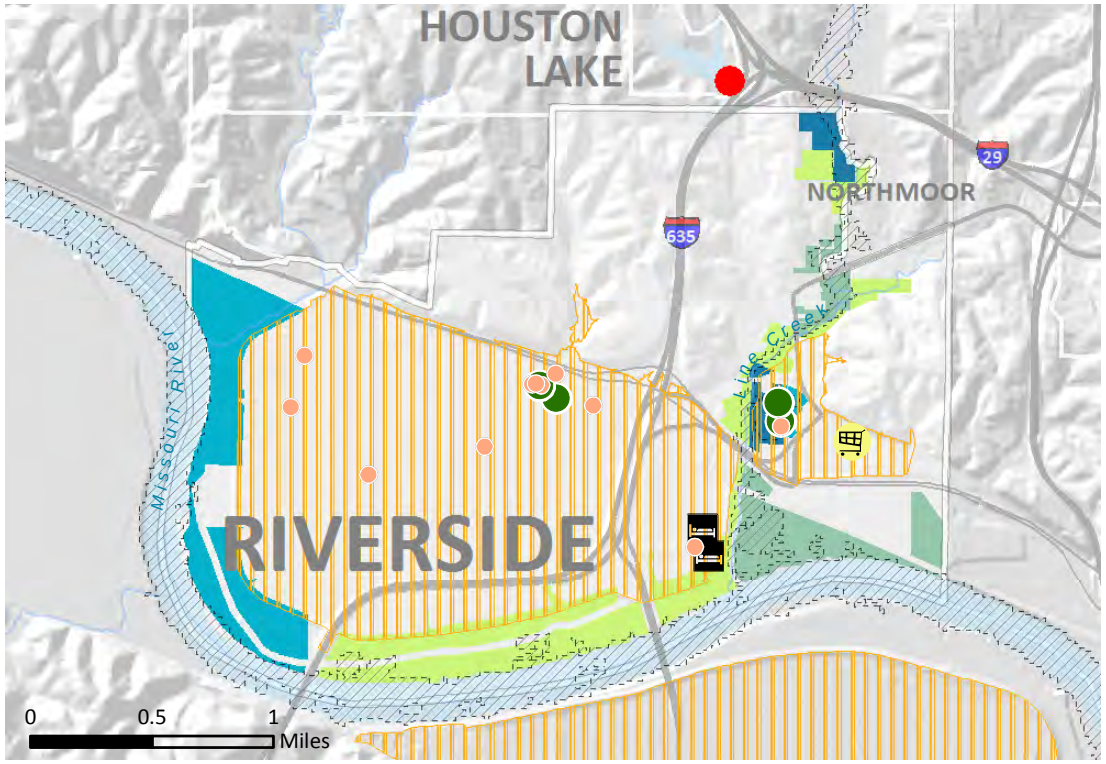
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary





Riverside Flood Loss Estimates (Parcels)

Total affected parcels : 121

Total Imprvmt. Value : $11,537,018

Total Land Value : $7,438,622

Total Value : $18,975,640

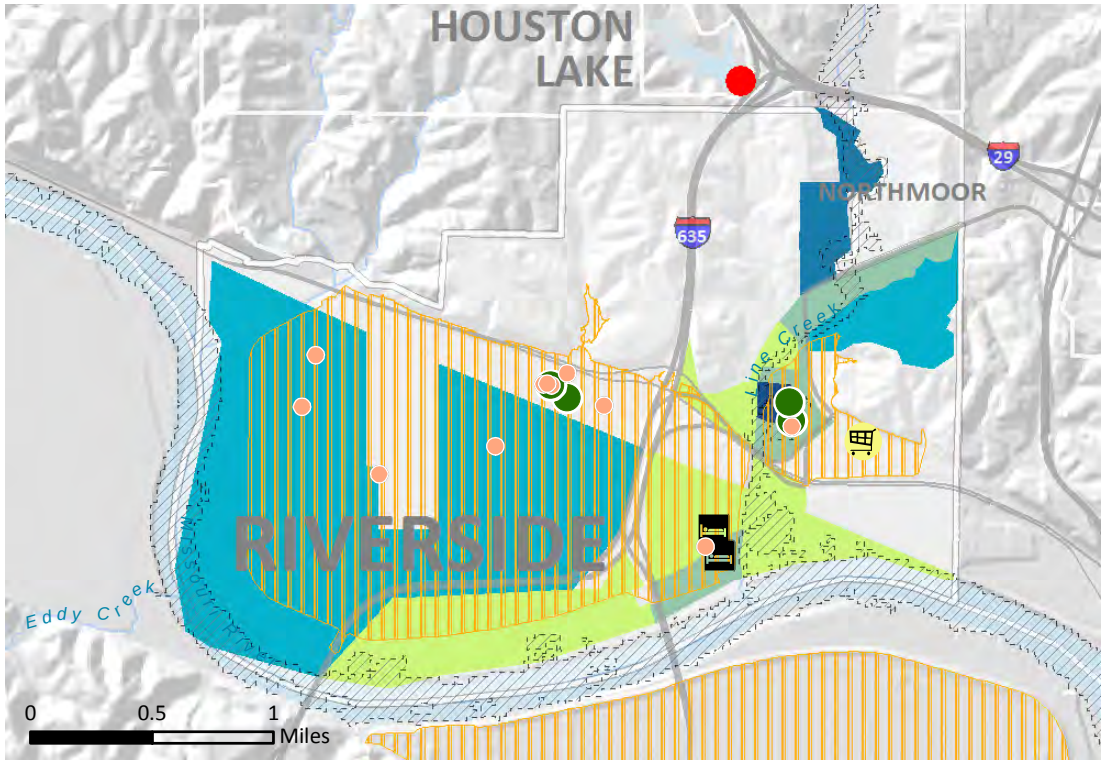
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 73

Buildings in Leveed Area : 97

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Riverside Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 21

Total Loss : $23,026,000

Building Loss : $9,734,000

Contents Loss : $12,607,000

Other Loss : $645,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 73

Buildings in Leveed Area : 97

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary or Leveed Area

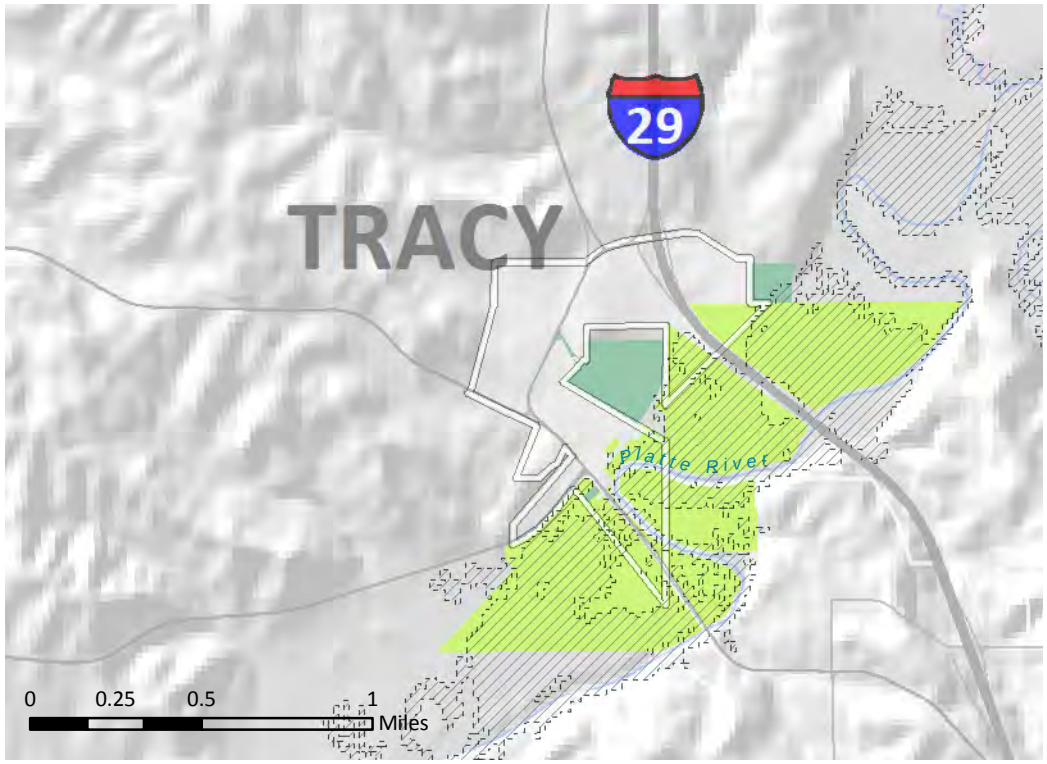
- Tier II (11)
- EPA FRS (4)
- Hotel (2)
- Shopping Centers (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary





Tracy Flood Loss Estimates (Parcels)

Total affected parcels : 31

Total Imprvmt. Value : $1,250,737

Total Land Value : $605,529

Total Value : $1,856,266

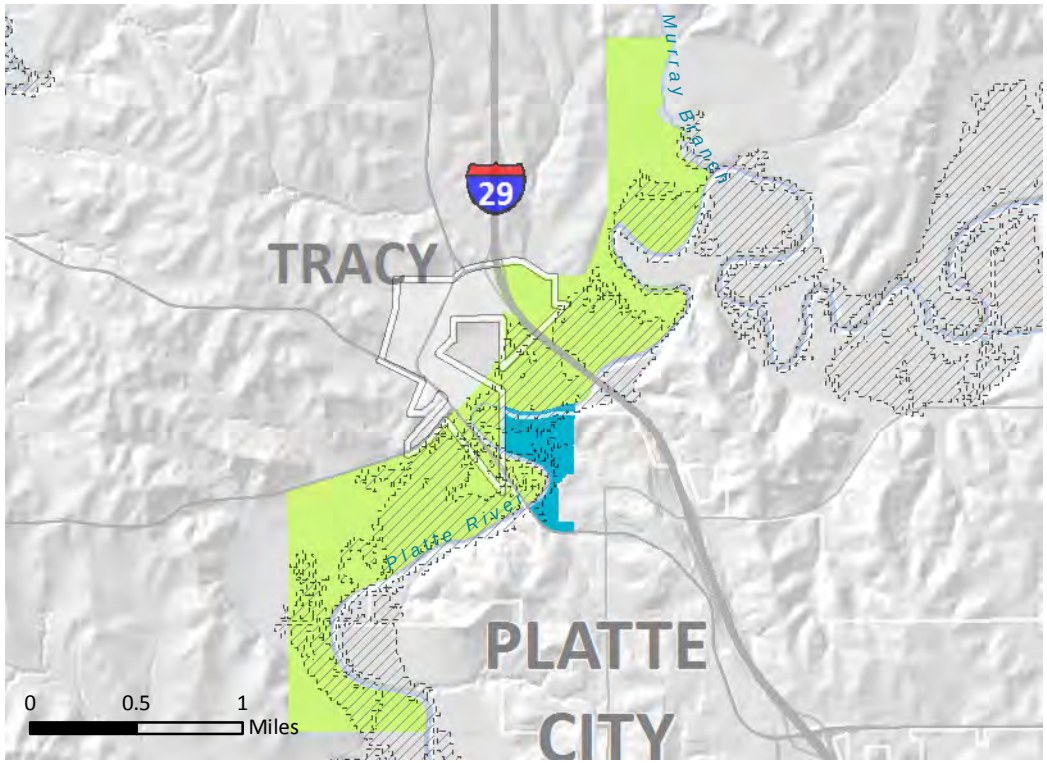
Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

2013 HAZUS Flood Boundary



Tracy Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 10

Total Loss : $1,435,000

Building Loss : $937,000

Contents Loss : $497,000

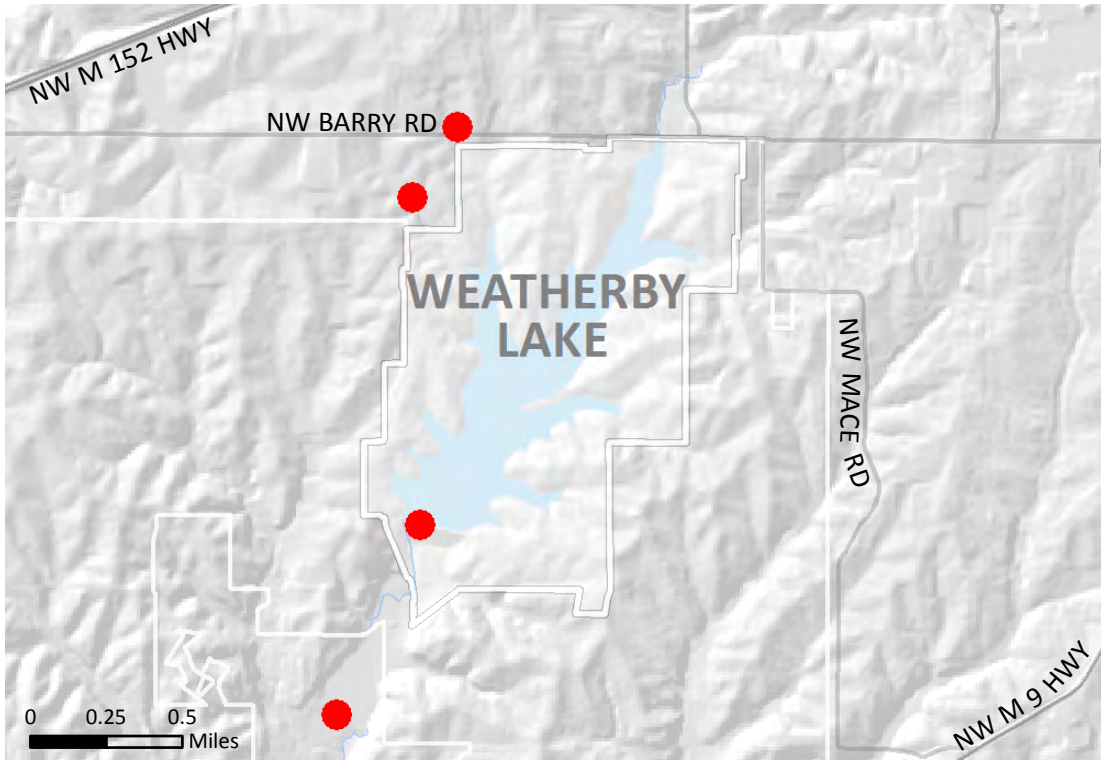
Other Loss : $1,000

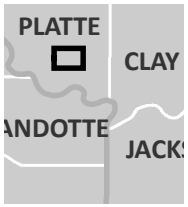
Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.





Weatherby Lake Flood Loss Estimates (Parcels)

Total affected parcels : 0

Total Imprvmt. Value : $0

Total Land Value : $0

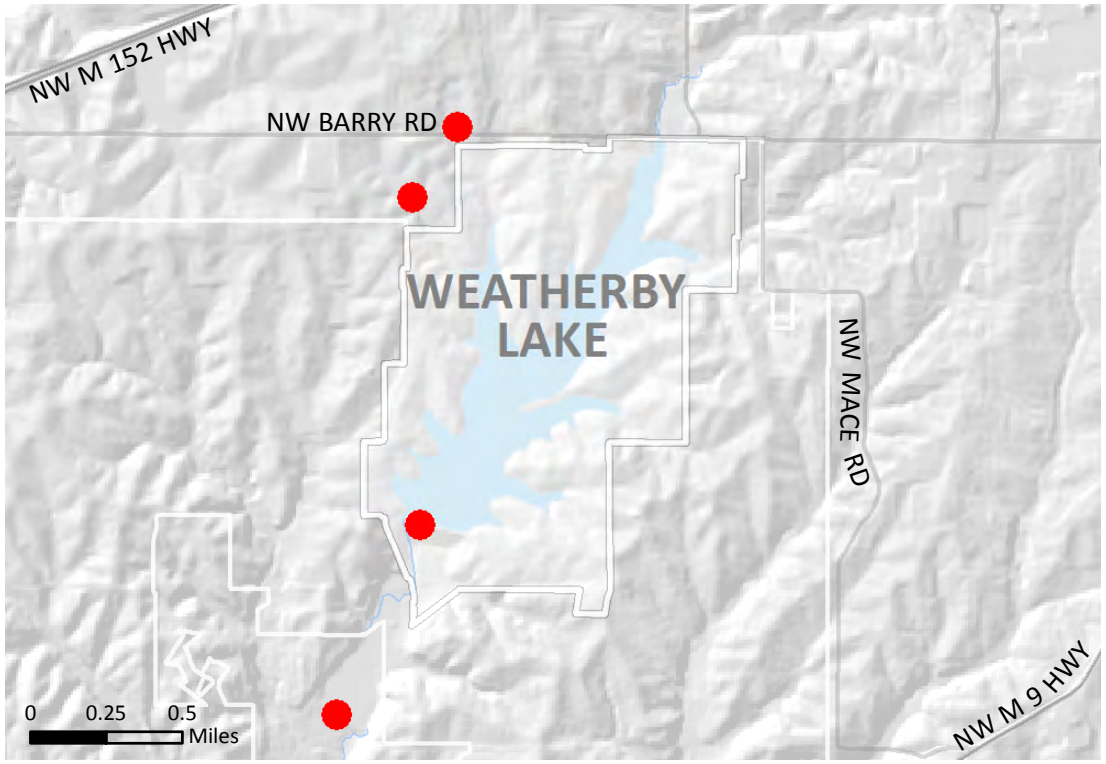
Total Value : $0

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 0

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Weatherby Lake Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 0

Total Loss : $0

Building Loss : $0

Contents Loss : $0

Other Loss : $0

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

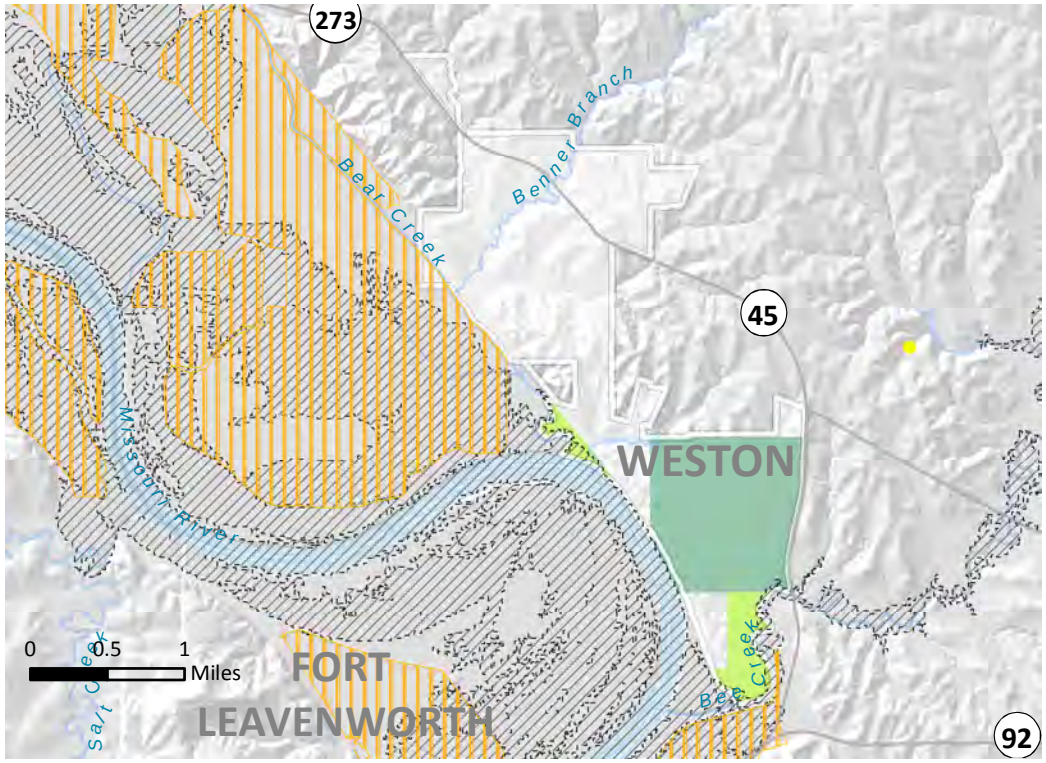
Buildings in Flood Boundary : 0

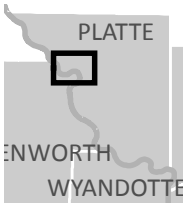
Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

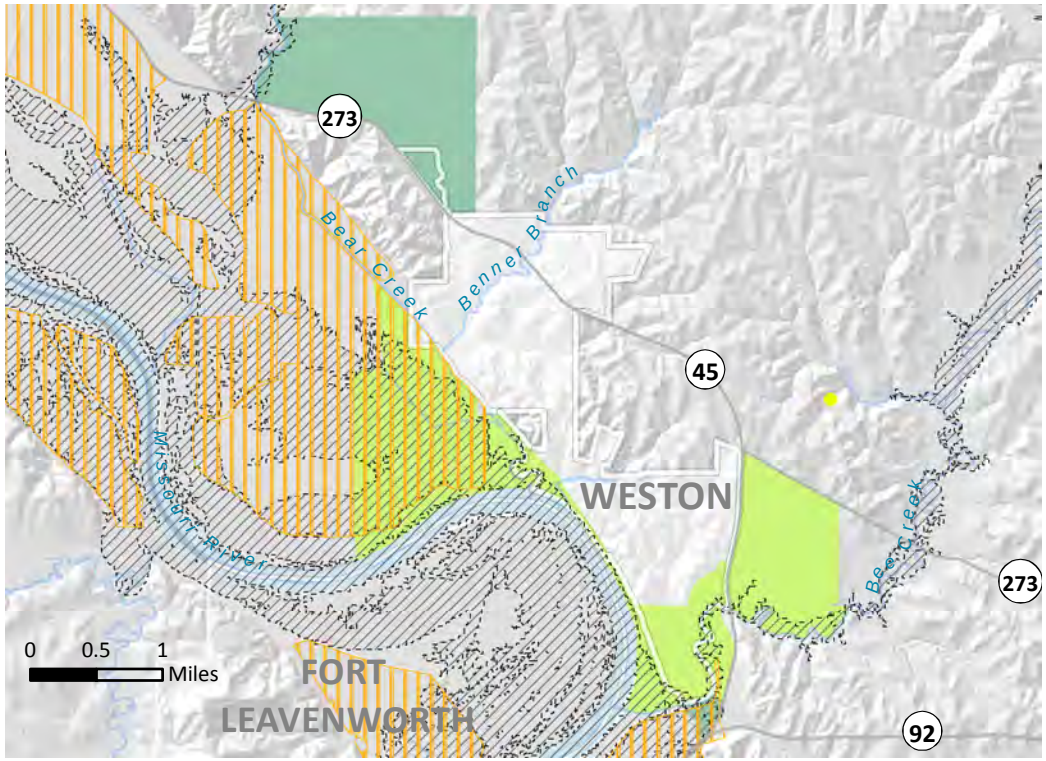
Hazard Level of Dams

- Low
- Significant
- High

2013 HAZUS Flood Boundary







Weston Flood Loss Estimates (Parcels)

Total affected parcels : 13

Total Imprvmt. Value : $295,128

Total Land Value : $514,266

Total Value : $809,394

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.

Weston Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 13

Total Loss : $485,000

Building Loss : $179,000

Contents Loss : $305,000

Other Loss : $1,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : 1

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

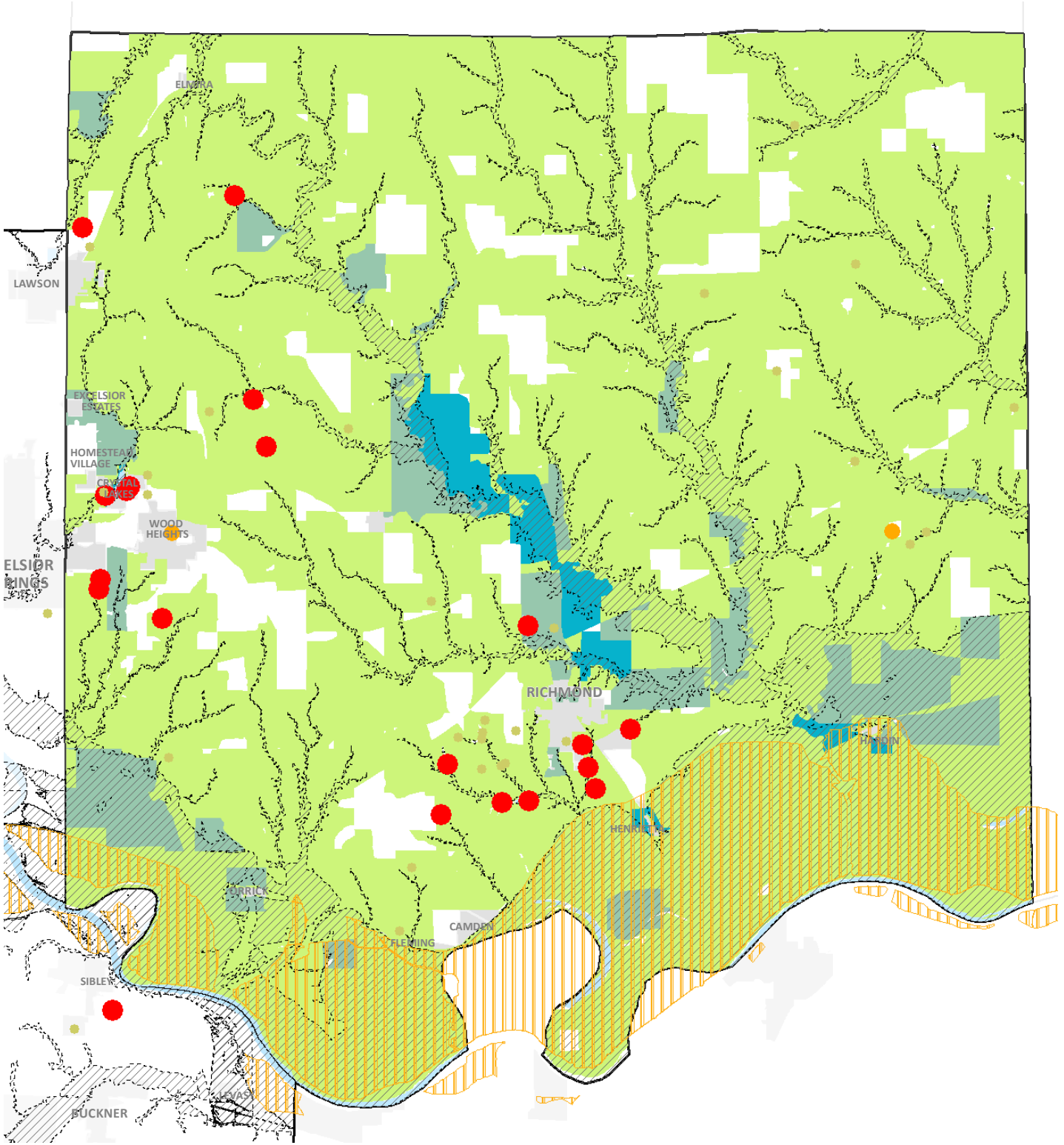
Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Ray County Flood Loss Estimates (HAZUS)



Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Total Direct Economic Loss ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census blocks : 989

Total Loss : $34,019,000

Building Loss : $18,246,000

Contents Loss : $15,129,000

Inventory Loss : $358,000

Wage Loss : $259,000

Income Loss : $15,000

Relocation Costs : $11,000

Rental Income Loss : $1,000

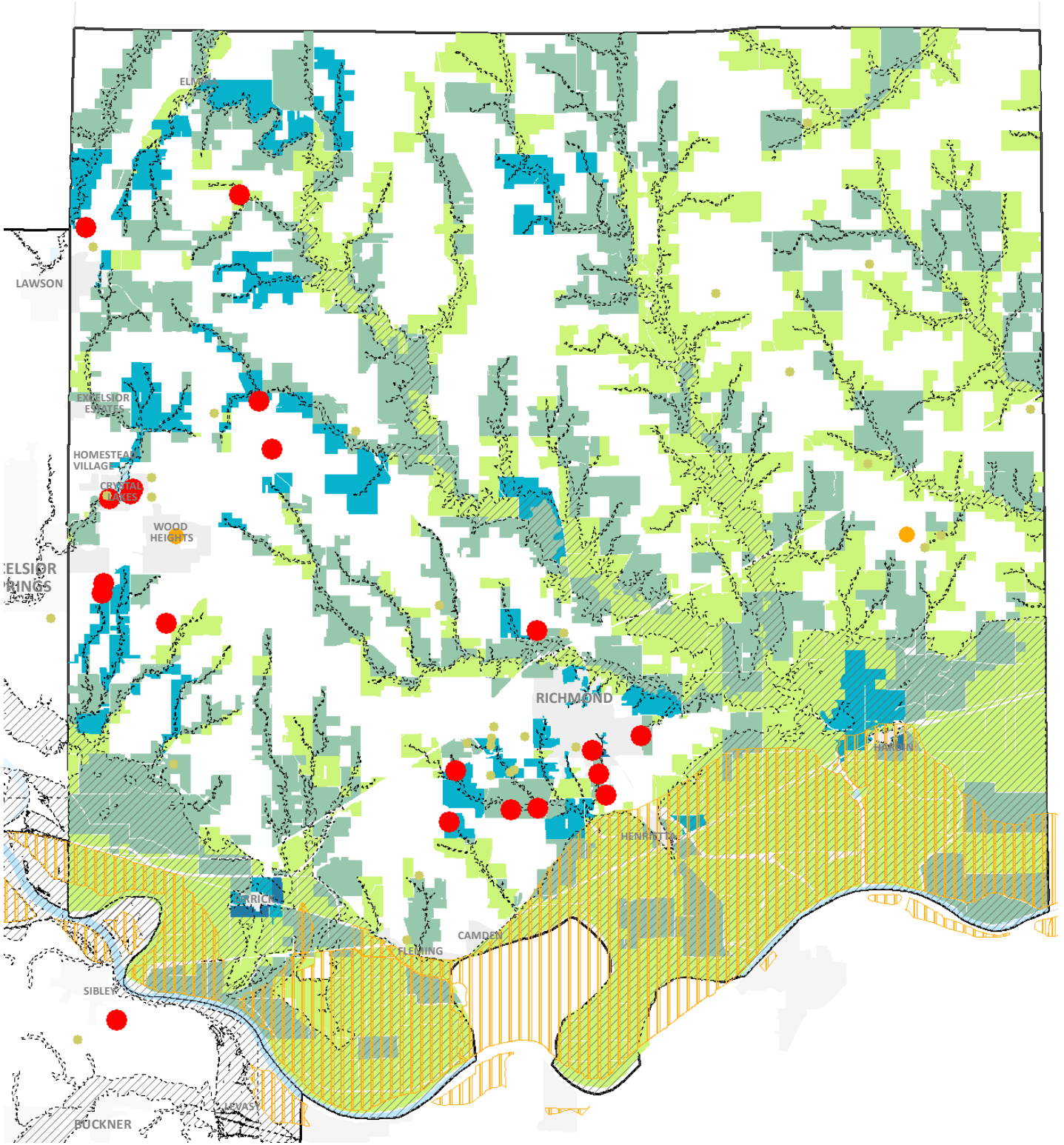
Buildings in Flood Boundary : N/A

Buildings in Leveed Area : N/A

Note: HAZUS estimates for General Building Stock are based on Census block level geographies.



Ray County Flood Loss Estimates (Parcels)



Hazard Level of Dams
- Low
- Significant
- High
- Leveed Area
- HAZUS Flood Boundary

Parcel Improvement Value ($)
- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 3,828

Improvement Value : $128,254,499

Land Value : $89,192,541

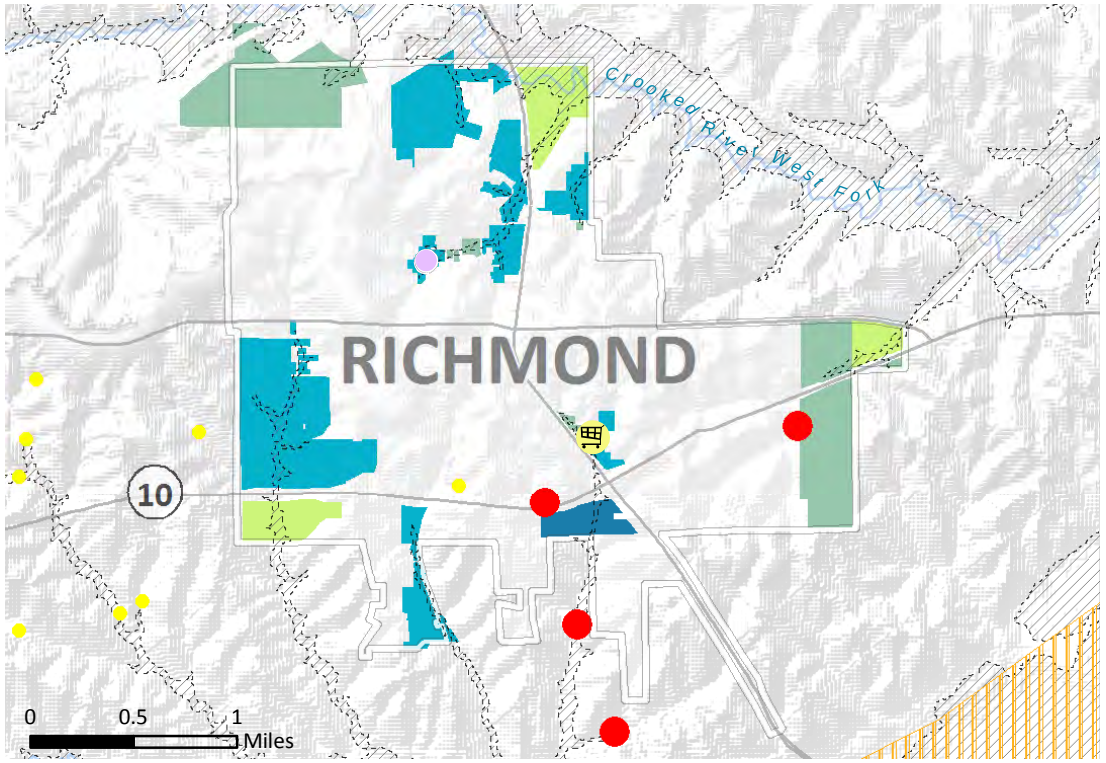
Total Value : $217,447,040

Buildings in Flood Boundary : N/A

Buildings in Leveed Area : N/A

Note: Parcel estimates for loss are based on 2012 county parcel data for improvement value. Parcels have been aggregated / dissolved by census block geographies for comparison with HAZUS data.







Richmond Flood Loss Estimates (Parcels)

Total affected parcels : 147

Total Imprvmt. Value : $16,399,930

Total Land Value : $300,410

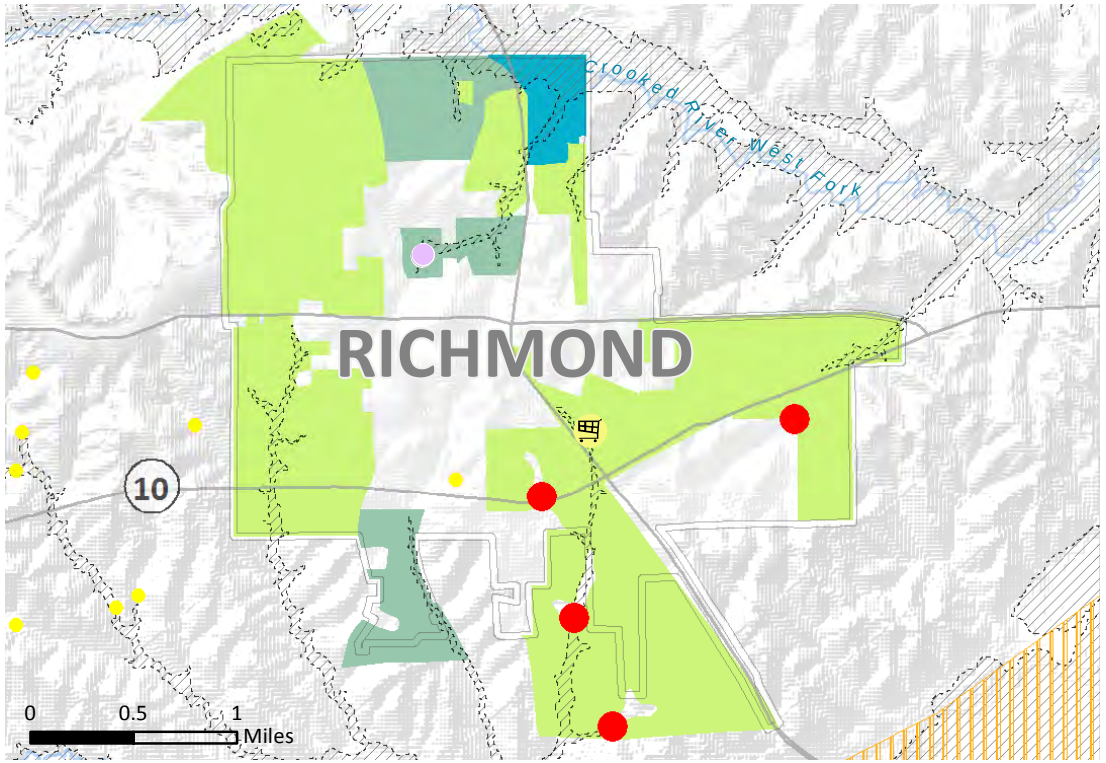
Total Value : $16,700,340

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : N/A

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.



Richmond Flood Loss Estimates (HAZUS)

Total affected Census Blocks : 29

Total Loss : $3,135,000

Building Loss : $1,214,000

Contents Loss : $1,883,000

Other Loss : $10,000

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Buildings in Flood Boundary : N/A

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Critical Facilities in Flood Boundary

- Public Housing (3)
- Shopping Centers (1)

Hazard Level of Dams

- Low
- Significant
- High

Leveed Area

2013 HAZUS Flood Boundary

Kansas City Flood Loss Estimates (Parcels)

Parcel Improvement Value ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected parcels : 6,260

Total Imprvmt. Value : $3,460,961,512

Total Land Value : $771,143,450

Total Value : $4,232,104,962

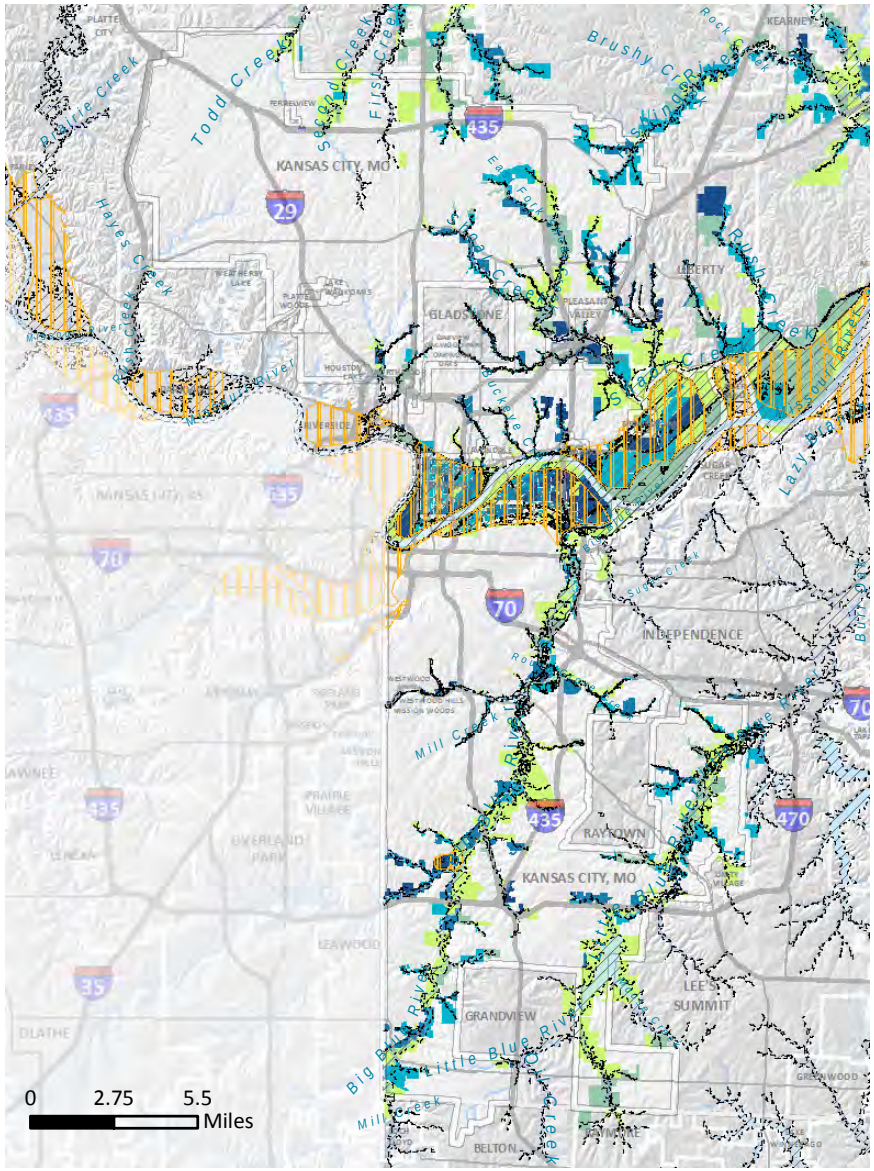
Leveed Area

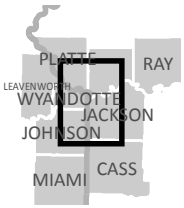
2013 HAZUS Flood Boundary

Buildings in Flood Boundary : 4,819

Buildings in Leveed Area : 3,420

Note: Parcel estimates for loss are based on 2012 parcel data for improvement value as provided by the county.





Kansas City Flood Loss Estimates (HAZUS)

Total Direct Economic Loss ($)

- 0 - 100,000
- 100,001 - 500,000
- 500,001 - 2,000,000
- 2,000,001 - 10,000,000
- 10,000,001 - 310,000,000

Total affected Census Blocks : 1,471

Total Loss : $1,753,351,000

Building Loss : $622,702,000

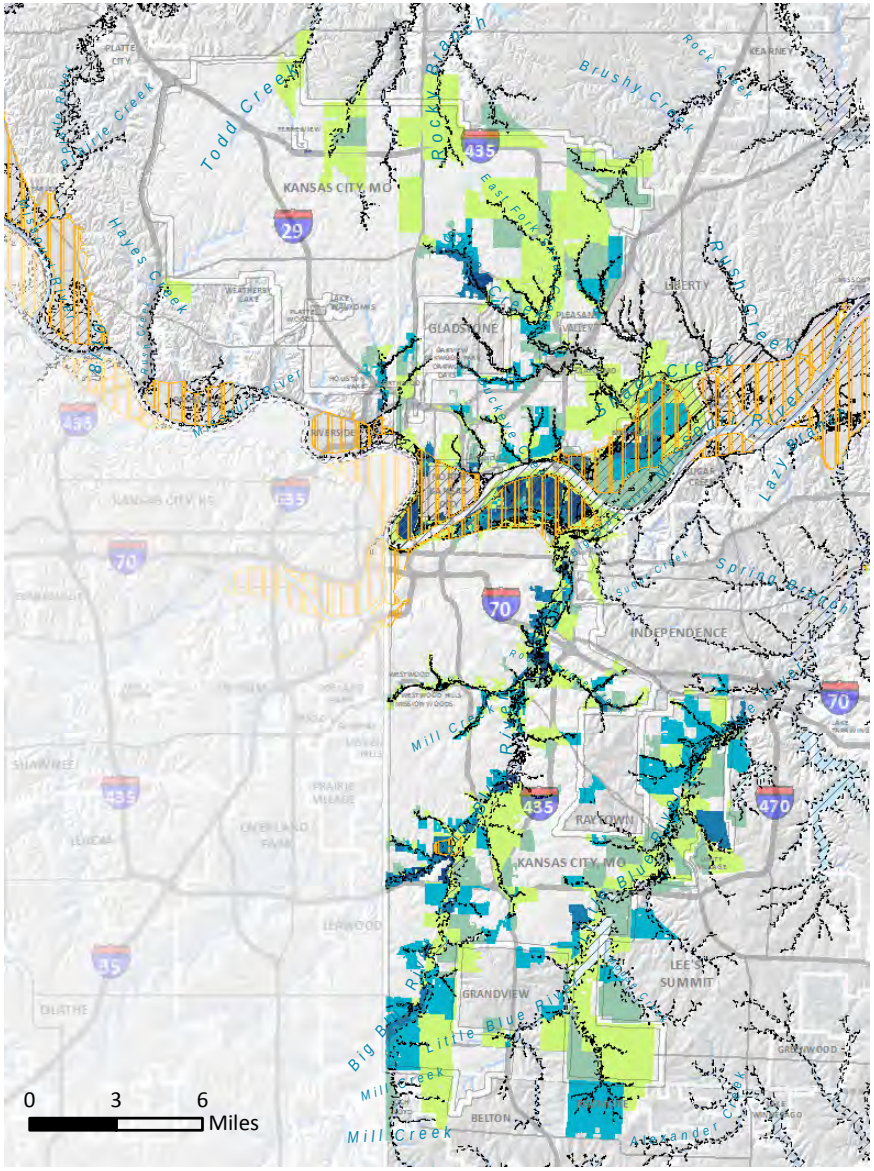
Contents Loss : $1,050,248,000

Other Loss : $80,401,000

Note: HAZUS estimates for General Building Stock are based on Census block level geographies. Number reported above for "Other" equals sum of Inventory, Wage, Income, Relocation and Rental Income Losses.

Buildings in Flood Boundary : 4,819

Buildings in Leveed Area : 3,420



FLOOD AREA PARCEL VALUE BY JURISDICTION

	Cass County	Clay County	Jackson County	Platte County	Ray County	**MO Counties Total**
Parcel Improvement Value In Flood zone area ($)	566,109,470	1,258,726,345	3,938,638,832	376,320,921	128,254,499	**6,268,050,067**
Parcel Land Value In Flood Zone area ($)	180,925,380	629,118,420	1,048,620,925	55,998,007	89,192,541	**2,003,855,273**
Parcel Total Value In Flood Zone area ($)	747,034,850	1,887,744,765	4,987,259,757	432,318,928	217,447,040	**8,271,805,340**
HAZUS Total Loss In Flood zone area ($)	75,444,000	1,862,141,000	1,838,226,000	47,757,000	34,019,000	**3,857,587,000**
HAZUS Building Loss ($)	40,821,000	621,025,000	681,877,000	22,671,000	18,246,000	**1,384,640,000**
HAZUS Contents Loss ($)	33,415,000	1,147,230,000	1,078,501,000	24,073,000	15,129,000	**2,298,348,000**
HAZUS Other Loss ($)	1,208,000	93,886,000	77,848,000	1,013,000	644,000	**174,599,000**
Critical facilities within jurisdiction and within flood plain (Y/N)	N/A	N/A	N/A	N/A	N/A	
Critical facilities within jurisdiction and within leveed area (Y/N)	N/A	N/A	N/A	N/A	N/A	

Appendix C:
Flood Area Parcel Value Table by Jurisdiction
(7 Pages)

FLOOD AREA PARCEL VALUE BY JURISDICTION

	Kansas City (Platte)	Kansas City (Clay)	Kansas City (Jackson and Cass)	**Kansas City (All)**
Parcel Improvement Value In Flood zone area ($)	13,463,143	457,659,700	2,190,231,417	**3,460,961,512**
Parcel Land Value In Flood Zone area ($)	3,200,914	181,621,210	224,875,281	**771,143,450**
Parcel Total Value In Flood Zone area ($)	16,664,057	639,280,910	2,415,106,207	**4,232,104,962**
HAZUS Total Loss In Flood zone area ($)	17,426,000	194,188,000	1,540,732,000	**1,753,351,000**
HAZUS Building Loss ($)	9,991,000	74,782,000	537,530,000	**622,702,000**
HAZUS Contents Loss ($)	7,320,000	111,837,000	930,497,000	**1,050,248,000**
HAZUS Other Loss ($)	115,000	7,569,000	72,705,000	**80,401,000**
Critical facilities within jurisdiction and within flood plain (Y/N)	N	Y	Y	Y
Critical facilities within jurisdiction and within leveed area (Y/N)	N	Y	Y	Y

FLOOD AREA PARCEL VALUE BY JURISDICTION	Cass County Jurisdictions					
	Belton	Harrisonville	Lake Winnebago	Peculiar	Pleasant Hill	Raymore
Parcel Improvement Value In Flood zone area ($)	24,699,980	50,390,790	69,262,250	13,861,310	18,028,120	58,786,270
Parcel Land Value In Flood Zone area ($)	8,882,310	12,774,270	23,476,590	3,667,210	6,062,830	16,234,760
Parcel Total Value In Flood Zone area ($)	33,582,290	63,165,060	92,738,840	17,528,520	24,090,950	75,021,030
HAZUS Total Loss In Flood zone area ($)	4,143,000	2,862,000	1,755,000	1,768,000	5,723,000	2,201,000
HAZUS Building Loss ($)	1,618,000	1,040,000	1,011,000	1,015,000	2,092,000	933,000
HAZUS Contents Loss ($)	2,412,000	1,738,000	700,000	737,000	3,373,000	1,244,000
HAZUS Other Loss ($)	113,000	113,000	44,000	16,000	258,000	24,000
Critical facilities within jurisdiction and within flood plain (Y/N)	Y	N	Y	N	Y	N
Critical facilities within jurisdiction and within leveed area (Y/N)	N	N	N	N	N	N

FLOOD AREA PARCEL VALUE BY JURISDICTION	Clay County Jurisdictions						
	Excelsior Springs (All)	Gladstone	Kearney	Liberty	Mosby	North Kansas City	Smithville
Parcel Improvement Value In Flood zone area ($)	22,940,495	55,988,300	61,680,400	130,012,700	4,554,000	355,073,800	36,197,600
Parcel Land Value In Flood Zone area ($)	8,099,330	21,821,200	14,726,800	50,112,400	3,078,000	214,383,000	14,117,800
Parcel Total Value In Flood Zone area ($)	31,039,825	77,809,500	76,407,200	180,125,100	7,632,000	569,456,800	50,315,400
HAZUS Total Loss In Flood zone area ($)	44,357,000	18,368,000	26,550,000	52,552,000	9,066,000	1,500,832,000	18,332,000
HAZUS Building Loss ($)	20,670,000	10,239,000	10,828,000	23,704,000	4,708,000	460,349,000	8,217,000
HAZUS Contents Loss ($)	22,849,000	7,999,000	15,207,000	27,687,000	4,057,000	954,424,000	9,709,000
HAZUS Other Loss ($)	838,000	130,000	515,000	1,161,000	301,000	86,059,000	406,000
Critical facilities within jurisdiction and within flood plain (Y/N)	N	Y	Y	Y	Y	Y	Y
Critical facilities within jurisdiction and within leveed area (Y/N)	N	N	N	N	N	Y	N

FLOOD AREA PARCEL VALUE BY JURISDICTION	Jackson County Jurisdictions					
	Blue Springs	Grandview	Independence	Lee's Summit	Oak Grove	Raytown
Parcel Improvement Value In Flood zone area ($)	30,013,790	17,288,395	336,200,081	284,822,504	2,268,418	11,201,060
Parcel Land Value In Flood Zone area ($)	6,798,020	4,828,494	137,096,992	74,085,998	671,666	2,433,420
Parcel Total Value In Flood Zone area ($)	36,811,810	22,114,477	473,297,073	358,781,002	2,940,084	13,634,480
HAZUS Total Loss In Flood zone area ($)	8,738,000	11,397,000	100,989,000	81,837,000	1,664,000	7,983,000
HAZUS Building Loss ($)	4,359,000	6,654,000	43,247,000	46,078,000	729,000	4,589,000
HAZUS Contents Loss ($)	4,204,000	4,691,000	55,752,000	35,139,000	901,000	3,288,000
HAZUS Other Loss ($)	175,000	52,000	1,990,000	620,000	34,000	106,000
Critical facilities within jurisdiction and within flood plain (Y/N)	N	N	Y	Y	N	N
Critical facilities within jurisdiction and within leveed area (Y/N)	N	N	Y	N	N	N

Platte County Jurisdictions (Part 1)

FLOOD AREA PARCEL VALUE BY JURISDICTION	Dearborn	Edgerton	Farley	Ferrelview	Houston Lake	Lake Waukomis	Northmoor	Parkville
Parcel Improvement Value In Flood zone area ($)	4,122,152	201,260	339,043	0	0	0	3,461,553	19,509,064
Parcel Land Value In Flood Zone area ($)	818,561	126,249	342,325	0	0	0	1,421,780	3,564,631
Parcel Total Value In Flood Zone area ($)	4,940,713	327,509	681,368	0	0	0	4,883,333	23,073,695
HAZUS Total Loss In Flood zone area ($)	1,692,000	383,000	171,000	0	0	0	3,873,000	1,629,000
HAZUS Building Loss ($)	680,000	108,000	110,000	0	0	0	1,578,000	909,000
HAZUS Contents Loss ($)	949,000	274,000	60,000	0	0	0	2,173,000	713,000
HAZUS Other Loss ($)	63,000	10,000	1,000	0	0	0	122,000	7,000
Critical facilities within jurisdiction and within flood plain (Y/N)	N	N	N	N	N	N	Y	N
Critical facilities within jurisdiction and within leveed area (Y/N)	N	N	Y	N	N	N	N	N

FLOOD AREA PARCEL VALUE BY JURISDICTION	Platte Count Jurisdictions (Part 2)						Ray County
	Platte City	Platte Woods	Riverside	Tracy	Weatherby Lake	Weston	Richmond
Parcel Improvement Value In Flood zone area ($)	1,363,114	0	11,537,018	1,250,737	0	295,128	16,399,930
Parcel Land Value In Flood Zone area ($)	920,798	0	7,438,622	605,529	0	514,266	300,410
Parcel Total Value In Flood Zone area ($)	2,283,912	0	18,975,640	1,856,266	0	809,394	16,700,340
HAZUS Total Loss In Flood zone area ($)	2,174,000	0	23,026,000	1,435,000	0	485,000	3,135,000
HAZUS Building Loss ($)	1,311,000	0	9,734,000	937,000	0	179,000	1,214,000
HAZUS Contents Loss ($)	862,000	0	12,607,000	497,000	0	305,000	1,883,000
HAZUS Other Loss ($)	1,000	0	645,000	1,000	0	1,000	10,000
Critical facilities within jurisdiction and within flood plain (Y/N)	N	N	Y	N	N	N	Y
Critical facilities within jurisdiction and within leveed area (Y/N)	N	N	Y	N	N	N	N

Appendix C:
Critical Infrastructure Tables by Jurisdiction

(34 Pages)

CASS COUNTY

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION					
JURISDICTION	**COUNTY**	**Federal Government**	**State Government**	**Local Government**	**Wastewater Treatment**
ARCHIE	CASS	0	0	0	1
BALDWIN PARK	CASS	0	0	0	0
BELTON	CASS	1	1	2	0
CASS CO, MO	CASS	0	1	2	1
CLEVELAND	CASS	0	0	0	0
CREIGHTON	CASS	0	0	0	0
DREXEL	CASS	0	0	0	0
EAST LYNNE	CASS	0	0	0	0
FREEMAN	CASS	0	0	0	0
GARDEN CITY	CASS	0	0	0	0
GREENWOOD	CASS	0	0	0	0
GUNN CITY	CASS	0	0	0	0
HARRISONVILLE	CASS	5	2	18	0
KANSAS CITY	CASS	2	0	0	0
LAKE ANNETTE	CASS	0	0	0	0
LAKE WINNEBAGO	CASS	0	0	0	0
LEE'S SUMMIT	CASS	0	0	0	0
PECULIAR	CASS	0	0	0	0
PLEASANT HILL	CASS	1	0	5	0
RAYMORE	CASS	0	0	2	0
RIVERVIEW ESTATES	CASS	0	0	0	0
STRASBURG	CASS	0	0	0	0
VILLAGE OF LOCH LLOYD	CASS	0	0	0	0
WEST LINE	CASS	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION					
JURISDICTION	**Haz Mat**	**EOC**	**Fire Stations**	**Police Stations**	**National Register of Historic Sites**
ARCHIE	0	0	1	1	0
BALDWIN PARK	0	0	0	0	0
BELTON	0	0	2	1	0
CASS CO, MO	0	0	1	0	3
CLEVELAND	0	0	1	1	0
CREIGHTON	0	0	1	1	0
DREXEL	0	0	2	1	0
EAST LYNNE	0	0	1	1	0
FREEMAN	0	0	1	1	0
GARDEN CITY	0	0	1	1	0
GREENWOOD	0	0	0	0	0
GUNN CITY	0	0	0	0	0
HARRISONVILLE	0	0	2	2	1
KANSAS CITY	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	1	0
LEE'S SUMMIT	0	0	0	0	0
PECULIAR	0	0	1	1	0
PLEASANT HILL	0	0	1	1	0
RAYMORE	0	1	3	1	0
RIVERVIEW ESTATES	0	0	0	0	0
STRASBURG	0	0	0	1	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0
WEST LINE	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION						
JURISDICTION	**City/State Registers of Historic Sites**	**Occ. Public Housing Units**	**Public Housing Properties**	**PSAPs**	**Colleges**	**Day Care**
ARCHIE	0	0	0	0	0	3
BALDWIN PARK	0	0	0	0	0	0
BELTON	0	0	0	1	0	20
CASS CO, MO	4	0	0	0	0	3
CLEVELAND	0	0	0	0	0	0
CREIGHTON	0	0	0	0	0	0
DREXEL	0	0	0	0	0	1
EAST LYNNE	0	0	0	0	0	2
FREEMAN	0	0	0	0	0	0
GARDEN CITY	0	0	0	0	0	0
GREENWOOD	0	0	0	0	0	0
GUNN CITY	0	0	0	0	0	0
HARRISONVILLE	2	0	0	2	0	12
KANSAS CITY	0	0	0	0	1	0
LAKE ANNETTE	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	1
PECULIAR	0	0	0	0	0	4
PLEASANT HILL	0	0	0	1	0	3
RAYMORE	0	0	0	1	0	17
RIVERVIEW ESTATES	0	0	0	0	0	0
STRASBURG	0	0	0	0	0	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0
WEST LINE	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION						
JURISDICTION	**Hospitals**	**Hotels**	**Apartment Complexes**	**Nursing Homes**	**Other Health Care**	**Schools**
ARCHIE	0	0	0	0	0	2
BALDWIN PARK	0	0	0	0	0	0
BELTON	1	3	5	4	0	13
CASS CO, MO	0	1	0	0	0	6
CLEVELAND	0	0	0	0	0	0
CREIGHTON	0	0	0	0	0	0
DREXEL	0	0	0	0	0	2
EAST LYNNE	0	0	0	0	0	1
FREEMAN	0	0	0	0	0	0
GARDEN CITY	0	0	1	0	0	0
GREENWOOD	0	0	0	0	0	0
GUNN CITY	0	0	0	0	0	0
HARRISONVILLE	1	5	7	4	1	10
KANSAS CITY	0	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	0
PECULIAR	0	1	0	2	0	5
PLEASANT HILL	0	0	3	2	0	5
RAYMORE	0	0	3	4	0	8
RIVERVIEW ESTATES	0	0	0	0	0	0
STRASBURG	0	0	0	0	0	1
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0
WEST LINE	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION						
JURISDICTION	**Shopping Centers**	**Trailer Parks**	**Dormitories**	**NFL Stadium**	**MLS Stadium**	**MLB Stadium**
ARCHIE	0	0	0	0	0	0
BALDWIN PARK	0	0	0	0	0	0
BELTON	13	9	0	0	0	0
CASS CO, MO	0	1	0	0	0	0
CLEVELAND	0	0	0	0	0	0
CREIGHTON	0	0	0	0	0	0
DREXEL	1	0	0	0	0	0
EAST LYNNE	0	0	0	0	0	0
FREEMAN	0	0	0	0	0	0
GARDEN CITY	1	2	0	0	0	0
GREENWOOD	0	0	0	0	0	0
GUNN CITY	0	0	0	0	0	0
HARRISONVILLE	11	5	0	0	0	0
KANSAS CITY	0	0	2	0	0	0
LAKE ANNETTE	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	0
PECULIAR	2	2	0	0	0	0
PLEASANT HILL	7	3	0	0	0	0
RAYMORE	8	0	0	0	0	0
RIVERVIEW ESTATES	0	0	0	0	0	0
STRASBURG	0	0	0	0	0	1
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0
WEST LINE	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION

JURISDICTION	IRL Tracks	Botanical / Zoological Gardens	NASCAR	NCAA Div. 1 Basketball Arena	Large Grocery
ARCHIE	0	0	0	0	0
BALDWIN PARK	0	0	0	0	0
BELTON	0	0	0	0	3
CASS CO, MO	0	0	0	0	0
CLEVELAND	0	0	0	0	0
CREIGHTON	0	0	0	0	0
DREXEL	0	0	0	0	0
EAST LYNNE	0	0	0	0	0
FREEMAN	0	0	0	0	0
GARDEN CITY	0	0	0	0	0
GREENWOOD	0	0	0	0	0
GUNN CITY	0	0	0	0	0
HARRISONVILLE	0	0	0	0	2
KANSAS CITY	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0
PECULIAR	0	0	0	0	0
PLEASANT HILL	0	0	0	0	1
RAYMORE	0	0	0	0	1
RIVERVIEW ESTATES	0	0	0	0	0
STRASBURG	0	0	0	0	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0
WEST LINE	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION						
JURISDICTION	**Small Grocery**	**Amtrak Station**	**Airports**	**Heliports**	**Superfund Sites**	**EPA FRS Facilities**
ARCHIE	0	0	0	0	0	1
BALDWIN PARK	0	0	0	0	0	0
BELTON	2	0	0	1	0	1
CASS CO, MO	0	0	12	0	0	11
CLEVELAND	0	0	0	0	0	0
CREIGHTON	0	0	0	0	0	0
DREXEL	0	0	0	0	0	1
EAST LYNNE	0	0	0	0	0	0
FREEMAN	0	0	0	0	0	0
GARDEN CITY	0	0	0	0	0	3
GREENWOOD	0	0	0	0	0	0
GUNN CITY	0	0	0	0	0	0
HARRISONVILLE	1	0	1	0	0	8
KANSAS CITY	0	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0
LEE'S SUMMIT	0	1	0	0	0	0
PECULIAR	0	0	0	0	0	0
PLEASANT HILL	1	0	0	0	0	6
RAYMORE	1	0	0	0	0	0
RIVERVIEW ESTATES	0	0	0	0	0	0
STRASBURG	0	0	0	0	0	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0
WEST LINE	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION					
JURISDICTION	**Mines**	**Alternative Fueling Stations**	**Public Refrigerated Warehouses**	**Federal Reserve**	**Commodity Exchange**
ARCHIE	0	0	0	0	0
BALDWIN PARK	0	0	0	0	0
BELTON	0	0	0	0	0
CASS CO, MO	0	0	0	0	0
CLEVELAND	0	0	0	0	0
CREIGHTON	0	0	0	0	0
DREXEL	0	0	0	0	0
EAST LYNNE	0	0	0	0	0
FREEMAN	0	0	0	0	0
GARDEN CITY	0	0	0	0	0
GREENWOOD	0	0	0	0	0
GUNN CITY	0	0	0	0	0
HARRISONVILLE	0	0	0	0	0
KANSAS CITY	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0
PECULIAR	0	1	0	0	0
PLEASANT HILL	0	0	0	0	0
RAYMORE	0	0	0	0	0
RIVERVIEW ESTATES	0	0	0	0	0
STRASBURG	0	0	0	0	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0
WEST LINE	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CASS COUNTY BY JURISDICTION						
JURISDICTION	**USPS Bulk Processing Center**	**USPS Processing Facilities**	**Post Offices**	**Shelters**	**RMP**	**Tier II**
ARCHIE	0	0	1	2	0	2
BALDWIN PARK	0	0	0	0	0	0
BELTON	0	0	1	4	0	15
CASS CO, MO	0	0	0	4	1	23
CLEVELAND	0	0	1	2	0	0
CREIGHTON	0	0	1	1	0	0
DREXEL	0	0	1	0	0	4
EAST LYNNE	0	0	1	1	0	0
FREEMAN	0	0	1	3	0	0
GARDEN CITY	0	0	1	0	0	2
GREENWOOD	0	0	0	0	0	0
GUNN CITY	0	0	0	0	0	0
HARRISONVILLE	1	1	1	11	3	18
KANSAS CITY	0	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	1
PECULIAR	0	0	1	5	0	3
PLEASANT HILL	0	0	1	7	1	7
RAYMORE	0	0	1	5	0	6
RIVERVIEW ESTATES	0	0	0	0	0	0
STRASBURG	0	0	1	1	0	1
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0
WEST LINE	0	0	0	1	0	0

CLAY COUNTY

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION								
CITY	**COUNTY**	**Federal Government**	**State Government**	**Local Government**	**Wastewater Treatment**	**Haz Mat**	**EOC**	**Fire Stations**
AVONDALE	CLAY	0	0	1	0	0	0	1
BIRMINGHAM	CLAY	0	0	0	0	0	0	1
CLAY CO, MO	CLAY	2	0	1	1	0	0	0
CLAYCOMO	CLAY	0	0	2	0	0	0	1
EXCELSIOR ESTATES	CLAY	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	CLAY	1	0	7	0	0	0	1
GLADSTONE	CLAY	1	2	0	1	0	1	3
GLENAIRE	CLAY	0	0	0	0	0	0	0
HOLT	CLAY	0	0	0	0	0	0	1
KANSAS CITY	CLAY	3	1	5	2	0	0	7
KEARNEY	CLAY	0	0	2	0	0	0	1
LAWSON	CLAY	0	0	0	0	0	0	0
LIBERTY	CLAY	4	2	49	0	0	2	3
MISSOURI CITY	CLAY	0	0	0	0	0	0	0
MOSBY	CLAY	0	0	0	0	0	0	2
NORTH KANSAS CITY	CLAY	1	2	3	1	1	1	2
OAKS	CLAY	0	0	0	0	0	0	0
OAKVIEW	CLAY	0	0	1	0	0	0	0
OAKWOOD	CLAY	0	0	0	0	0	0	0
OAKWOOD PARK	CLAY	0	0	0	0	0	0	0
PLEASANT VALLEY	CLAY	0	0	3	0	0	0	1
PRATHERSVILLE	CLAY	0	0	0	0	0	0	0
RANDOLPH	CLAY	0	0	0	0	0	0	0
SMITHVILLE	CLAY	1	0	0	0	0	0	2

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION								
JURISDICTION	**Police Stations**	**National Register of Historic Sites**	**City/State Registers of Historic Sites**	**Occ. Public Housing Units**	**Public Housing Properties**	**PSAPs**	**Colleges**	**Day Care**
AVONDALE	0	0	0	0	0	0	0	0
BIRMINGHAM	1	0	0	0	0	0	0	0
CLAY CO, MO	0	3	5	0	0	0	0	1
CLAYCOMO	1	0	0	0	0	1	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	1	6	2	87	19	1	0	7
GLADSTONE	1	1	0	0	0	1	1	20
GLENAIRE	0	0	0	0	0	0	0	0
HOLT	1	0	0	0	0	0	0	0
KANSAS CITY	2	2	3	149	93	0	3	49
KEARNEY	1	0	0	0	0	0	0	9
LAWSON	0	0	0	0	0	0	0	0
LIBERTY	2	8	10	0	0	2	1	15
MISSOURI CITY	0	1	0	0	0	0	0	0
MOSBY	1	0	0	0	0	0	0	0
NORTH KANSAS CITY	1	3	2	0	0	1	1	3
OAKS	0	0	0	0	0	0	0	0
OAKVIEW	1	0	0	0	0	0	0	0
OAKWOOD	0	0	0	0	0	0	0	0
OAKWOOD PARK	0	0	0	0	0	0	0	0
PLEASANT VALLEY	1	0	0	0	0	1	0	3
PRATHERSVILLE	0	0	0	0	0	0	0	0
RANDOLPH	1	0	0	0	0	0	0	0
SMITHVILLE	1	0	0	104	33	0	0	10

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION									
JURISDICTION	**Hospitals**	**Hotels**	**Apartment Complexes**	**Nursing Homes**	**Other Health Care**	**Schools**	**Shopping Centers**	**Trailer Parks**	**Dormitories**
AVONDALE	0	0	0	0	0	1	0	0	0
BIRMINGHAM	0	0	0	0	0	0	0	0	0
CLAY CO, MO	0	0	0	0	0	2	0	0	0
CLAYCOMO	0	0	1	1	0	0	1	2	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	1	3	4	3	1	6	11	3	0
GLADSTONE	0	0	19	6	0	10	25	1	0
GLENAIRE	0	0	0	0	0	0	0	0	0
HOLT	0	0	0	0	0	0	0	0	0
KANSAS CITY	2	16	52	6	2	38	60	3	1
KEARNEY	0	4	4	1	0	7	7	0	0
LAWSON	0	0	0	0	0	0	0	0	0
LIBERTY	1	5	13	7	1	16	12	4	8
MISSOURI CITY	0	0	0	0	0	1	0	0	0
MOSBY	0	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	2	6	5	1	0	1	8	0	0
OAKS	0	0	0	0	0	0	0	0	0
OAKVIEW	0	0	0	0	0	0	1	0	0
OAKWOOD	0	0	0	0	0	0	0	0	0
OAKWOOD PARK	0	0	0	0	0	0	0	0	0
PLEASANT VALLEY	0	0	0	1	0	1	0	2	0
PRATHERSVILLE	0	0	0	0	0	0	0	0	0
RANDOLPH	0	1	0	0	0	0	0	0	0
SMITHVILLE	1	1	3	3	0	4	10	0	0

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION									
JURISDICTION	**NFL Stadium**	**MLS Stadium**	**MLB Stadium**	**IRL Tracks**	**Botanical / Zoological Gardens**	**NASCAR**	**NCAA Div. 1 Basketball Arena**	**Large Grocery**	**Small Grocery**
AVONDALE	0	0	0	0	0	0	0	0	0
BIRMINGHAM	0	0	0	0	0	0	0	0	0
CLAY CO, MO	0	0	0	0	0	0	0	0	0
CLAYCOMO	0	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	0	2	2
GLADSTONE	0	0	0	0	0	0	0	3	2
GLENAIRE	0	0	0	0	0	0	0	0	0
HOLT	0	0	0	0	0	0	0	0	0
KANSAS CITY	0	0	0	0	0	0	0	8	5
KEARNEY	0	0	0	0	0	0	0	0	1
LAWSON	0	0	0	0	0	0	0	0	0
LIBERTY	0	0	0	0	0	0	0	2	0
MISSOURI CITY	0	0	0	0	0	0	0	0	0
MOSBY	0	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	0	0	0	0	0	0	0	0	1
OAKS	0	0	0	0	0	0	0	0	0
OAKVIEW	0	0	0	0	0	0	0	0	0
OAKWOOD	0	0	0	0	0	0	0	0	0
OAKWOOD PARK	0	0	0	0	0	0	0	0	0
PLEASANT VALLEY	0	0	0	0	0	0	0	0	0
PRATHERSVILLE	0	0	0	0	0	0	0	0	0
RANDOLPH	0	0	0	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION

JURISDICTION	Amtrak Station	Airports	Heliports	Superfund Sites	EPA FRS Facilities	Mines	Alternative Fueling Stations	Public Refrigerated Warehouses
AVONDALE	0	0	0	0	0	0	0	0
BIRMINGHAM	0	0	0	0	0	0	0	0
CLAY CO, MO	0	7	0	0	4	0	0	0
CLAYCOMO	0	0	0	0	1	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	3	0	0	0
GLADSTONE	0	0	0	0	1	0	0	0
GLENAIRE	0	0	0	0	0	0	0	0
HOLT	0	0	0	0	0	0	0	0
KANSAS CITY	0	1	1	0	16	0	0	0
KEARNEY	0	1	0	0	4	0	1	0
LAWSON	0	0	0	0	0	0	0	0
LIBERTY	0	0	1	1	8	0	0	0
MISSOURI CITY	0	0	0	0	1	0	0	0
MOSBY	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	0	0	1	0	55	0	0	0
OAKS	0	0	0	0	0	0	0	0
OAKVIEW	0	0	0	0	0	0	0	0
OAKWOOD	0	0	0	0	0	0	0	0
OAKWOOD PARK	0	0	0	0	0	0	0	0
PLEASANT VALLEY	0	0	0	0	0	0	0	0
PRATHERSVILLE	0	0	0	0	0	0	0	0
RANDOLPH	0	0	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	0	1	0

ALL CRITICAL INFRASTRUCTURE IN CLAY COUNTY BY JURISDICTION

JURISDICTION	Federal Reserve	Commodity Exchange	USPS Bulk Processing Center	USPS Processing Facilities	Post Offices	Shelters	RMP	Tier II
AVONDALE	0	0	0	0	0	0	0	0
BIRMINGHAM	0	0	0	0	0	0	0	0
CLAY CO, MO	0	0	0	0	0	0	1	9
CLAYCOMO	0	0	0	0	0	0	0	5
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	1	5	0	11
GLADSTONE	0	0	0	0	1	2	0	7
GLENAIRE	0	0	0	0	0	0	0	0
HOLT	0	0	0	0	1	0	0	1
KANSAS CITY	0	0	0	0	3	10	1	58
KEARNEY	0	0	0	0	1	0	1	15
LAWSON	0	0	0	0	0	0	0	1
LIBERTY	0	0	0	0	1	5	0	15
MISSOURI CITY	0	0	0	0	1	0	0	0
MOSBY	0	0	0	0	0	0	0	2
NORTH KANSAS CITY	0	0	0	0	1	2	1	47
OAKS	0	0	0	0	0	0	0	0
OAKVIEW	0	0	0	0	0	1	0	1
OAKWOOD	0	0	0	0	0	0	0	0
OAKWOOD PARK	0	0	0	0	0	0	0	0
PLEASANT VALLEY	0	0	0	0	0	0	0	3
PRATHERSVILLE	0	0	0	0	0	0	0	0
RANDOLPH	0	0	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	1	3	0	7

JACKSON COUNTY

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION							
JURISDICTION	**COUNTY**	**Federal Government**	**State Government**	**Local Government**	**Wastewater Treatment**	**Haz Mat**	**EOC**
BLUE SPRINGS	JACKSON	4	4	21	0	1	0
BUCKNER	JACKSON	0	0	0	0	0	0
GRAIN VALLEY	JACKSON	0	0	0	0	0	0
GRANDVIEW	JACKSON	2	1	3	0	0	1
GREENWOOD	JACKSON	0	0	0	0	0	0
INDEPENDENCE	JACKSON	0	0	0	0	0	0
INDEPENDENCE	JACKSON	9	8	46	1	1	2
JACKSON CO, MO	JACKSON	0	1	3	2	0	0
KANSAS CITY	JACKSON	94	40	52	3	1	1
LAKE CITY ARSENAL	JACKSON	0	0	0	0	0	1
LAKE LOTAWANA	JACKSON	0	0	0	0	0	0
LAKE TAPAWINGO	JACKSON	0	0	0	0	0	0
LEE'S SUMMIT	JACKSON	0	7	20	0	1	0
LEVASY	JACKSON	0	0	0	0	0	0
LONE JACK	JACKSON	0	0	0	0	0	0
OAK GROVE	JACKSON	0	0	0	0	0	1
PLEASANT HILL	JACKSON	0	0	0	0	0	0
RAYTOWN	JACKSON	1	0	6	0	0	1
RIVER BEND	JACKSON	0	0	0	0	0	0
SIBLEY	JACKSON	0	0	0	0	0	0
SUGAR CREEK	JACKSON	0	0	0	0	0	0
SUGAR CREEK	JACKSON	0	0	1	1	0	0
UNITY VILLAGE	JACKSON	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION						
JURISDICTION	**Fire Stations**	**Police Stations**	**National Register of Historic Sites**	**City/State Registers of Historic Sites**	**Occ. Public Housing Units**	**Public Housing Properties**
BLUE SPRINGS	4	1	0	1	0	0
BUCKNER	1	1	0	0	0	0
GRAIN VALLEY	1	1	0	0	0	0
GRANDVIEW	4	1	1	1	0	0
GREENWOOD	0	1	0	0	0	0
INDEPENDENCE	0	0	0	0	0	0
INDEPENDENCE	11	1	22	20	479	58
JACKSON CO, MO	3	0	2	2	0	0
KANSAS CITY	26	8	212	126	1579	463
LAKE CITY ARSENAL	0	0	0	0	0	0
LAKE LOTAWANA	2	1	0	0	0	0
LAKE TAPAWINGO	0	1	0	0	0	0
LEE'S SUMMIT	8	3	3	3	113	53
LEVASY	0	0	0	0	0	0
LONE JACK	1	1	0	0	0	0
OAK GROVE	1	1	0	0	0	0
PLEASANT HILL	0	0	0	0	0	0
RAYTOWN	3	1	1	2	0	0
RIVER BEND	0	0	0	0	0	0
SIBLEY	0	0	0	1	0	0
SUGAR CREEK	0	0	0	0	0	0
SUGAR CREEK	1	1	0	0	0	0
UNITY VILLAGE	0	0	0	1	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION								
JURISDICTION	**PSAPs**	**Colleges**	**Day Care**	**Hospitals**	**Hotels**	**Apartment Complexes**	**Nursing Homes**	**Other Health Care**
BLUE SPRINGS	2	1	32	1	11	13	6	0
BUCKNER	0	0	1	0	0	2	0	0
GRAIN VALLEY	0	0	10	0	3	1	2	0
GRANDVIEW	1	2	29	0	2	15	4	0
GREENWOOD	0	0	4	0	0	0	0	0
INDEPENDENCE	0	0	0	0	0	0	0	0
INDEPENDENCE	3	7	52	3	21	45	20	6
JACKSON CO, MO	0	0	6	0	0	0	3	0
KANSAS CITY	5	39	266	16	53	288	80	14
LAKE CITY ARSENAL	0	0	0	0	0	0	0	0
LAKE LOTAWANA	0	0	1	0	0	0	0	0
LAKE TAPAWINGO	0	0	0	0	0	0	0	0
LEE'S SUMMIT	3	4	52	3	8	21	18	1
LEVASY	0	0	0	0	0	0	0	0
LONE JACK	0	0	3	0	0	0	0	0
OAK GROVE	0	0	5	0	2	3	2	0
PLEASANT HILL	0	0	0	0	0	0	0	0
RAYTOWN	1	0	16	0	0	14	12	1
RIVER BEND	0	0	0	0	0	0	0	0
SIBLEY	0	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0	0
SUGAR CREEK	1	0	1	0	1	0	0	0
UNITY VILLAGE	0	0	0	0	0	1	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION								
JURISDICTION	**Schools**	**Shopping Centers**	**Trailer Parks**	**Dormitories**	**NFL Stadium**	**MLS Stadium**	**MLB Stadium**	**IRL Tracks**
BLUE SPRINGS	24	46	0	0	0	0	0	0
BUCKNER	2	2	1	0	0	0	0	0
GRAIN VALLEY	6	3	1	0	0	0	0	0
GRANDVIEW	11	11	0	0	0	0	0	0
GREENWOOD	1	0	1	0	0	0	0	0
INDEPENDENCE	0	0	0	0	0	0	0	0
INDEPENDENCE	43	74	11	0	0	0	0	0
JACKSON CO, MO	10	0	1	0	0	0	0	0
KANSAS CITY	157	139	9	11	1	0	0	0
LAKE CITY ARSENAL	0	0	0	0	0	0	0	0
LAKE LOTAWANA	2	0	0	0	0	0	0	0
LAKE TAPAWINGO	0	0	0	0	0	0	0	0
LEE'S SUMMIT	32	41	0	0	0	0	0	0
LEVASY	0	0	0	0	0	0	0	0
LONE JACK	3	1	0	0	0	0	0	0
OAK GROVE	4	9	0	0	0	0	0	0
PLEASANT HILL	0	0	0	0	0	0	0	0
RAYTOWN	13	17	0	0	0	0	0	0
RIVER BEND	0	0	0	0	0	0	0	0
SIBLEY	0	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0	0
SUGAR CREEK	1	1	1	0	0	0	0	0
UNITY VILLAGE	1	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION							
JURSIDICTION	**Botanical / Zoological Gardens**	**NASCAR**	**NCAA Div. 1 Basketball Arena**	**Large Grocery**	**Small Grocery**	**Amtrak Station**	**Airports**
BLUE SPRINGS	0	0	0	4	1	0	0
BUCKNER	0	0	0	0	1	0	0
GRAIN VALLEY	0	0	0	0	1	0	1
GRANDVIEW	0	0	0	1	1	0	0
GREENWOOD	0	0	0	0	0	0	0
INDEPENDENCE	0	0	0	0	0	1	0
INDEPENDENCE	0	0	0	7	14	0	1
JACKSON CO, MO	0	0	0	0	1	0	7
KANSAS CITY	1	0	2	14	58	1	1
LAKE CITY ARSENAL	0	0	0	0	0	0	0
LAKE LOTAWANA	0	0	0	0	1	0	0
LAKE TAPAWINGO	0	0	0	0	1	0	0
LEE'S SUMMIT	0	0	0	8	1	0	1
LEVASY	0	0	0	0	0	0	0
LONE JACK	0	0	0	0	0	0	0
OAK GROVE	0	0	0	1	0	0	0
PLEASANT HILL	0	0	0	0	0	0	0
RAYTOWN	0	0	0	2	5	0	0
RIVER BEND	0	0	0	0	0	0	0
SIBLEY	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0
UNITY VILLAGE	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION							
JURISDICTION	**Heliports**	**Superfund Sites**	**EPA FRS Facilities**	**Mines**	**Alternative Fueling Stations**	**Public Refrigerated Warehouses**	**Federal Reserve**
BLUE SPRINGS	1	0	9	0	0	0	0
BUCKNER	0	0	0	0	0	0	0
GRAIN VALLEY	0	0	3	0	1	0	0
GRANDVIEW	0	0	11	0	0	0	0
GREENWOOD	0	0	1	0	0	0	0
INDEPENDENCE	0	1	0	0	1	0	0
INDEPENDENCE	1	0	18	0	0	1	0
JACKSON CO, MO	0	0	7	0	0	0	0
KANSAS CITY	11	2	211	0	2	1	1
LAKE CITY ARSENAL	0	0	2	0	0	0	0
LAKE LOTAWANA	0	0	0	0	0	0	0
LAKE TAPAWINGO	0	0	0	0	0	0	0
LEE'S SUMMIT	2	0	11	0	0	0	0
LEVASY	0	0	1	0	0	0	0
LONE JACK	0	0	0	0	0	0	0
OAK GROVE	0	0	1	0	0	0	0
PLEASANT HILL	0	0	0	0	0	0	0
RAYTOWN	0	0	2	0	0	0	0
RIVER BEND	0	0	0	0	0	0	0
SIBLEY	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0
SUGAR CREEK	0	0	7	0	0	0	0
UNITY VILLAGE	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN JACKSON COUNTY BY JURISDICTION							
JURISDICTION	**Commodity Exchange**	**USPS Bulk Processing Center**	**USPS Processing Facilities**	**Post Offices**	**Shelters**	**RMP**	**Tier II**
BLUE SPRINGS	0	0	0	2	3	0	24
BUCKNER	0	0	0	1	3	0	4
GRAIN VALLEY	0	0	0	1	1	0	9
GRANDVIEW	0	0	0	1	1	0	14
GREENWOOD	0	0	0	1	0	0	3
INDEPENDENCE	0	0	0	0	0	0	0
INDEPENDENCE	0	0	0	4	11	1	60
JACKSON CO, MO	0	0	0	0	2	0	17
KANSAS CITY	1	1	1	21	41	7	274
LAKE CITY ARSENAL	0	0	0	0	0	0	1
LAKE LOTAWANA	0	0	0	0	0	0	2
LAKE TAPAWINGO	0	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	3	3	0	51
LEVASY	0	0	0	1	0	1	2
LONE JACK	0	0	0	1	0	0	0
OAK GROVE	0	0	0	1	1	0	10
PLEASANT HILL	0	0	0	0	0	0	0
RAYTOWN	0	0	0	1	2	0	13
RIVER BEND	0	0	0	0	0	0	1
SIBLEY	0	0	0	1	0	0	0
SUGAR CREEK	0	0	0	0	0	0	0
SUGAR CREEK	0	0	0	1	0	1	16
UNITY VILLAGE	0	0	0	0	0	0	0

PLATTE COUNTY

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION									
JURISDICTION	**COUNTY**	**Federal Government**	**State Government**	**Local Government**	**Wastewater Treatment**	**Haz Mat**	**EOC**	**Fire Stations**	**Police Stations**
CAMDEN POINT	PLATTE	0	0	0	0	0	0	1	1
DEARBORN	PLATTE	0	0	0	0	0	0	1	1
EDGERTON	PLATTE	0	0	0	0	0	0	1	1
FARLEY	PLATTE	0	0	0	0	0	0	1	0
FERRELVIEW	PLATTE	0	0	0	0	0	0	0	1
HOUSTON LAKE	PLATTE	0	0	0	0	0	0	0	1
IATAN	PLATTE	0	0	0	0	0	0	0	0
KANSAS CITY	PLATTE	12	1	3	0	0	0	4	1
LAKE WAUKOMIS	PLATTE	0	0	0	0	0	0	1	1
NORTHMOOR	PLATTE	0	0	1	0	0	0	0	1
PARKVILLE	PLATTE	1	0	2	1	0	0	3	1
PLATTE CITY	PLATTE	0	0	6	0	0	1	2	2
PLATTE CO, MO	PLATTE	0	1	3	0	0	0	1	0
PLATTE WOODS	PLATTE	0	0	1	0	0	0	0	1
RIDGELY	PLATTE	0	0	0	0	0	0	0	0
RIVERSIDE	PLATTE	0	0	0	0	0	1	1	1
SMITHVILLE	PLATTE	0	0	0	0	0	0	0	0
TRACY	PLATTE	0	0	0	0	0	0	0	1
WEATHERBY LAKE	PLATTE	0	0	1	0	0	0	0	1
WESTON	PLATTE	0	0	0	1	0	0	1	1

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION									
JURISDICTION	**National Register of Historic Sites**	**City/State Registers of Historic Sites**	**Occ. Public Housing Units**	**Public Housing Properties**	**PSAPs**	**Colleges**	**Day Care**	**Hospitals**	**Hotels**
CAMDEN POINT	0	0	0	0	0	0	1	0	0
DEARBORN	0	0	0	0	0	0	1	0	0
EDGERTON	0	0	0	0	0	0	1	0	0
FARLEY	0	0	0	0	0	0	0	0	0
FERRELVIEW	0	0	0	0	0	0	0	0	0
HOUSTON LAKE	0	0	0	0	0	0	0	0	0
IATAN	0	0	0	0	0	0	0	0	0
KANSAS CITY	1	0	55	31	0	5	17	2	29
LAKE WAUKOMIS	0	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	0	0	1	0	0
PARKVILLE	5	4	0	0	0	1	1	0	0
PLATTE CITY	2	2	0	0	1	1	4	0	4
PLATTE CO, MO	1	1	0	0	0	0	7	0	1
PLATTE WOODS	0	0	0	0	0	0	2	0	0
RIDGELY	0	0	0	0	0	0	0	0	0
RIVERSIDE	0	0	0	0	1	0	0	0	2
SMITHVILLE	0	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	1	0	0
WEATHERBY LAKE	0	0	0	0	0	0	0	0	0
WESTON	1	2	0	0	0	0	4	0	1

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION								
JURISDICTION	**Apartment Complexes**	**Nursing Homes**	**Other Health Care**	**Schools**	**Shopping Centers**	**Trailer Parks**	**Dormitories**	**NFL Stadium**
CAMDEN POINT	0	0	0	1	0	0	0	0
DEARBORN	0	0	0	3	0	1	0	0
EDGERTON	0	0	0	1	0	0	0	0
FARLEY	0	0	0	0	0	0	0	0
FERRELVIEW	0	0	0	0	0	2	0	0
HOUSTON LAKE	0	0	0	0	0	0	0	0
IATAN	0	0	0	0	0	0	0	0
KANSAS CITY	20	9	0	19	28	0	0	0
LAKE WAUKOMIS	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	1	1	0	0
PARKVILLE	4	1	1	1	6	0	3	0
PLATTE CITY	7	2	2	7	14	0	0	0
PLATTE CO, MO	1	2	0	2	0	2	0	0
PLATTE WOODS	0	0	0	1	1	0	0	0
RIDGELY	0	0	0	0	0	0	0	0
RIVERSIDE	7	2	2	2	3	0	0	0
SMITHVILLE	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	0	0
WEATHERBY LAKE	0	0	0	0	0	0	0	0
WESTON	1	1	0	2	1	0	0	0

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION								
JURISDICTION	**MLS Stadium**	**MLB Stadium**	**IRL Tracks**	**Botanical / Zoological Gardens**	**NASCAR**	**NCAA Div. 1 Basketball Arena**	**Large Grocery**	**Small Grocery**
CAMDEN POINT	0	0	0	0	0	0	0	0
DEARBORN	0	0	0	0	0	0	0	0
EDGERTON	0	0	0	0	0	0	0	0
FARLEY	0	0	0	0	0	0	0	0
FERRELVIEW	0	0	0	0	0	0	0	0
HOUSTON LAKE	0	0	0	0	0	0	0	0
IATAN	0	0	0	0	0	0	0	0
KANSAS CITY	0	0	0	0	0	0	4	2
LAKE WAUKOMIS	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	0	0	0	0
PARKVILLE	0	0	0	0	0	0	0	0
PLATTE CITY	0	0	0	0	0	0	1	0
PLATTE CO, MO	0	0	0	0	0	0	0	0
PLATTE WOODS	0	0	0	0	0	0	0	0
RIDGELY	0	0	0	0	0	0	0	0
RIVERSIDE	0	0	0	0	0	0	1	0
SMITHVILLE	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	0	0
WEATHERBY LAKE	0	0	0	0	0	0	0	0
WESTON	0	0	0	0	0	0	0	1

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION								
JURISDICTION	**Amtrak Station**	**Airports**	**Heliports**	**Superfund Sites**	**EPA FRS Facilities**	**Mines**	**Alternative Fueling Stations**	**Public Refrigerated Warehouses**
CAMDEN POINT	0	0	0	0	0	0	0	0
DEARBORN	0	0	0	0	1	0	1	0
EDGERTON	0	0	0	0	0	0	0	0
FARLEY	0	0	0	0	0	0	0	0
FERRELVIEW	0	0	0	0	0	0	0	0
HOUSTON LAKE	0	0	0	0	0	0	0	0
IATAN	0	0	0	0	1	0	0	0
KANSAS CITY	0	1	2	0	10	0	0	0
LAKE WAUKOMIS	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	1	0	0	0
PARKVILLE	0	0	0	0	1	0	0	0
PLATTE CITY	0	1	0	0	2	0	1	0
PLATTE CO, MO	0	9	0	0	4	1	0	0
PLATTE WOODS	0	0	0	0	0	0	0	0
RIDGELY	0	0	0	0	1	0	0	0
RIVERSIDE	0	0	0	0	4	0	0	0
SMITHVILLE	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	0	0
WEATHERBY LAKE	0	0	0	0	0	0	0	0
WESTON	0	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN PLATTE COUNTY BY JURISDICTION								
JURISDICTION	**Federal Reserve**	**Commodity Exchange**	**USPS Bulk Processing Center**	**USPS Processing Facilities**	**Post Offices**	**Shelters**	**RMP**	**Tier II**
CAMDEN POINT	0	0	0	0	1	0	0	1
DEARBORN	0	0	0	0	1	2	1	4
EDGERTON	0	0	0	0	1	0	0	1
FARLEY	0	0	0	0	1	0	0	0
FERRELVIEW	0	0	0	0	0	0	0	0
HOUSTON LAKE	0	0	0	0	0	0	0	0
IATAN	0	0	0	0	0	0	0	0
KANSAS CITY	0	0	0	0	3	9	0	54
LAKE WAUKOMIS	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	0	0	0	1
PARKVILLE	0	0	0	0	1	4	0	7
PLATTE CITY	0	0	0	0	1	2	0	3
PLATTE CO, MO	0	0	0	0	1	1	2	14
PLATTE WOODS	0	0	0	0	0	2	0	0
RIDGELY	0	0	0	0	0	0	0	0
RIVERSIDE	0	0	0	0	1	1	1	12
SMITHVILLE	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	0	2
WEATHERBY LAKE	0	0	0	0	0	0	0	0
WESTON	0	0	0	0	1	2	0	3

RAY COUNTY

ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION									
JURISDICTION	**COUNTY**	**Federal Government**	**State Government**	**Local Government**	**Wastewater Treatment**	**Haz Mat**	**EOC**	**Fire Stations**	**Police Stations**
CAMDEN	RAY	0	0	0	0	0	0	0	0
CRYSTAL LAKES	RAY	0	0	0	0	0	0	0	0
ELMIRA	RAY	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	RAY	0	0	1	0	0	0	0	0
EXCELSIOR SPRINGS	RAY	0	0	0	0	0	0	0	0
FLEMING	RAY	0	0	0	0	0	0	0	0
HARDIN	RAY	0	0	1	0	0	0	1	1
HENRIETTA	RAY	0	0	0	0	0	0	0	2
HOMESTEAD VILLAGE	RAY	0	0	0	0	0	0	0	0
LAWSON	RAY	0	0	0	0	0	0	1	1
ORRICK	RAY	0	0	0	0	0	0	1	1
RAY CO, MO	RAY	0	0	2	1	0	0	1	1
RICHMOND	RAY	2	3	10	0	0	0	2	2
WOOD HEIGHTS	RAY	0	0	0	0	0	0	1	1

ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION									
JURISDICTION	**National Register of Historic Sites**	**City/State Registers of Historic Sites**	**Occ. Public Housing Units**	**Public Housing Properties**	**PSAPs**	**Colleges**	**Day Care**	**Hospitals**	**Hotels**
CAMDEN	0	0	0	0	0	0	0	0	0
CRYSTAL LAKES	0	0	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0	0
HARDIN	0	0	0	0	0	0	1	0	0
HENRIETTA	0	0	0	0	0	0	0	0	0
HOMESTEAD VILLAGE	0	0	0	0	0	0	0	0	0
LAWSON	0	0	39	19	0	0	1	0	0
ORRICK	0	0	0	0	0	0	2	0	0
RAY CO, MO	1	2	0	0	0	0	1	0	0
RICHMOND	4	4	110	65	1	0	3	1	1
WOOD HEIGHTS	0	0	0	0	0	0	0	0	0

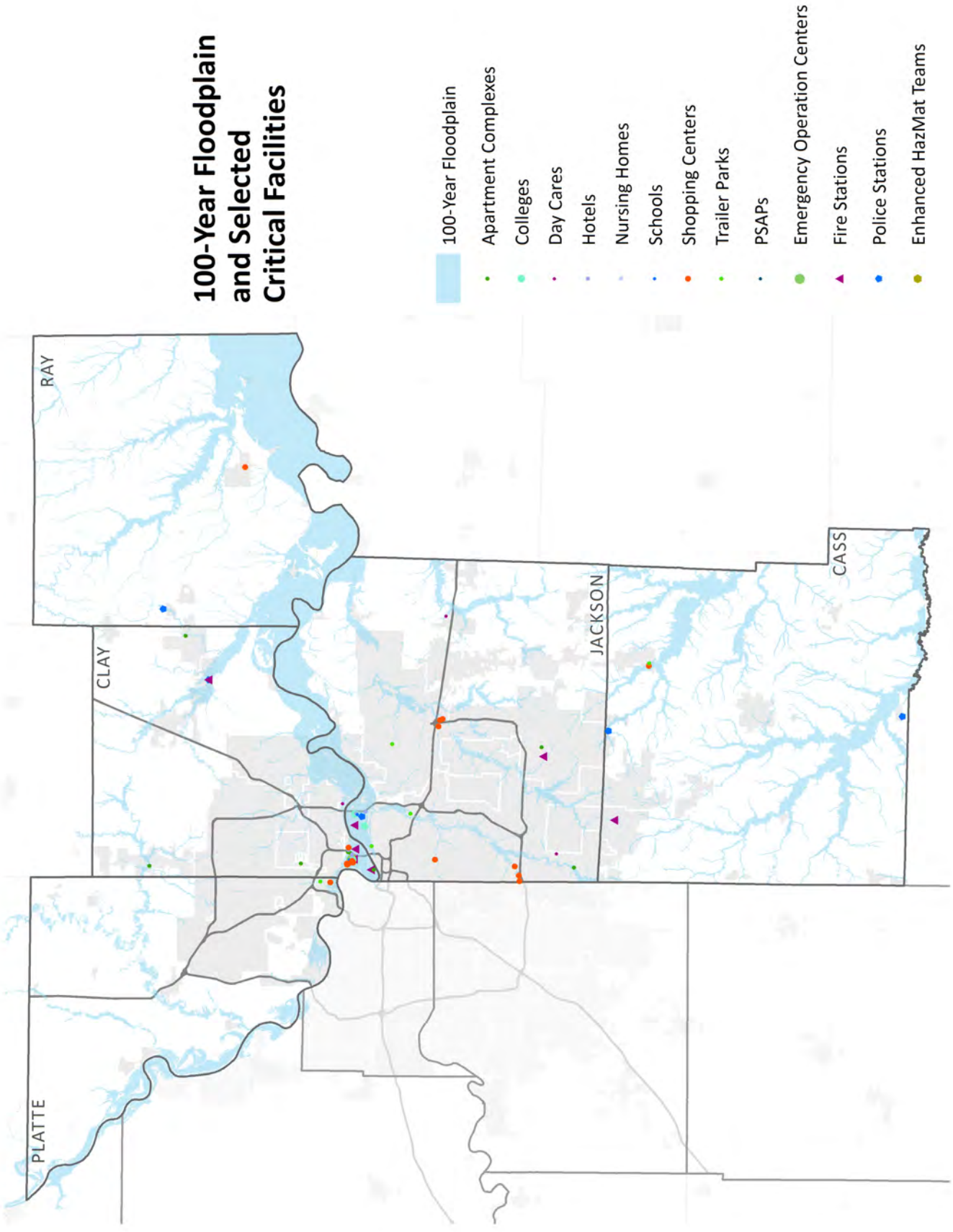
ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION								
JURISDICTION	**Apartment Complexes**	**Nursing Homes**	**Other Health Care**	**Schools**	**Shopping Centers**	**Trailer Parks**	**Dormitories**	**NFL Stadium**
CAMDEN	0	0	0	0	0	0	0	0
CRYSTAL LAKES	0	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0
HARDIN	0	0	0	2	0	0	0	0
HENRIETTA	0	0	0	0	0	0	0	0
HOMESTEAD VILLAGE	0	0	0	0	0	0	0	0
LAWSON	1	1	0	3	3	0	0	0
ORRICK	1	0	0	2	0	1	0	0
RAY CO, MO	0	0	0	3	0	0	0	0
RICHMOND	4	1	2	4	5	1	0	0
WOOD HEIGHTS	0	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION									
JURISDICTION	**MLS Stadium**	**MLB Stadium**	**IRL Tracks**	**Botanical / Zoological Gardens**	**NASCAR**	**NCAA Div. 1 Basketball Arena**	**Large Grocery**	**Small Grocery**	**Amtrak Station**
CAMDEN	0	0	0	0	0	0	0	0	0
CRYSTAL LAKES	0	0	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0	0
HARDIN	0	0	0	0	0	0	0	0	0
HENRIETTA	0	0	0	0	0	0	0	0	0
HOMESTEAD VILLAGE	0	0	0	0	0	0	0	0	0
LAWSON	0	0	0	0	0	0	0	0	0
ORRICK	0	0	0	0	0	0	0	0	0
RAY CO, MO	0	0	0	0	0	0	0	0	0
RICHMOND	0	0	0	0	0	0	1	0	0
WOOD HEIGHTS	0	0	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION								
JURISDICTION	**Airports**	**Heliports**	**Superfund Sites**	**EPA FRS Facilities**	**Mines**	**Alternative Fueling Stations**	**Public Refrigerated Warehouses**	**Federal Reserve**
CAMDEN	0	0	0	0	0	0	0	0
CRYSTAL LAKES	0	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	1	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0
HARDIN	0	0	0	2	0	0	0	0
HENRIETTA	0	0	0	2	0	0	0	0
HOMESTEAD VILLAGE	0	0	0	0	0	0	0	0
LAWSON	0	0	0	1	0	0	0	0
ORRICK	0	0	0	2	0	0	0	0
RAY CO, MO	3	0	0	6	0	0	0	0
RICHMOND	0	0	0	1	0	0	0	0
WOOD HEIGHTS	0	0	0	0	0	0	0	0

ALL CRITICAL INFRASTRUCTURE IN RAY COUNTY BY JURISDICTION							
JURISDICTION	**Commodity Exchange**	**USPS Bulk Processing Center**	**USPS Processing Facilities**	**Post Offices**	**Shelters**	**RMP**	**Tier II**
CAMDEN	0	0	0	0	0	0	1
CRYSTAL LAKES	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0
EXCELSIOR ESTATES	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	1
FLEMING	0	0	0	0	0	0	0
HARDIN	0	0	0	1	0	1	6
HENRIETTA	0	0	0	1	0	0	2
HOMESTEAD VILLAGE	0	0	0	0	0	0	0
LAWSON	0	0	0	1	0	0	2
ORRICK	0	0	0	1	0	1	2
RAY CO, MO	0	0	0	1	1	2	11
RICHMOND	0	0	0	1	2	0	12
WOOD HEIGHTS	0	0	0	0	1	0	1

Appendix C:
100-Year Floodplain and Selected Critical Facilities
Map and Table
(5 Pages)



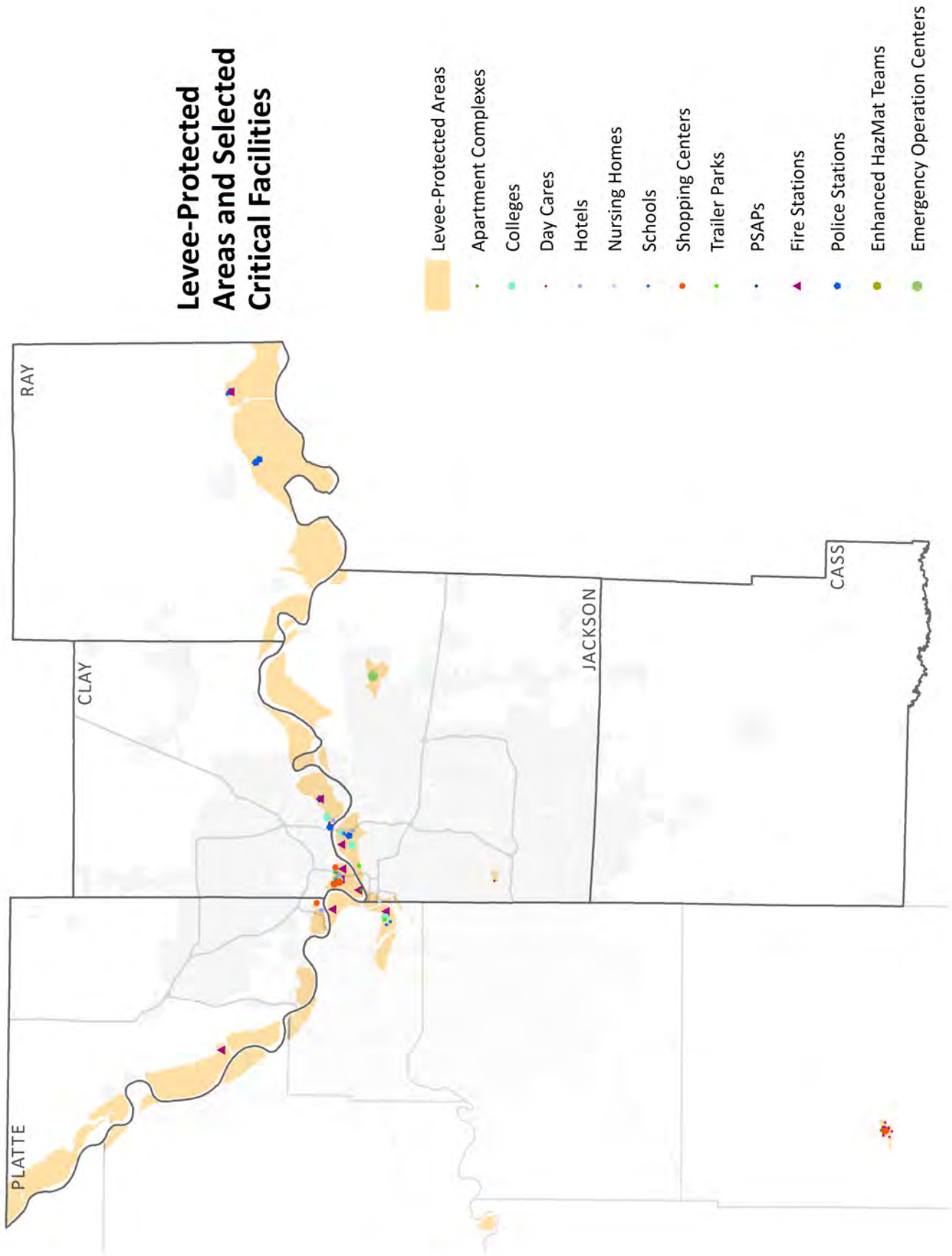
CRITICAL FACILITIES IN FLOODPLAIN AREAS BY JURISDICTION	COUNTY	PSAPs	Haz Mat	EOCs	Fire Stations	Police Stations	Colleges	Day Cares	Hospitals	Hotels	Apartment Complexes	Nursing Homes	Other Health Facilities	Schools	Shopping Centers	Trailer Parks	Dormitories	RMPs	Tier II	Shelters
ARCHIE	CASS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BALDWIN PARK	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BELTON	CASS	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASS CO, MO	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
CLEVELAND	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CREIGHTON	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DREXEL	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LYNNE	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FREEMAN	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GARDEN CITY	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREENWOOD	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARRISONVILLE	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE ANNETTE	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE WINNEBAGO	CASS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEE'S SUMMIT	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PECULIAR	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLEASANT HILL	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0
RAYMORE	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVERVIEW ESTATES	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STRASBURG	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VILLAGE OF LOCH LLOYD	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LINE	CASS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL CASS COUNTY		**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**3**	**1**
AVONDALE	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIRMINGHAM	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY CO, MO	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAYCOMO	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
EXCELSIOR SPRINGS	CLAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GLADSTONE	CLAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GLENAIRE	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOLT	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	CLAY	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0	0	0	12	0
KEARNEY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
LAWSON	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIBERTY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
MISSOURI CITY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOSBY	CLAY	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
NORTH KANSAS CITY	CLAY	1	1	1	2	1	1	1	0	5	4	1	0	1	8	0	0	1	44	2
PLEASANT VALLEY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRATHERSVILLE	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RANDOLPH	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMITHVILLE	CLAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL CLAY COUNTY		**1**	**1**	**1**	**5**	**2**	**1**	**3**	**0**	**5**	**8**	**1**	**0**	**1**	**8**	**0**	**0**	**2**	**63**	**2**
BLUE SPRINGS	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUCKNER	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAIN VALLEY	JACKSON	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
GRANDVIEW	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREENWOOD	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INDEPENDENCE	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0
JACKSON CO, MO	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
KANSAS CITY	JACKSON	0	0	0	1	1	2	1	1	2	1	0	0	1	4	2	0	3	61	0
LAKE CITY ARSENAL	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CRITICAL FACILITIES IN FLOODPLAIN AREAS BY JURISDICTION	COUNTY	PSAPs	Haz Mat	EOCs	Fire Stations	Police Stations	Colleges	Day Cares	Hospitals	Hotels	Apartment Complexes	Nursing Homes	Other Health Facilities	Schools	Shopping Centers	Trailer Parks	Dormitories	RMPs	Tier II	Shelters
LAKE LOTAWANA	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEE'S SUMMIT	JACKSON	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
LEVASY	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LONE JACK	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OAK GROVE	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RAYTOWN	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVER BEND	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SIBLEY	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CREEK	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
UNITY VILLAGE	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL JACKSON COUNTY		**0**	**0**	**0**	**2**	**1**	**2**	**2**	**1**	**2**	**2**	**0**	**0**	**1**	**7**	**3**	**0**	**4**	**69**	**0**
DEARBORN	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
EDGERTON	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FARLEY	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHMOOR	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
PARKVILLE	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CITY	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CO, MO	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVERSIDE	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
SMITHVILLE	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRACY	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTON	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PLATTE COUNTY		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**
CAMDEN	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRYSTAL LAKES	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ELMIRA	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLEMING	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDIN	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
HENRIETTA	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAWSON	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORRICK	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
RAY CO, MO	RAY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
RICHMOND	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
TOTAL IN RAY COUNTY		**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**6**	**0**

CRITICAL FACILITIES IN FLOODPLAIN AREAS BY JURISDICTION	Tier II Wastewater	Public Housing Sites	Public Housing Units	EPA FRS	Superfund	Airports	Heliports	National Register of Historic Places	City/State Register of Historic Places	Federal Government	State Government	Local Government	Post Offices
ARCHIE	1	0	0	0	0	0	0	0	0	0	0	0	0
BALDWIN PARK	0	0	0	0	0	0	0	0	0	0	0	0	0
BELTON	0	0	0	0	0	0	0	0	0	0	0	0	0
CASS CO, MO	0	0	0	3	0	0	0	0	0	0	0	0	0
CLEVELAND	0	0	0	0	0	0	0	0	0	0	0	0	0
CREIGHTON	0	0	0	0	0	0	0	0	0	0	0	0	0
DREXEL	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LYNNE	0	0	0	0	0	0	0	0	0	0	0	0	0
FREEMAN	0	0	0	0	0	0	0	0	0	0	0	0	0
GARDEN CITY	0	0	0	0	0	0	0	0	0	0	0	0	0
GREENWOOD	0	0	0	0	0	0	0	0	0	0	0	0	0
HARRISONVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE ANNETTE	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE WINNEBAGO	0	0	0	0	0	0	0	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	0	0	0	0	0	0	0	0
PECULIAR	0	0	0	0	0	0	0	0	0	0	0	0	0
PLEASANT HILL	0	0	0	1	0	0	0	0	0	0	0	0	0
RAYMORE	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVERVIEW ESTATES	0	0	0	0	0	0	0	0	0	0	0	0	0
STRASBURG	0	0	0	0	0	0	0	0	0	0	0	0	0
VILLAGE OF LOCH LLOYD	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LINE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL CASS COUNTY	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AVONDALE	0	0	0	0	0	0	0	0	0	0	0	1	0
BIRMINGHAM	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY CO, MO	0	0	0	0	0	1	0	0	0	0	0	0	0
CLAYCOMO	0	0	0	0	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	1	70	0	0	0	0	1	0	0	0	6	0
GLADSTONE	0	0	0	0	0	0	0	0	0	0	0	0	0
GLENAIRE	0	0	0	0	0	0	0	0	0	0	0	0	0
HOLT	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	1	0	0	2	0	1	0	1	0	1	0	0	0
KEARNEY	0	0	0	1	0	1	0	0	0	0	0	1	0
LAWSON	0	0	0	0	0	0	0	0	0	0	0	0	0
LIBERTY	0	0	0	3	1	0	0	0	0	1	0	0	0
MISSOURI CITY	0	0	0	0	0	0	0	1	0	0	0	0	0
MOSBY	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	1	0	0	54	1	0	0	3	2	0	1	3	1
PLEASANT VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0
PRATHERSVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
RANDOLPH	0	0	0	0	0	0	0	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL CLAY COUNTY	**2**	**1**	**70**	**60**	**2**	**3**	**0**	**6**	**2**	**2**	**1**	**11**	**1**
BLUE SPRINGS	0	0	0	0	0	0	0	0	0	0	0	0	0
BUCKNER	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAIN VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0
GRANDVIEW	0	0	0	0	0	0	0	0	0	0	0	0	0
GREENWOOD	0	0	0	0	0	0	0	0	0	0	0	0	0
INDEPENDENCE	0	0	0	1	0	0	0	0	0	0	0	0	0
JACKSON CO, MO	0	0	0	1	0	1	0	0	1	0	0	0	0
KANSAS CITY	1	2	2	54	0	0	0	2	3	4	2	0	1
LAKE CITY ARSENAL	0	0	0	0	0	0	0	0	0	0	0	0	0

CRITICAL FACILITIES IN FLOODPLAIN AREAS BY JURISDICTION	Tier II Wastewater	Public Housing Sites	Public Housing Units	EPA FRS	Superfund	Airports	Heliports	National Register of Historic Places	City/State Register of Historic Places	Federal Government	State Government	Local Government	Post Offices
LAKE LOTAWANA	0	0	0	0	0	0	0	0	0	0	0	0	0
LEE'S SUMMIT	0	0	0	0	0	0	0	0	1	0	0	1	0
LEVASY	0	0	0	0	0	0	0	0	0	0	0	0	0
LONE JACK	0	0	0	0	0	0	0	0	0	0	0	0	0
OAK GROVE	0	0	0	0	0	0	0	0	0	0	0	0	0
RAYTOWN	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVER BEND	0	0	0	0	0	0	0	0	0	0	0	0	0
SIBLEY	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CREEK	1	0	0	1	0	0	0	0	0	0	0	0	0
UNITY VILLAGE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL JACKSON COUNTY	**2**	**2**	**2**	**57**	**0**	**1**	**0**	**2**	**5**	**4**	**2**	**1**	**1**
DEARBORN	0	0	0	0	0	0	0	0	0	0	0	0	0
EDGERTON	0	0	0	0	0	0	0	0	0	0	0	0	0
FARLEY	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHMOOR	0	0	0	0	0	0	0	0	0	0	0	0	0
PARKVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CITY	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CO, MO	0	0	0	0	0	2	0	0	1	0	0	0	0
RIVERSIDE	0	0	0	2	0	0	0	0	0	0	0	0	0
SMITHVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TRACY	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTON	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PLATTE COUNTY	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
CAMDEN	0	0	0	0	0	0	0	0	0	0	0	0	0
CRYSTAL LAKES	0	0	0	0	0	0	0	0	0	0	0	0	0
ELMIRA	0	0	0	0	0	0	0	0	0	0	0	0	0
EXCELSIOR SPRINGS	0	0	0	0	0	0	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDIN	0	0	0	1	0	0	0	0	0	0	0	1	0
HENRIETTA	0	0	0	0	0	0	0	0	0	0	0	0	0
LAWSON	0	0	0	0	0	0	0	0	0	0	0	0	0
ORRICK	0	0	0	0	0	0	0	0	0	0	0	0	0
RAY CO, MO	0	0	0	1	0	1	0	0	0	0	0	1	0
RICHMOND	0	3	6	0	0	0	0	0	0	0	0	0	0
TOTAL IN RAY COUNTY	**0**	**3**	**6**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

Appendix C:
Levee-Protected Areas and Selected Critical Facilities
Map and Table
(3 Pages)



CRITICAL FACILITIES IN LEVEE AREAS BY JURISDICTION	COUNTY	PSAPs	Haz Mat	EOCs	Fire Stations	Police Stations	Colleges	Daycares	Hospitals	Hotels	Apartment Complexes	Nursing Homes	Other Health Care	Schools	Shopping Centers	Trailer Parks	Dormitories	RMPs	Tier II
NO LEVEE AREAS IN COUNTY	CASS																		
BIRMINGHAM	CLAY	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY CO, MO	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	CLAY	0	0	0	1	0	1	2	0	1	1	0	0	0	0	0	0	1	13
LIBERTY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MISSOURI CITY	CLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	CLAY	1	1	1	2	1	1	1	0	5	4	1	0	1	8	0	0	1	44
RANDOLPH	CLAY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
INDEPENDENCE	JACKSON	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
JACKSON CO, MO	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
KANSAS CITY	JACKSON	0	0	0	1	1	2	1	0	2	0	1	0	1	0	1	0	5	68
LAKE CITY ARSENAL	JACKSON	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
LEVASY	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVER BEND	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SUGAR CREEK	JACKSON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
FARLEY	PLATTE	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARKVILLE	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CO, MO	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7
RIVERSIDE	PLATTE	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	10
WESTON	PLATTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMDEN	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLEMING	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDIN	RAY	0	0	0	1	1	0	1	0	0	0	0	0	2	0	0	0	1	6
HENRIETTA	RAY	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
RAY CO, MO	RAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

CRITICAL FACILITIES IN LEVEE AREAS BY JURISDICTION	Shelters	Tier II Wastewater	Public Housing	EPA FRS	Superfund	Airports	Heliports	National Register of Historic Places	City/State Register of Historic Places	Federal Government	State Government	Local Government	Post Offices
NO LEVEE AREAS IN COUNTY													
BIRMINGHAM	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY CO, MO	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS CITY	0	0	0	**3**	0	**1**	0	0	0	**1**	0	0	0
LIBERTY	0	0	0	0	0	0	0	0	0	0	0	0	0
MISSOURI CITY	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH KANSAS CITY	**2**	**1**	0	**55**	**1**	0	0	**3**	**2**	0	**1**	**3**	**1**
RANDOLPH	0	0	0	0	0	0	0	0	0	0	0	0	0
INDEPENDENCE	0	0	0	**1**	0	0	0	0	0	0	0	0	0
JACKSON CO, MO	0	**2**	0	**2**	0	**1**	0	0	0	0	0	**1**	0
KANSAS CITY	**1**	**3**	0	**47**	0	0	0	**5**	**1**	**13**	**4**	**2**	**1**
LAKE CITY ARSENAL	0	0	0	**1**	0	0	0	0	0	0	0	0	0
LEVASY	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVER BEND	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CREEK	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0
FARLEY	0	0	0	0	0	0	0	0	0	0	0	0	**1**
PARKVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
PLATTE CO, MO	0	0	0	**2**	0	**2**	0	0	**1**	0	0	**1**	**1**
RIVERSIDE	0	0	0	**4**	0	0	0	0	0	0	0	0	0
WESTON	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMDEN	0	0	0	0	0	0	0	0	0	0	0	0	0
FLEMING	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDIN	0	0	0	**2**	0	0	0	0	0	0	0	**1**	**1**
HENRIETTA	0	0	0	**2**	0	0	0	0	0	0	0	0	**1**
RAY CO, MO	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0

Adams Dairy Parkway Dam
Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20793

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Appendix C:
Dam Inundation Maps for Jackson County
(134 Pages)

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20793

County: JACKSON

Location: S28, T49 N, R30 W

Height of Dam: 45'

Storage Capacity (Normal Pool): 1351 ac-ft

Tributary: Unnamed trib. to Blue Branch

Lake Area: 54.5 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 74.06’

Bottom elevation: 730’

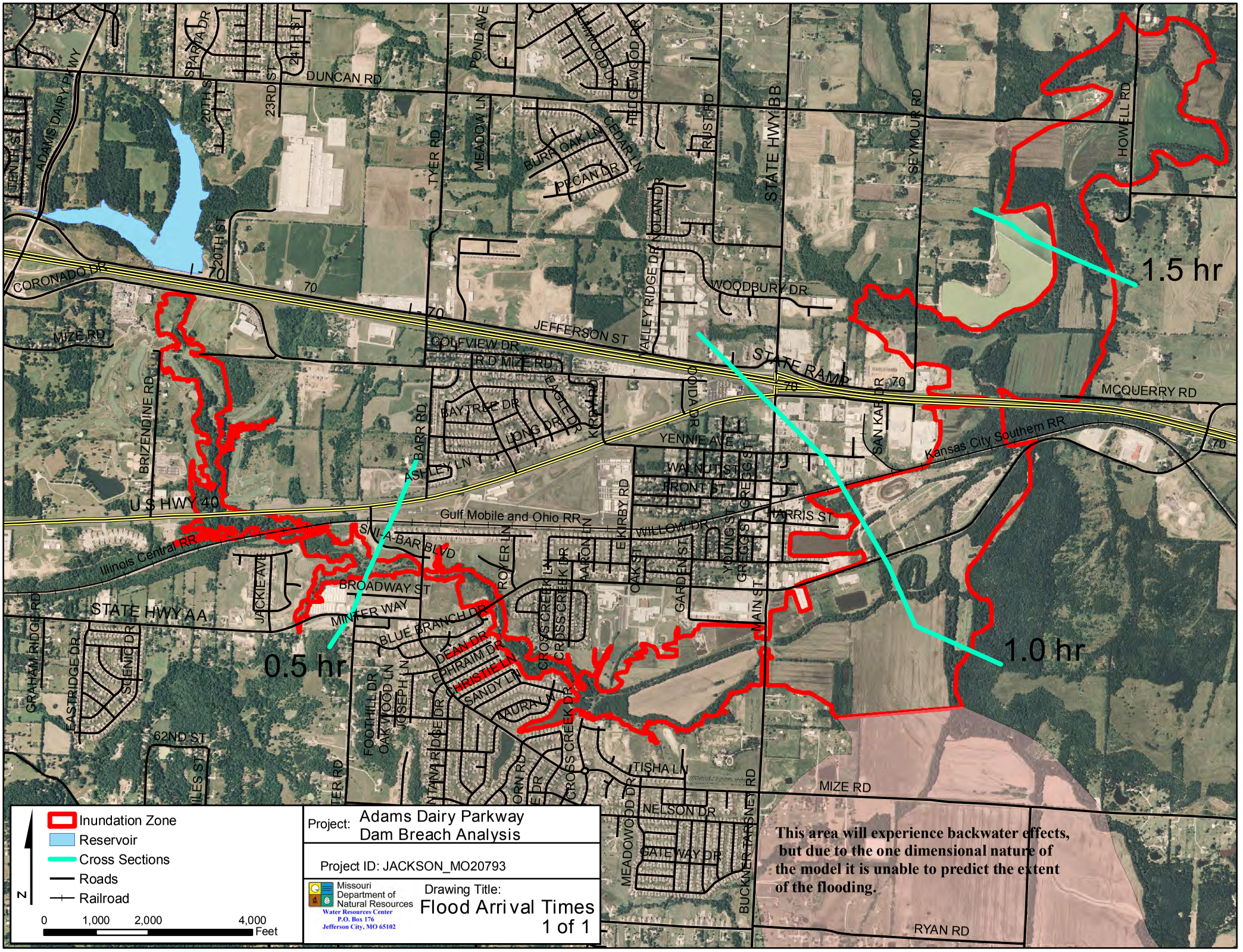
Breach formation time: 0.86 hr

Pool Elevation at Failure: 860.04’

Pool Volume at Failure: 2066 ac-ft

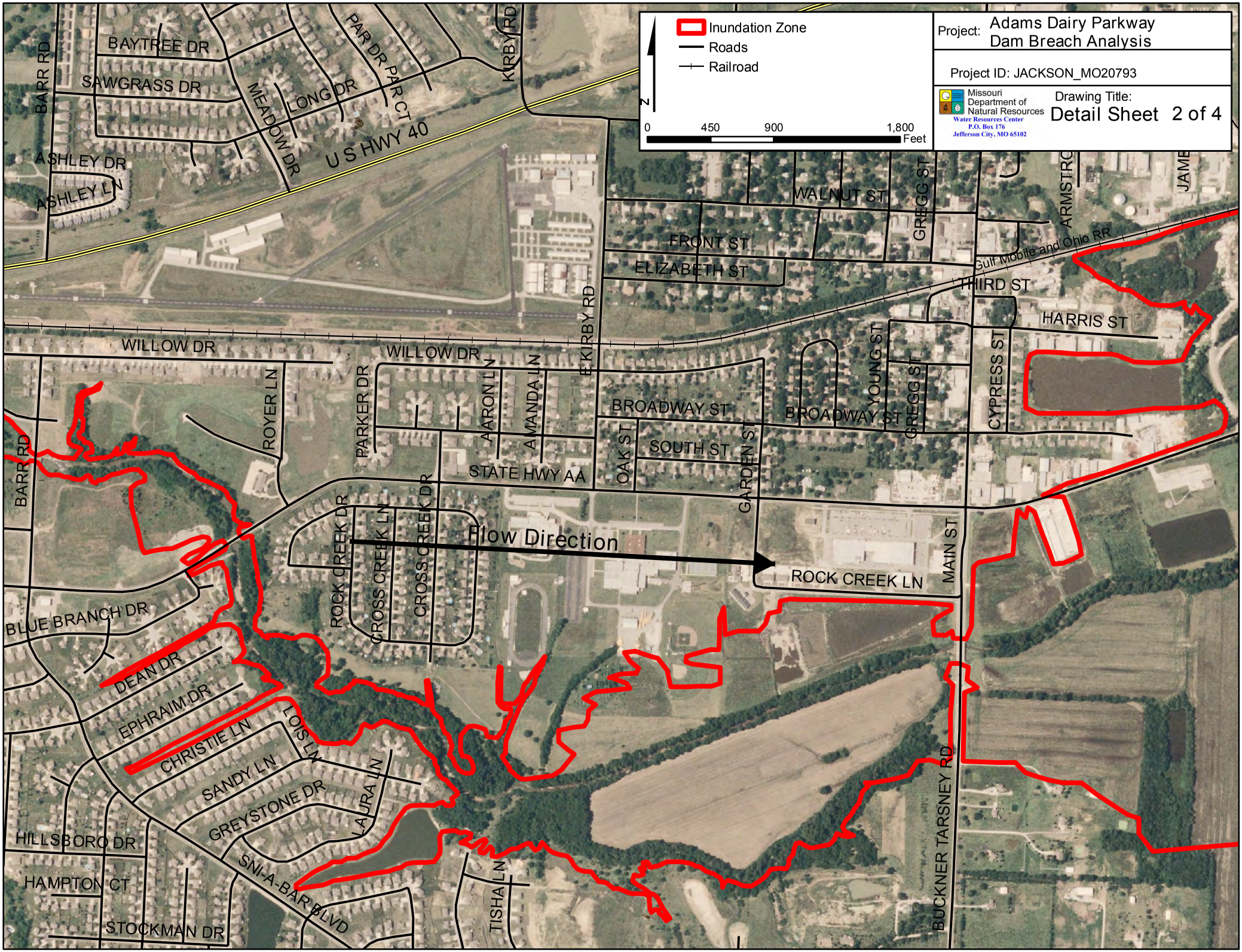
Date of Aerial Photo: August 22, 2007

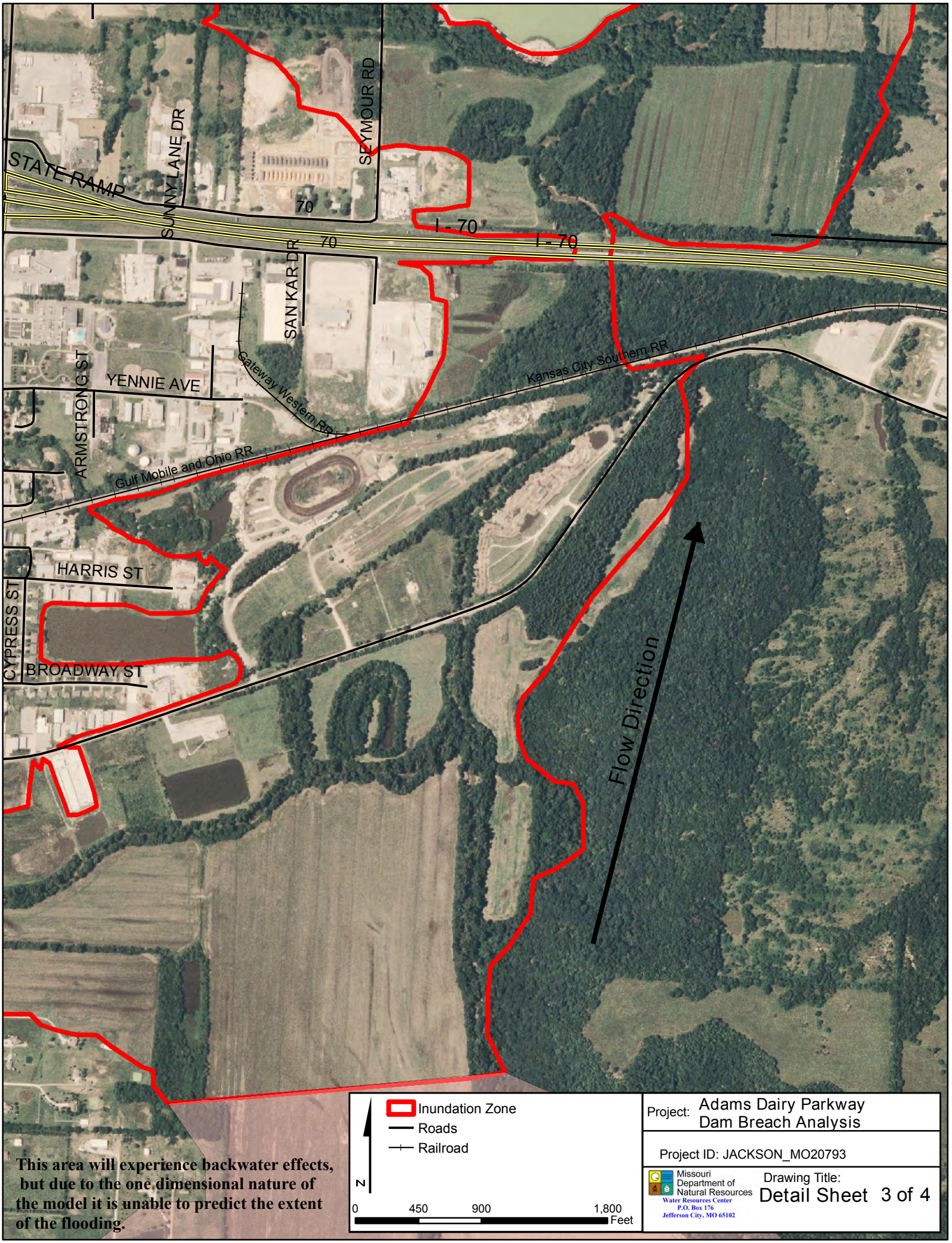
Project:	Adams Dairy Parkway Dam Breach Analysis
Drawing Title:	Explanation Sheet 1 of 1
Missouri Department of Natural Resources Water Resources Center P.O. Box 176 Jefferson City, MO 65102	Project ID: JACKSON_MO20793

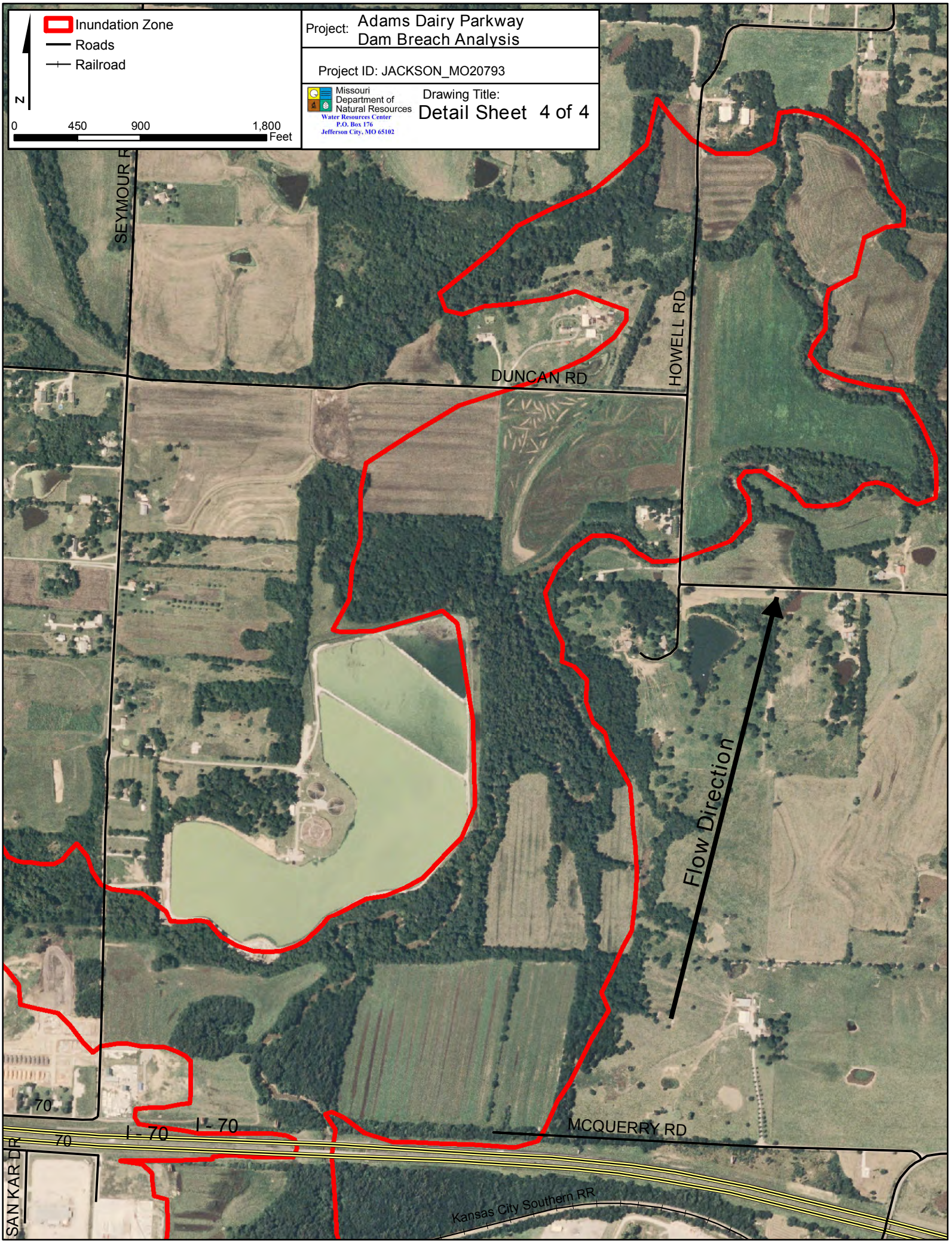


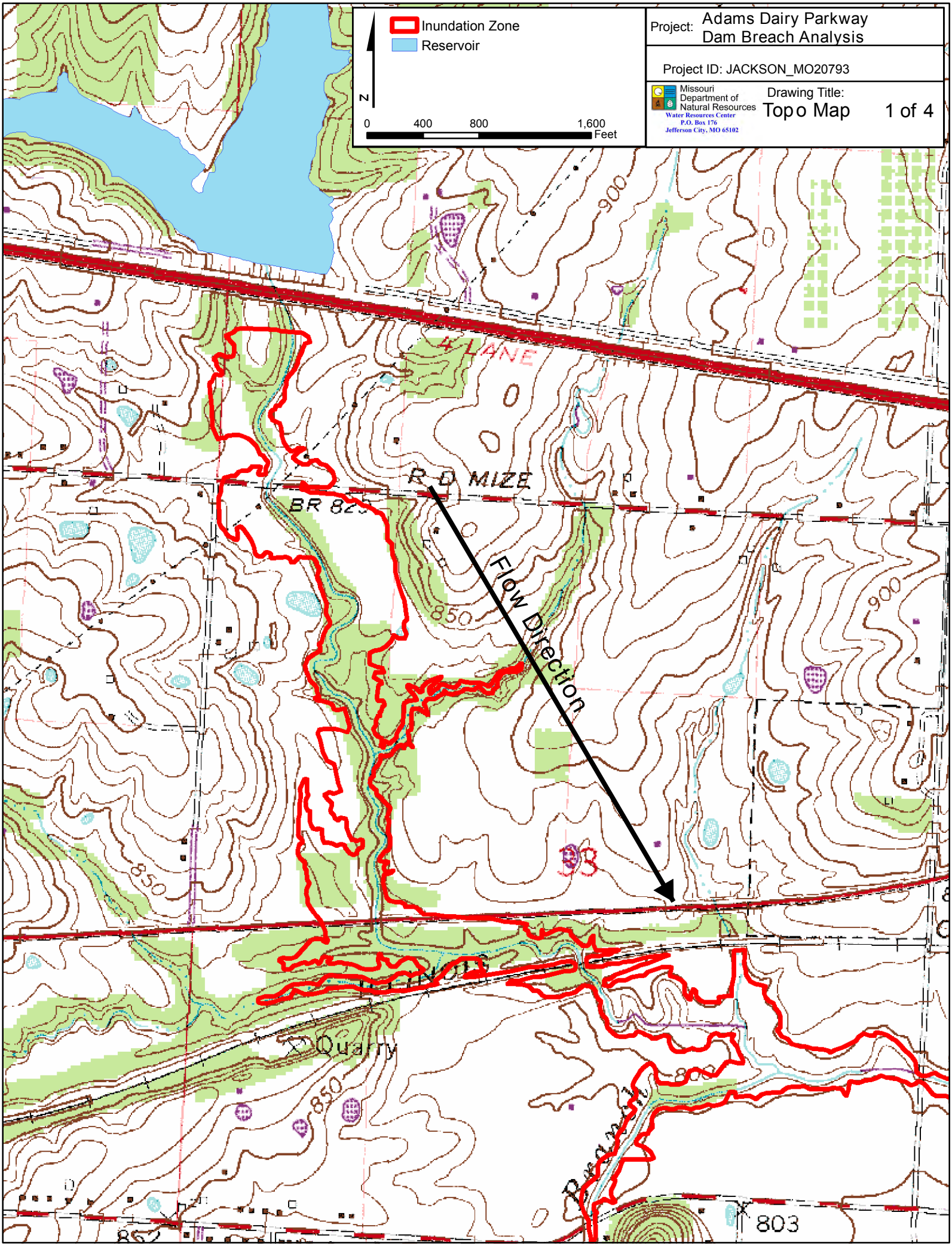
1.5 hr
1.0 hr
0.5 hr
DUNCAN RD
ADAMS DAIRY PKWY
CORONADO DR
I-70
JEFFERSON ST
STATE RAMP
MCQUERRY RD
Kansas City Southern RR
U S HWY 40
Gulf Mobile and Ohio RR
Illinois Central RR
STATE HWY AA
STATE HWY BB
MIZE RD
RYAN RD
WOODBURY DR
YENNIE AVE
WALNUT ST
FRONT ST
HARRIS ST
WILLOW DR
BROADWAY ST
MINTER WAY
BLUE BRANCH DR
DEAN DR
EPHRAIM DR
CHRISTIE LN
SANDY LN
LAURA LN
TISHA LN
NELSON DR
GATEWAY DR
BUCKNER TARSNEY RD
MEADOWOOD DR
CROSS CREEK DR
SNI-A-BAR BLVD
ROYER LN
AARON LN
E KIRBY RD
OAK ST
GARDEN ST
MAIN ST
YOUNG ST
GREGG ST
SAN KAR DR
HOWELL RD
SEYMOUR RD
RUST RD
HEDGEWOOD DR
CEDAR LN
BURR OAK LN
PECAN DR
MEADOW LN
POND AVE
TYER RD
BARR RD
ASHLEY LN
LONG DR
BAYTREE DR
EAGLE DR
KIRBY RD
GOLFVIEW DR
R D MIZE RD
VALLEY RIDGE DR
NOLAN DR
BRIZENDINE RD
MIZE RD
20TH ST
23RD ST
24TH ST
SPARTA DR
JACKIE AVE
GRAHAM RIDGE RD
EASTRIDGE DR
SCENIC DR
62ND ST
FOOTHILL DR
OAK WOOD LN
JOSEPH LN
CROSS CREEK LN
CROSS CREEK DR
Inundation Zone
Reservoir
Cross Sections
Roads
Railroad
N
0
1,000
2,000
4,000
Feet
Project: Adams Dairy Parkway
Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
This area will experience backwater effects, but due to the one dimensional nature of the model it is unable to predict the extent of the flooding.

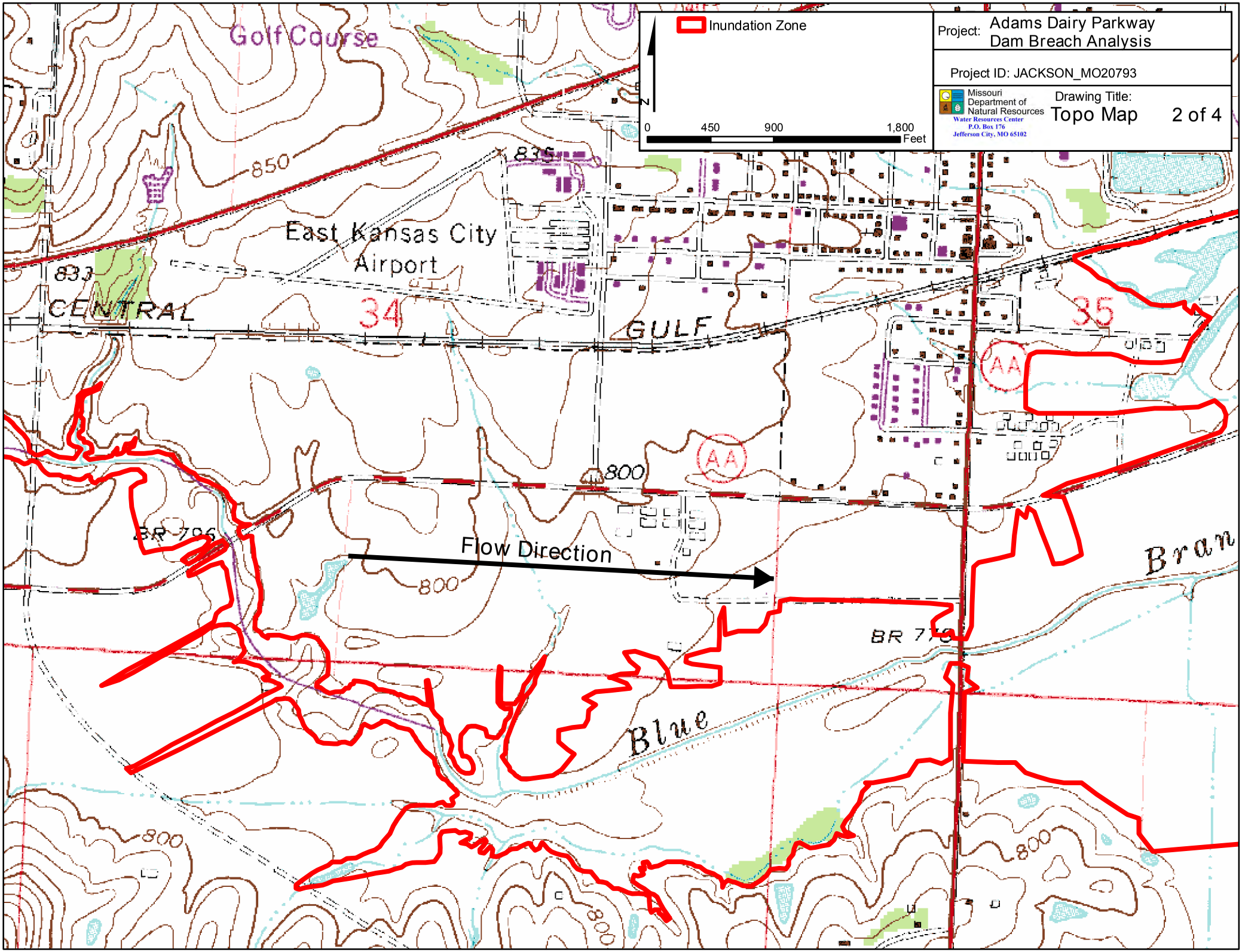

Inundation Zone
Reservoir
Roads
Railroad
N
0
400
800
1,600
Feet
Project: Adams Dairy Parkway Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 4
JEFFERSON ST
I - 70
20TH ST
CORONADO DR
I - 70
70
TYER RD
MIZE RD
R D MIZE RD
Flow Direction
BRIZENDINE RD
BARR RD
U S HWY 40
Gulf Mobile and Ohio RR
WILLOW DR
SNI-A-BAR BLVD
WILLOW DR
Illinois Central RR
MICHAEL DR
JACKIE AVE
BROADWAY ST
BROADWAY ST
BARR RD
MINTER RD
STATE HWY AA

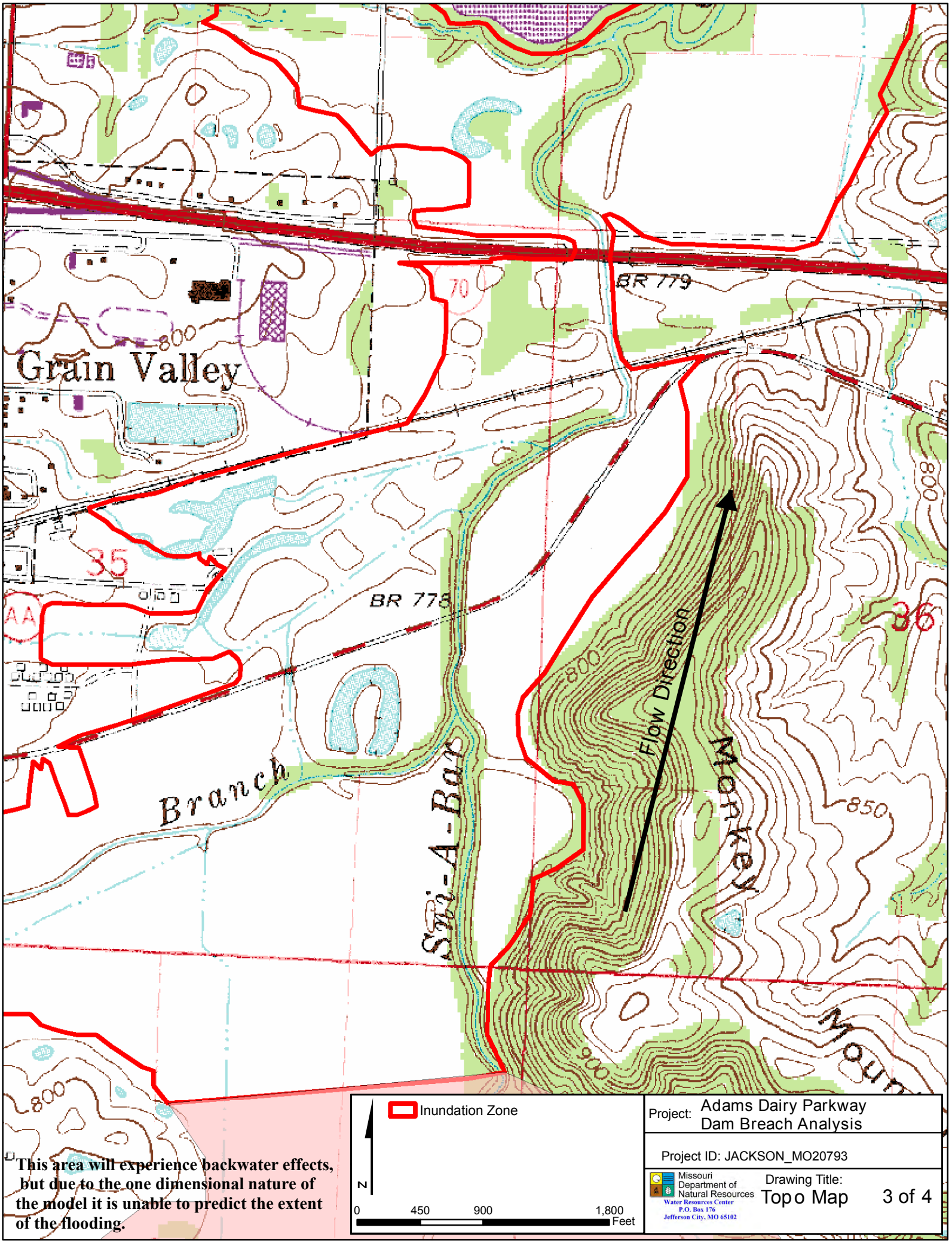

Inundation Zone
Roads
Railroad
N
0
450
900
1,800
Feet
Project: Adams Dairy Parkway Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Detail Sheet 2 of 4
BARR RD
BAYTREE DR
SAWGRASS DR
MEADOW DR
LONG DR
PAR DR
PAR CT
KIRBY RD
U S HWY 40
ASHLEY DR
ASHLEY LN
WALNUT ST
GREGG ST
ARMSTRO
JAME
FRONT ST
ELIZABETH ST
Gulf Mobile and Ohio RR
THIRD ST
HARRIS ST
E KIRBY RD
WILLOW DR
ROYER LN
PARKER DR
AARON LN
AMANDA LN
BROADWAY ST
YOUNG ST
CYPRESS ST
OAK ST
SOUTH ST
GARDEN ST
STATE HWY AA
ROCK CREEK DR
CROSS CREEK LN
Flow Direction
ROCK CREEK LN
MAIN ST
BLUE BRANCH DR
DEAN DR
EPHRAIM DR
CHRISTIE LN
LOIS LN
SANDY LN
LAURA LN
GREYSTONE DR
HILLSBORO DR
HAMPTON CT
SNI-A-BAR BLVD
STOCKMAN DR
TISHA LN
BUCKNER TARSNEY RD


STATE RAMP
SUNNY LANE DR
SEYMOUR RD
70
I - 70
70
I - 70
SAN KAR DR
Gateway Western RR
Kansas City Southern RR
YENNIE AVE
ARMSTRONG ST
Gulf Mobile and Ohio RR
HARRIS ST
CYPRESS ST
BROADWAY ST
Flow Direction
Inundation Zone
Roads
Railroad
N
0
450
900
1,800
Feet
This area will experience backwater effects, but due to the one dimensional nature of the model it is unable to predict the extent of the flooding.
Project: Adams Dairy Parkway Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 4

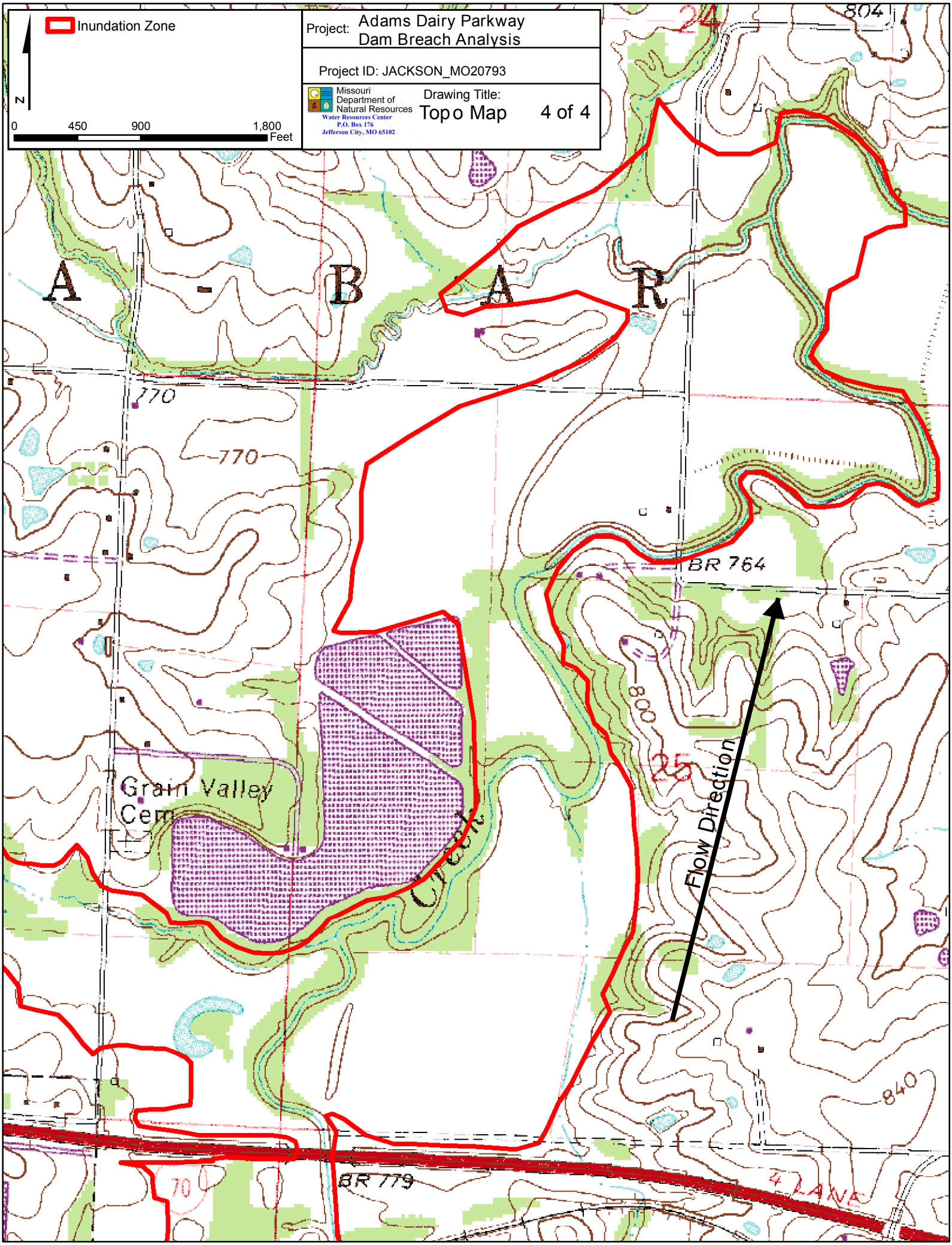

Inundation Zone
Roads
Railroad
N
0
450
900
1,800
Feet
Project: Adams Dairy Parkway
Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 4 of 4
SEYMOUR R
DUNCAN RD
HOWELL RD
Flow Direction
I - 70
I - 70
I - 70
MCQUERRY RD
SAN KAR DR
Kansas City Southern RR


Inundation Zone
Reservoir
N
0
400
800
1,600
Feet
Project: Adams Dairy Parkway
Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 4
4 LANE
R D MIZE
BR 825
Flow Direction
900
850
803
Quarry


Inundation Zone
N
0
450
900
1,800
Feet
Project: Adams Dairy Parkway Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
2 of 4
Golf Course
850
835
East Kansas City Airport
833
CENTRAL
34
GULF
35
AA
AA
800
BR 7
Flow Direction
800
BR 7
Blue
800
800
800



This area will experience backwater effects, but due to the one dimensional nature of the model it is unable to predict the extent of the flooding.


Inundation Zone
N
0
450
900
1,800
Feet
Project: Adams Dairy Parkway
Dam Breach Analysis
Project ID: JACKSON_MO20793
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
4 of 4
A - B A R
770
770
BR 764
800
25
Flow Direction
Grain Valley Cem
Creek
840
BR 779
70
4 LANE
804
24

12/7/09

Barber Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20570

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20570

County: JACKSON

Location: S06, T47 N, R30 W

Height of Dam: 57'

Storage Capacity (Normal Pool): 1460 ac-ft

Tributary: Unnamed trib. to West Fork Sni-a-bar Creek

Lake Area: 120 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 136.22’

Bottom elevation: 948’

Breach formation time: 0.85 hr

Pool Elevation at Failure: 997.22’

Pool Volume at Failure: 5013 ac-ft

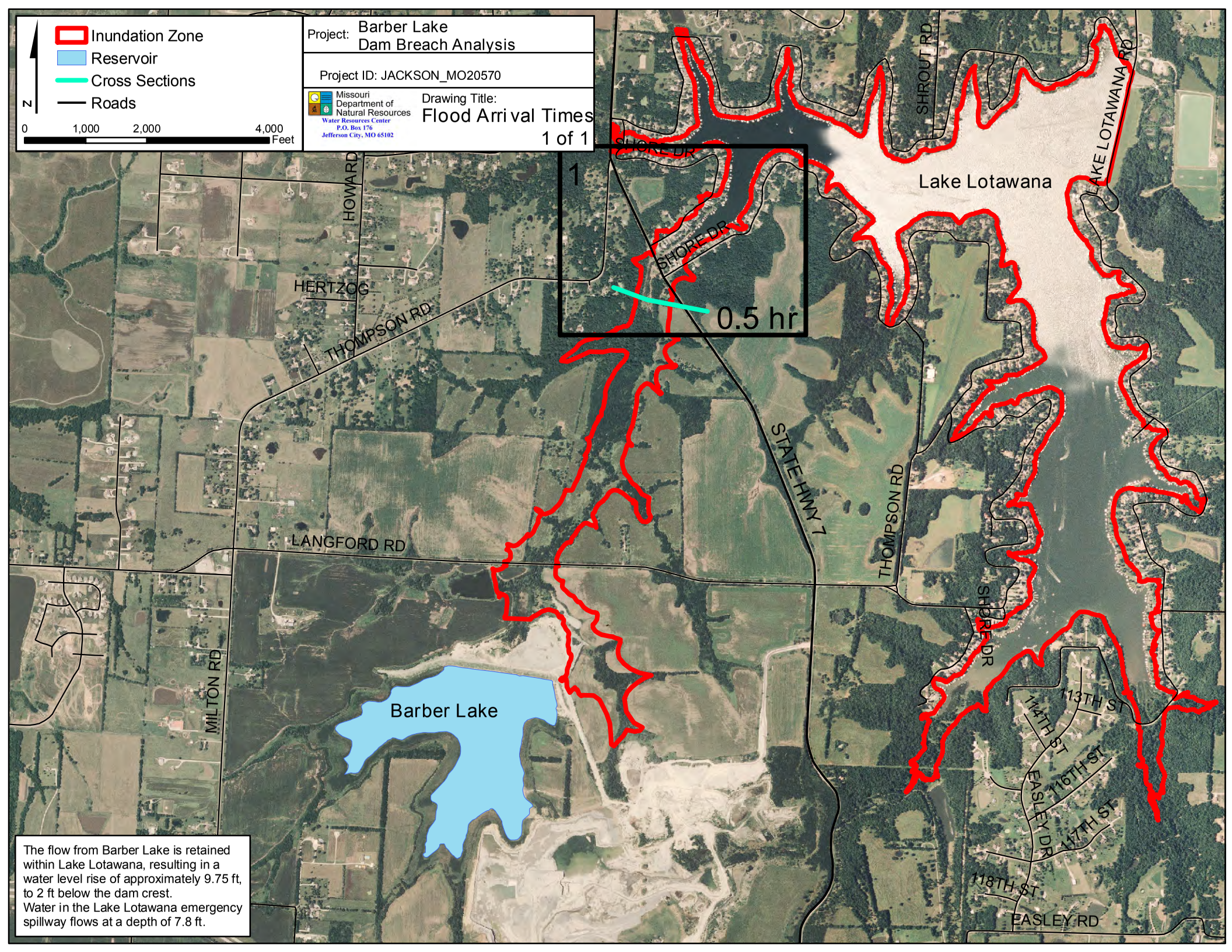
Date of Aerial Photo: August 22, 2007

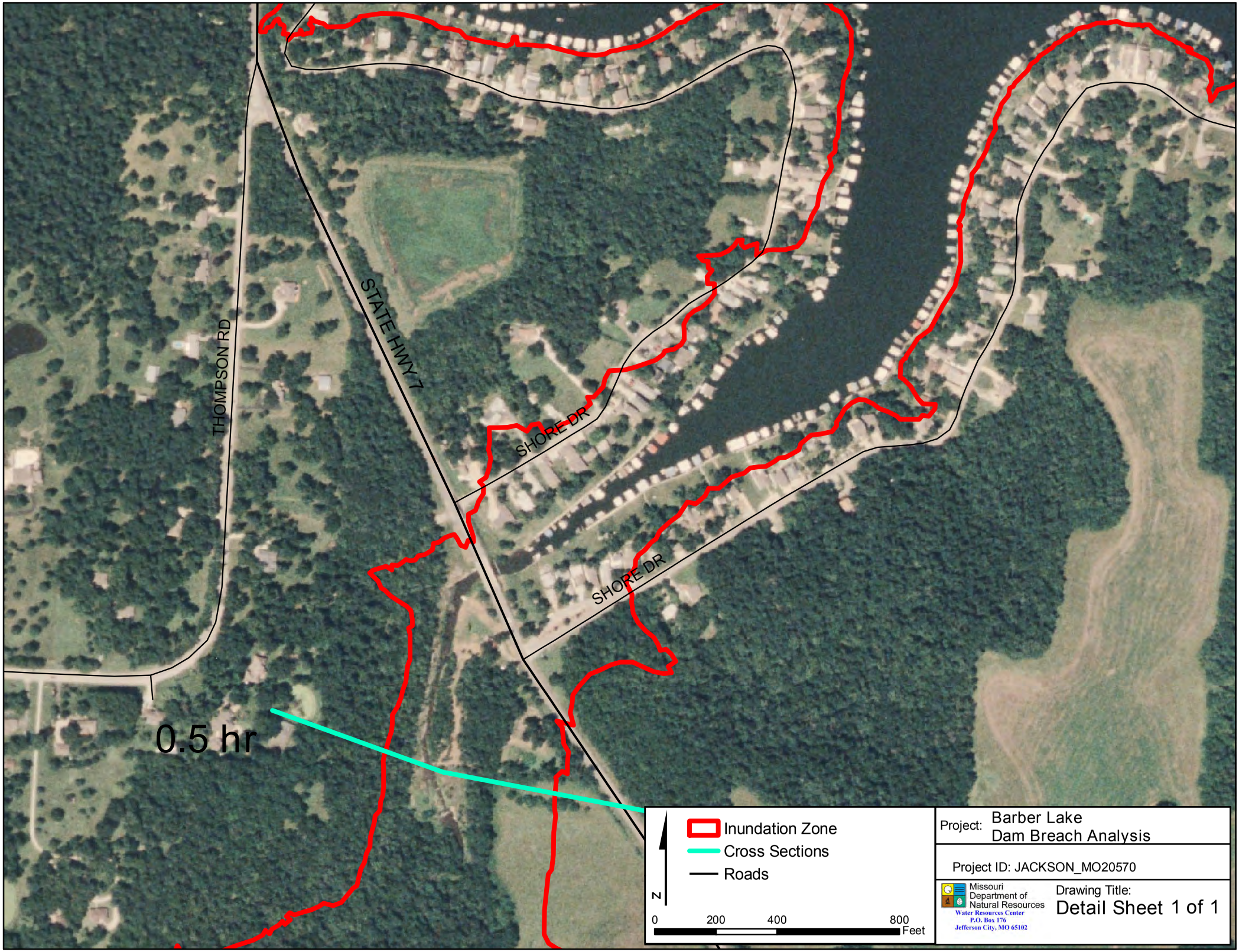
Project: Barber Lake Dam Breach Analysis

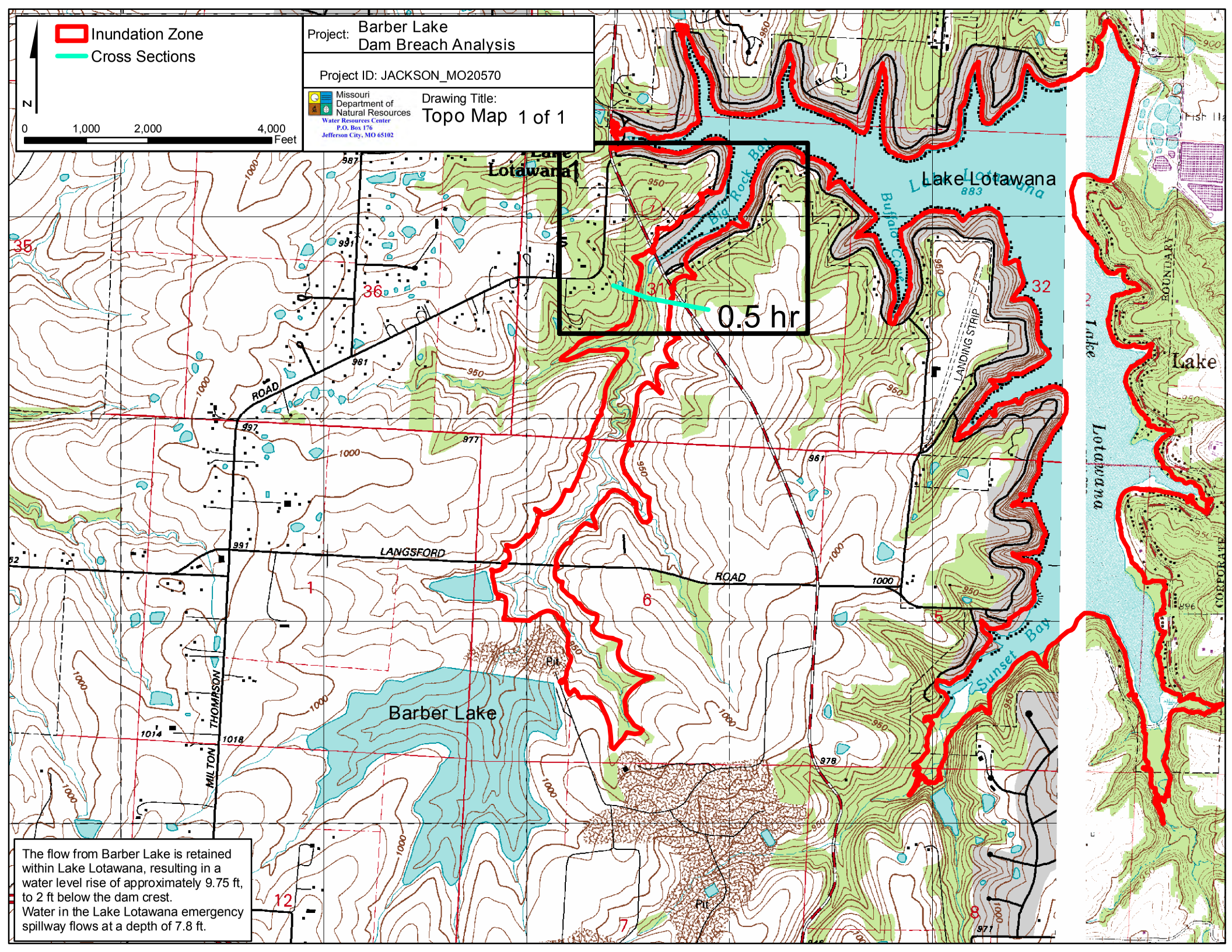
Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Project ID: JACKSON_MO20570


Inundation Zone
Reservoir
Cross Sections
Roads
N
0
1,000
2,000
4,000
Feet
Project: Barber Lake Dam Breach Analysis
Project ID: JACKSON_MO20570
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
1
0.5 hr
Lake Lotawana
Barber Lake
SHROUT RD
LAKE LOTAWANA RD
SHORE DR
HOWARD
HERTZOG
THOMPSON RD
STATE HWY 7
LANGFORD RD
MILTON RD
113TH ST
114TH ST
116TH ST
117TH ST
118TH ST
EASLEY DR
EASLEY RD
The flow from Barber Lake is retained within Lake Lotawana, resulting in a water level rise of approximately 9.75 ft, to 2 ft below the dam crest.
Water in the Lake Lotawana emergency spillway flows at a depth of 7.8 ft.

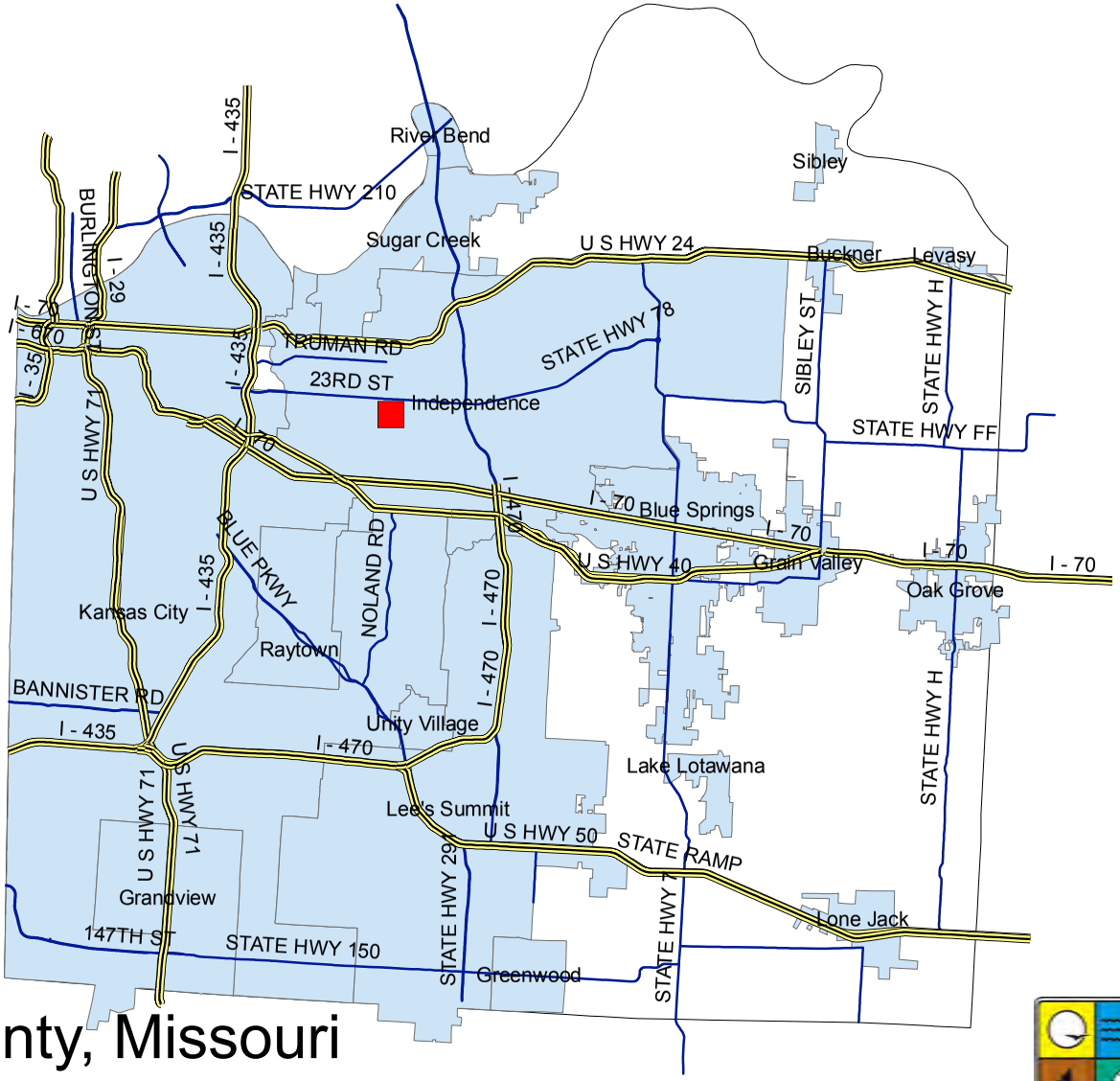

THOMPSON RD
STATE HWY 7
SHORE DR
SHORE DR
0.5 hr
Inundation Zone
Cross Sections
Roads
N
0
200
400
800
Feet
Project: Barber Lake
Dam Breach Analysis
Project ID: JACKSON_MO20570
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 1


Inundation Zone
Cross Sections
N
0
1,000
2,000
4,000
Feet
Project: Barber Lake
Dam Breach Analysis
Project ID: JACKSON_MO20570
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map 1 of 1
0.5 hr
Lake Lotawana
Barber Lake
LANGSFORD ROAD
ROAD
MILTON THOMPSON
LANDING STRIP
Sunset Bay
Big Rock Bay
Buffalo Creek
Pit
Pit
The flow from Barber Lake is retained within Lake Lotawana, resulting in a water level rise of approximately 9.75 ft, to 2 ft below the dam crest.
Water in the Lake Lotawana emergency spillway flows at a depth of 7.8 ft.

10-30-2009

Doutt Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20803

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources

Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20803

County: JACKSON

Location: S11, T49 N, R32 W

Height of Dam: 38'

Storage Capacity (Normal Pool): 18 ac-ft

Tributary: TRIB ROCK CREEK

Lake Area: 2.74 acres

Breach Parameters (Froehlich, 2008)

Side slopes: 1.4:1

Bottom width: 16.05’

Bottom elevation: 971’

Breach formation time: 0.17 hr

Pool Elevation at Failure: 999.04’

Pool Volume at Failure: 59.7 ac-ft

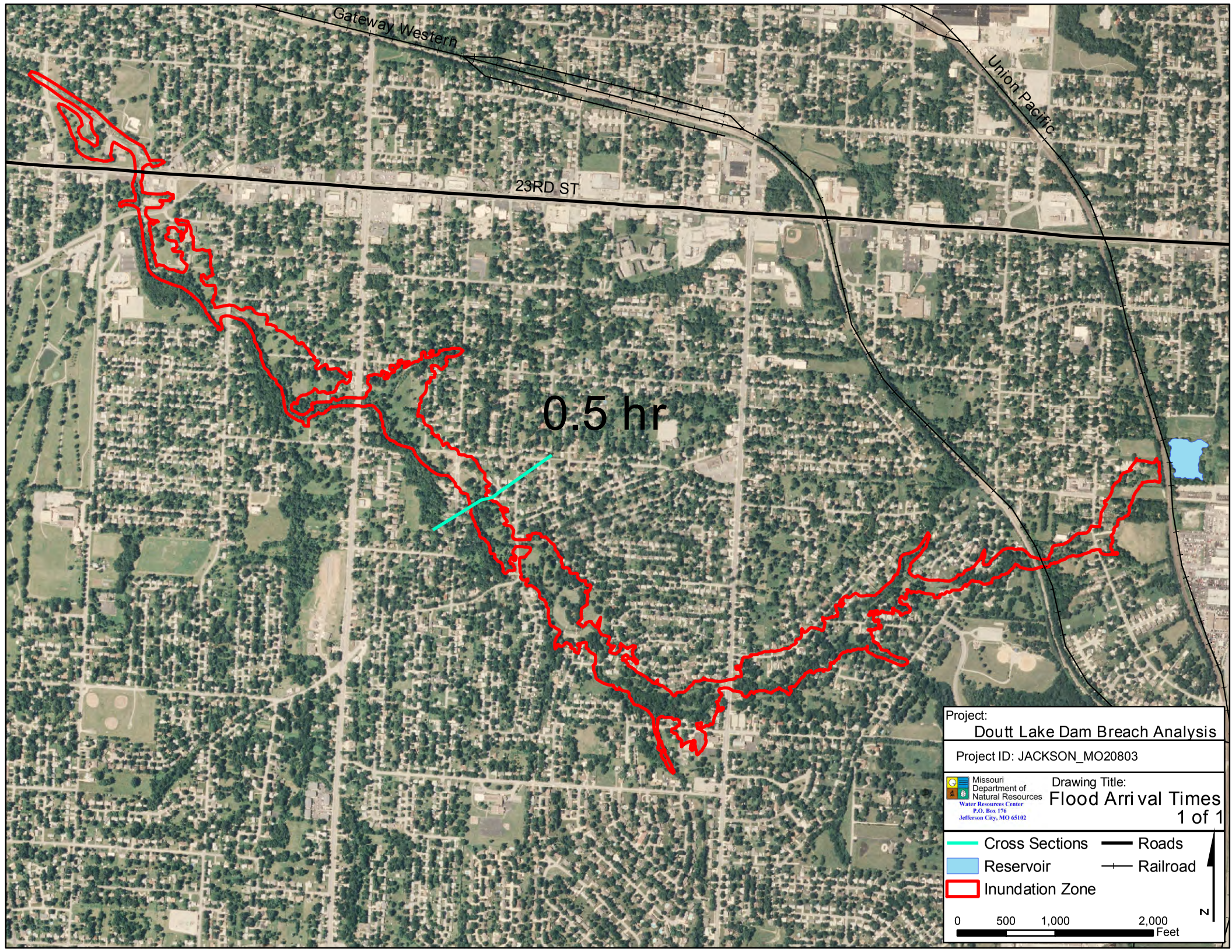
Date of Aerial Photo: August 22, 2007

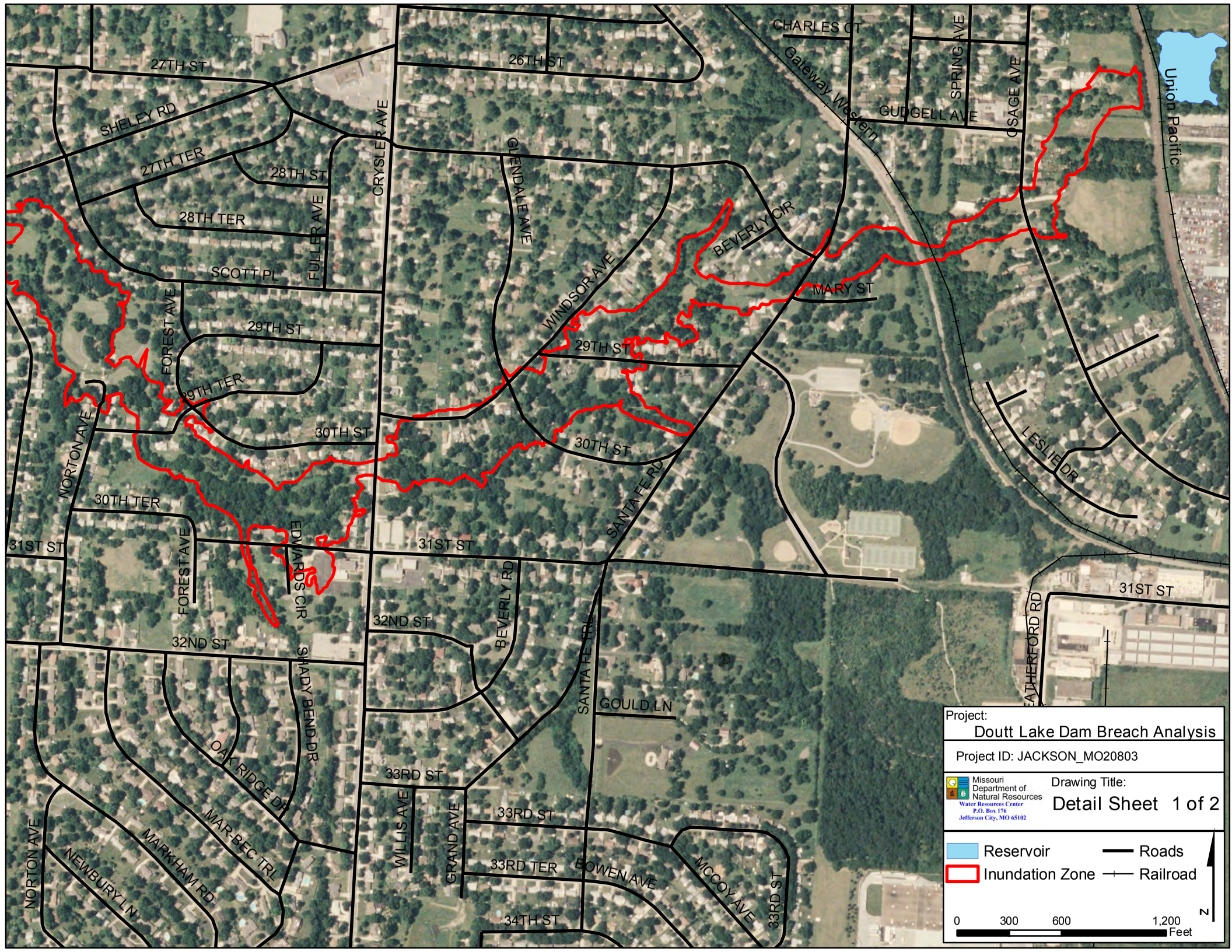
Project: Doutt Lake Dam Breach Analysis

Drawing Title: Explanation Sheet 1 of 1

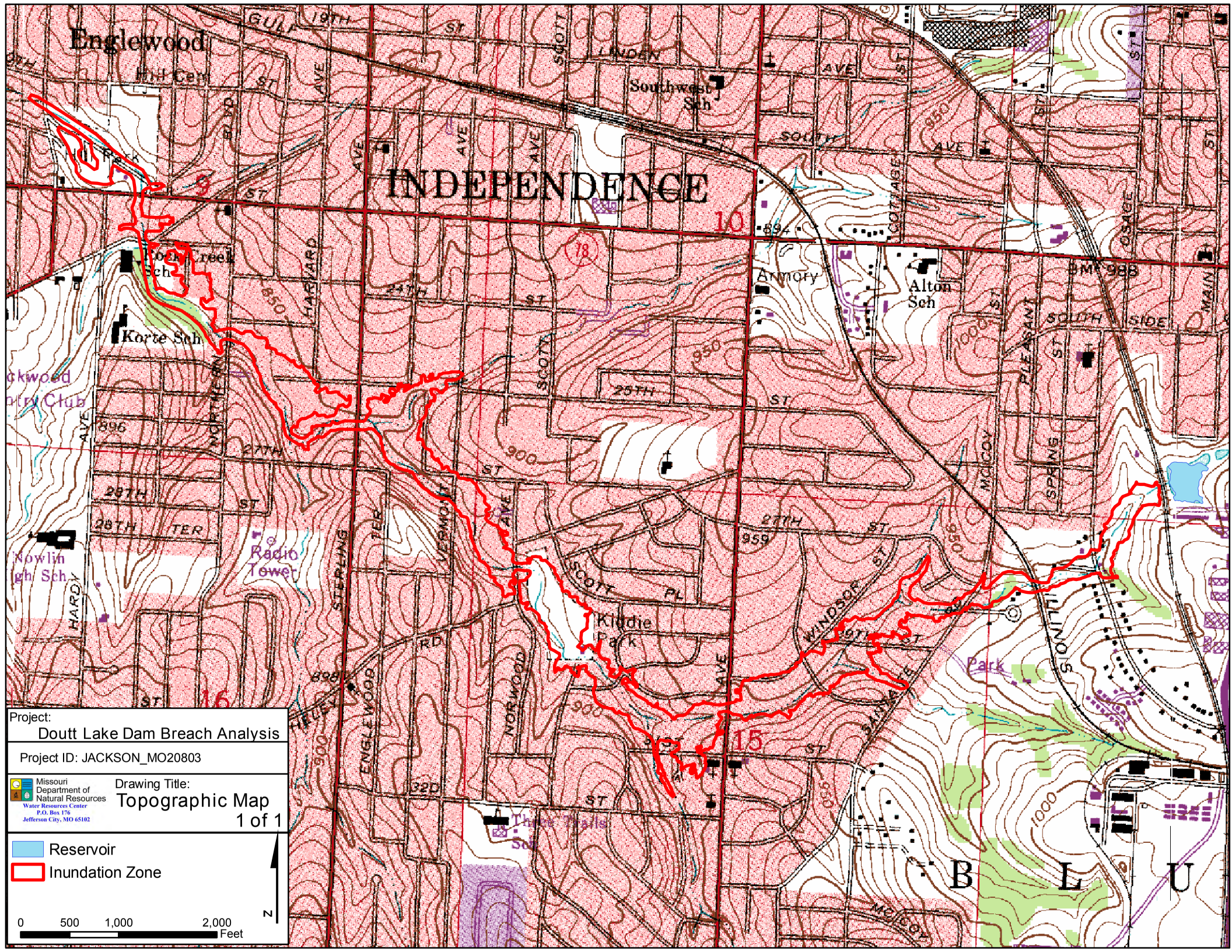
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Project ID: JACKSON_MO20803


Gateway Western
Union Pacific
23RD ST
0.5 hr
Project:
Doutt Lake Dam Breach Analysis
Project ID: JACKSON_MO20803
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
Cross Sections
Roads
Reservoir
Railroad
Inundation Zone
N
0
500
1,000
2,000
Feet


27TH ST
26TH ST
CHARLES CT
SHELEY RD
27TH TER
28TH ST
28TH TER
SCOTT PL
FULLER AVE
CRYSLER AVE
GLENDALE AVE
Gateway Western
GUDGELL AVE
SPRING AVE
SAGE AVE
Union Pacific
BEVERLY CIR
WINDSOR AVE
MARY ST
29TH ST
FOREST AVE
29TH TER
30TH ST
NORTON AVE
30TH TER
LESLIE DR
SANTA FE RD
31ST ST
EDWARDS CIR
FOREST AVE
BEVERLY RD
32ND ST
SHADY BEND DR
SANTA FE TRL
GOULD LN
HEATHERFORD RD
OAK RIDGE DR
33RD ST
MAR-BEC TRL
MARKHAM RD
NEWBURY LN
WILLIS AVE
GRAND AVE
33RD TER
BOWEN AVE
MCCOY AVE
34TH ST
Project:
Doutt Lake Dam Breach Analysis
Project ID: JACKSON_MO20803
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 2
Reservoir
Inundation Zone
Roads
Railroad
N
0
300
600
1,200
Feet


22ND ST
HOME AVE
CEDAR AVE
RALSTON AVE
HEDGES AVE
NORTHERN AVE
21ST ST
20TH TER
20TH ST
Gateway Western
Gateway Western
NORWOOD AVE
SCOTT AVE
NORTON AVE
22ND ST
23RD ST
HAWTHORNE AVE
HALL AVE
CEDAR AVE
MAYWOOD AVE
WESTPORT RD
WESTPORT RD
24TH ST
HARRIS AVE
HARVARD AVE
CLAREMONT AVE
ENGLEWOOD CT
VERMONT AVE
24TH ST
24TH ST
AYERS ST
HARDY AVE
25TH TER
25TH ST
STERLING AVE
25TH ST
FOREST AVE
26TH ST
26TH TER
RALSTON ST
RACE AVE
25TH TER
27TH ST
27TH TER
APPLETON AVE
27TH ST
SCOTT AVE
27TH ST
28TH ST
ENGLEWOOD TER
NORWOOD AVE
SHELEY RD
SCOTT AVE
28TH TER
27TH TER
29TH ST
28TH TER
SHELEY RD
29TH ST
Project:
Doutt Lake Dam Breach Analysis
Project ID: JACKSON_MO20803
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 2
Inundation Zone
Roads
Railroad
N
0
300
600
1,200
Feet


Englewood
INDEPENDENCE
Armory
Alton Sch
Korte Sch
Radio Tower
Kiddie Park
Park
Project:
Doutt Lake Dam Breach Analysis
Project ID: JACKSON_MO20803
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topographic Map
1 of 1
Reservoir
Inundation Zone
N
0
500
1,000
2,000
Feet
B
L
U

12/9/09

Lake Jacomo Dam
Breach Inundation Map



Jackson County, Missouri
JACKSON_MO10045

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_10045

County: JACKSON

Location: S11, T48 N, R31 W

Height of Dam: 74'

Storage Capacity (Normal Pool): 22100 ac-ft

Tributary: East Fork Little Blue River

Lake Area: 1221 acres

Pool Elevation at Failure: 847.54’

Pool Volume at Failure: 37595 ac-ft

Date of Aerial Photo: August 22, 2007

Explanation of Results

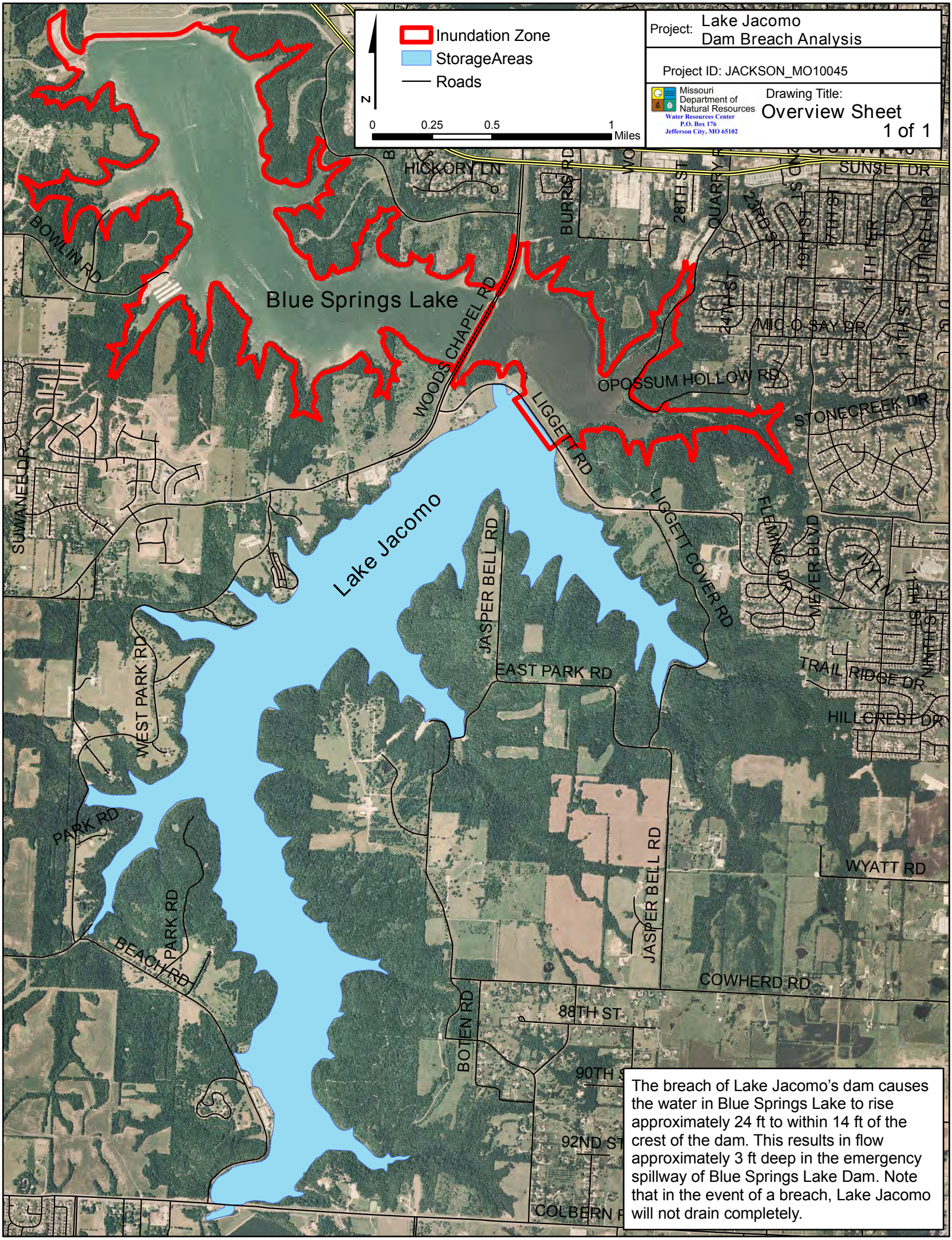
The breach of Lake Jacomo’s dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. These results were calculated by distributing the total volume in Lake Jacomo between Blue Springs Lake and Lake Jacomo until an equilibrium elevation was found. This elevation, 826.3 ft, is denoted by the red Inundation Zone line. The calculations do not account for the effects of the constriction of flow caused by the Woods Chapel Rd causeway. Thus the maximum elevation reached by Blue Springs Lake upstream of the causeway will likely be higher than displayed. Note that in the event of a breach, Lake Jacomo will not drain completely.

Project: Lake Jacomo Dam Breach Analysis

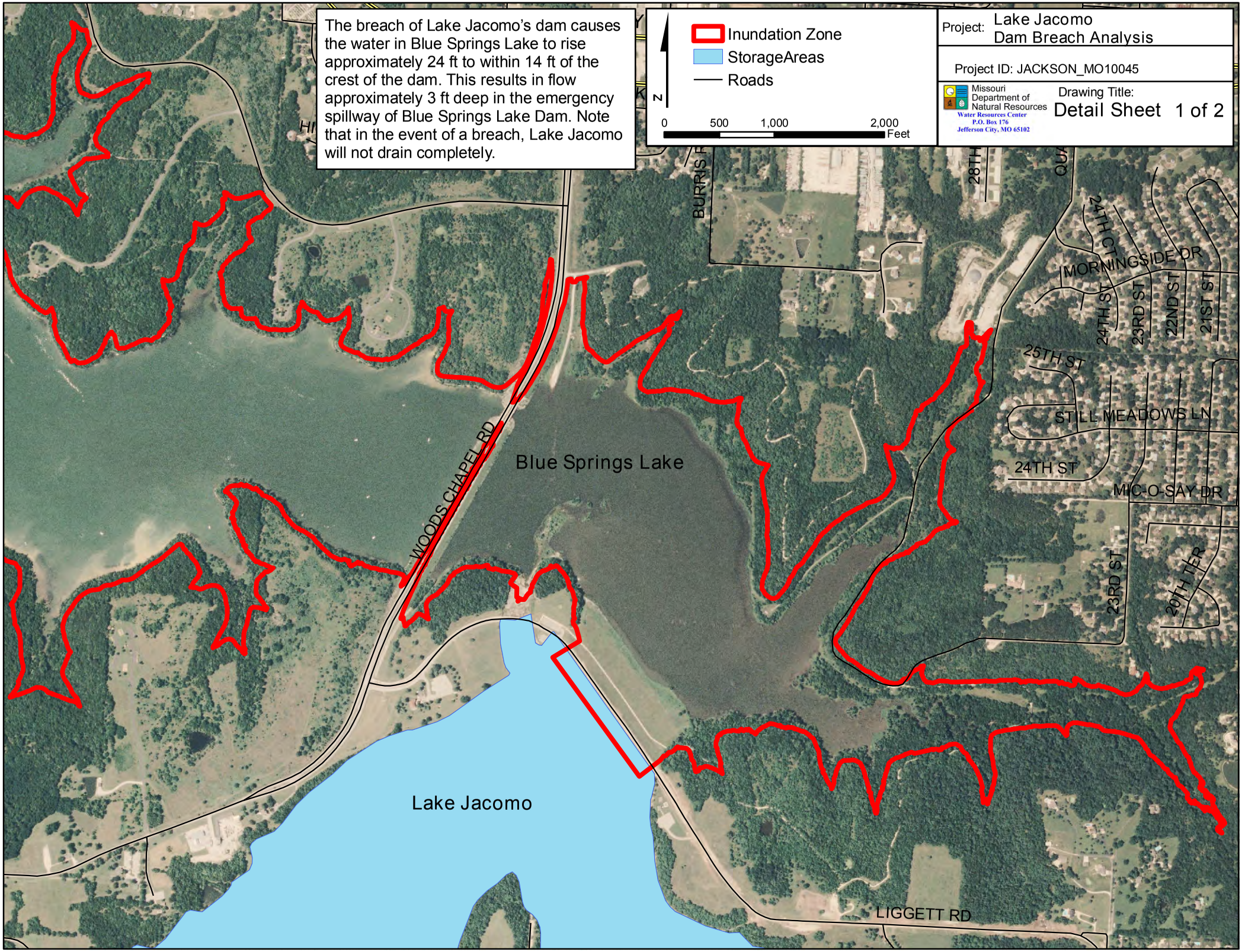
Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Project ID: JACKSON_MO10045



The breach of Lake Jacomo's dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. Note that in the event of a breach, Lake Jacomo will not drain completely.


The breach of Lake Jacomo's dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. Note that in the event of a breach, Lake Jacomo will not drain completely.
Inundation Zone
StorageAreas
Roads
N
0
500
1,000
2,000
Feet
Project: Lake Jacomo Dam Breach Analysis
Project ID: JACKSON_MO10045
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 2
Blue Springs Lake
Lake Jacomo
WOODS CHAPEL RD
BURRIS R
28TH
24TH CT
MORNINGSIDE DR
24TH ST
23RD ST
22ND ST
21ST ST
25TH ST
STILL MEADOWS LN
24TH ST
MIC-O-SAY DR
23RD ST
20TH TER
LIGGETT RD



The breach of Lake Jacomo's dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. Note that in the event of a breach, Lake Jacomo will not drain completely.

Inundation Zone
Roads

N

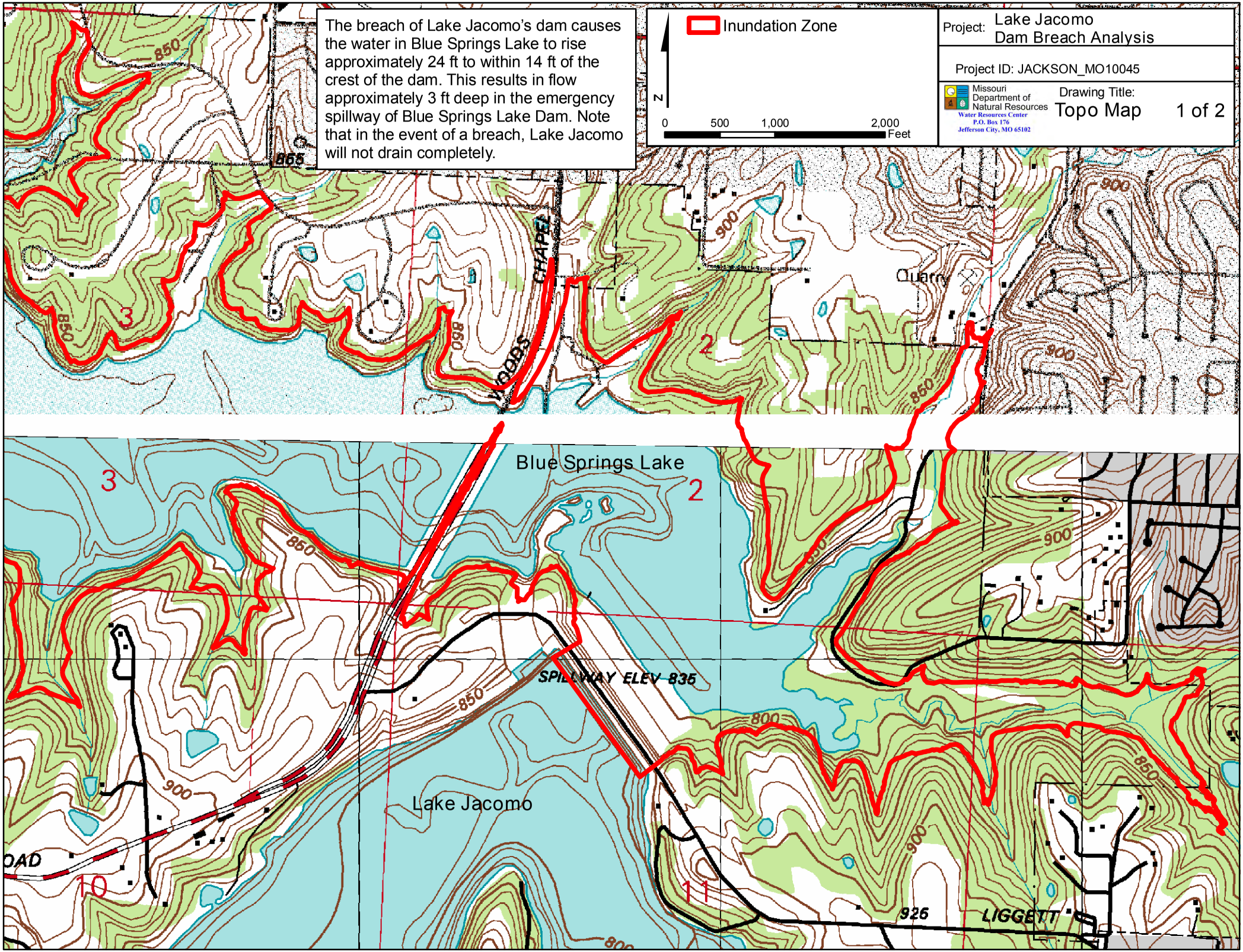
0 500 1,000 2,000 Feet

Project: Lake Jacomo Dam Breach Analysis

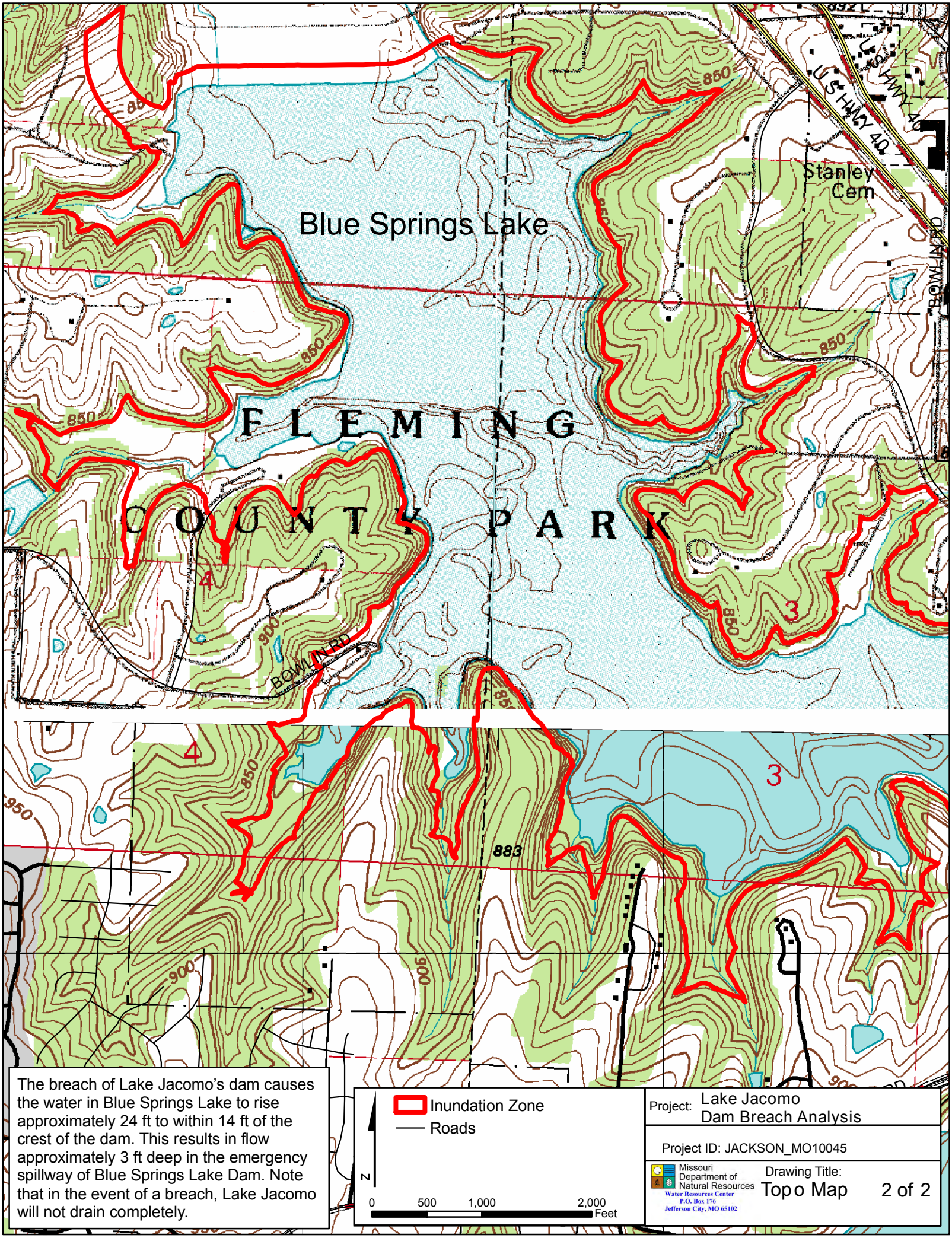
Project ID: JACKSON_MO10045

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Drawing Title: Detail Sheet 2 of 2



The breach of Lake Jacomo's dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. Note that in the event of a breach, Lake Jacomo will not drain completely.
Inundation Zone
N
0
500
1,000
2,000
Feet
Project: Lake Jacomo Dam Breach Analysis
Project ID: JACKSON_MO10045
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 2
Blue Springs Lake
Lake Jacomo
SPILLWAY ELEV 835
WOODS CHAPEL
Quarry
LIGGETT
OAD
850
900
800
865
926
2
3
10
11



The breach of Lake Jacomo's dam causes the water in Blue Springs Lake to rise approximately 24 ft to within 14 ft of the crest of the dam. This results in flow approximately 3 ft deep in the emergency spillway of Blue Springs Lake Dam. Note that in the event of a breach, Lake Jacomo will not drain completely.

Inundation Zone
Roads

N

0 500 1,000 2,000 Feet

Project: Lake Jacomo Dam Breach Analysis

Project ID: JACKSON_MO10045

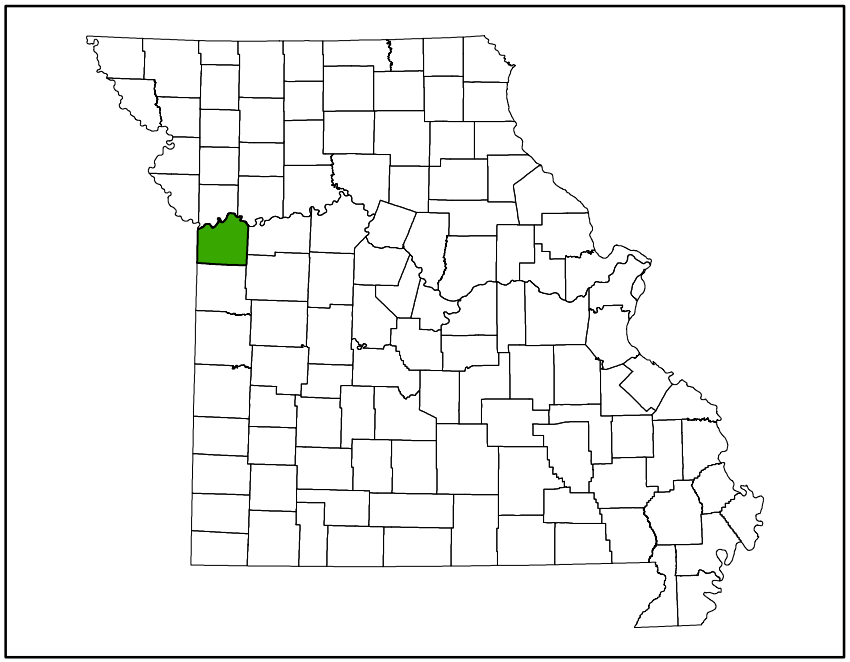
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

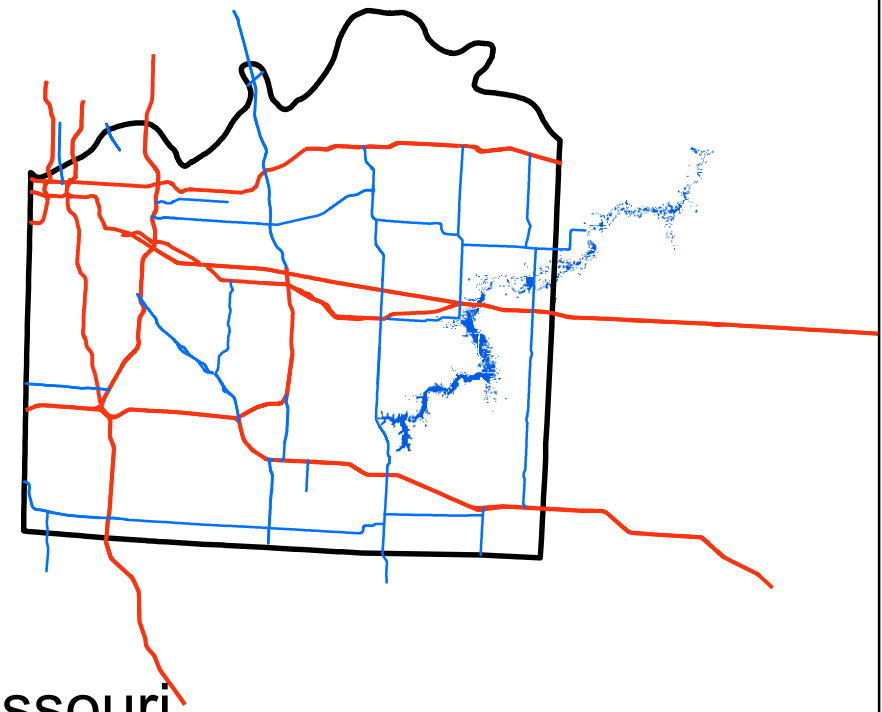
Drawing Title: Topo Map

12-21-2009

Lake Lotawana Dam

Breach Inundation Map





Jackson County, Missouri
Jackson_MO20040

Missouri Department of Natural Resources

Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develop the inundation area, the map should only be used for evacuation and emergency purposes

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Inundation- Water level at least 2' above the original ground surface.

Distance from Dam- The distance measured in miles from the crest of dam.

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Peak Elevation- The estimated maximum water surface elevation reached based on the assumed conditions.

Max Depth- The distance between the maximum water surface and the lowest ground point in a cross section.

Breach Initiation- The recorded time at which the structure begins to erode.

Arrival Time- Elapsed Time between the breach initiation and the time that high water levels reach a point downstream.

Flow initiation- Required amount of baseflow added to the stream during the analysis to increase the stability of the hydraulic model.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Project:	Lake Lotawana Dam Breach Analysis
Drawing Title:	Explanation Sheet 1 of 1
Missouri Department of Natural Resources Water Resources Center P.O. Box 176 Jefferson City, MO 65102	Project ID: JACKSON_MO20040

Fact Sheet: Lake Lotawana Dam

ID: MO_20040

County: Jackson

Location: S32, T48 N, R30 W

Height of Dam: 53.4'

Storage Capacity (Normal Pool): 7,853 ac-ft

Tributary: WEST FORK SNI-A-BAR CREEK

Lake Area: 489.8 acres

Date of Aerial Photo: August 18, 2009

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

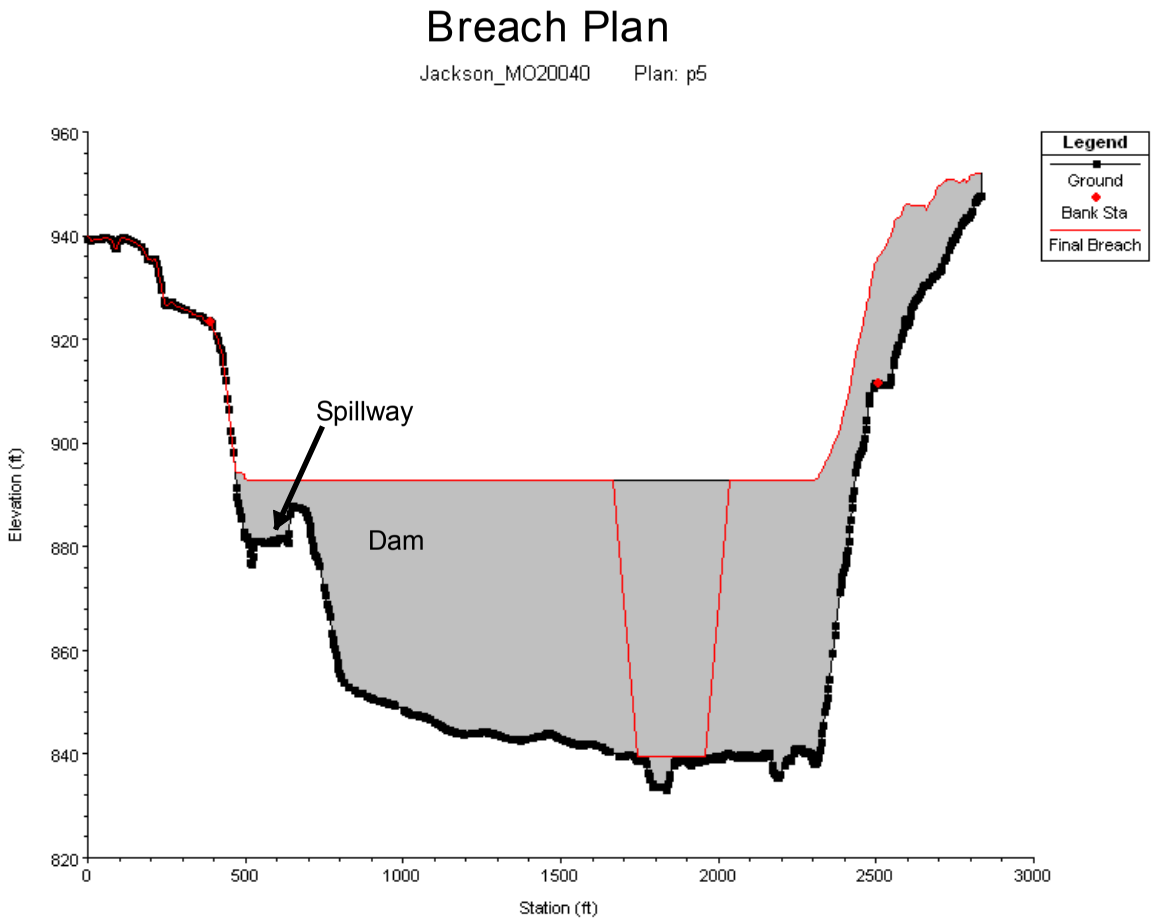
Bottom width: 217.29'

Bottom elevation: 839.5'

Breach formation time: 1.42 hr

Pool Elevation at Failure: 892.9'

Pool Volume at Failure: 14,123 ac-ft

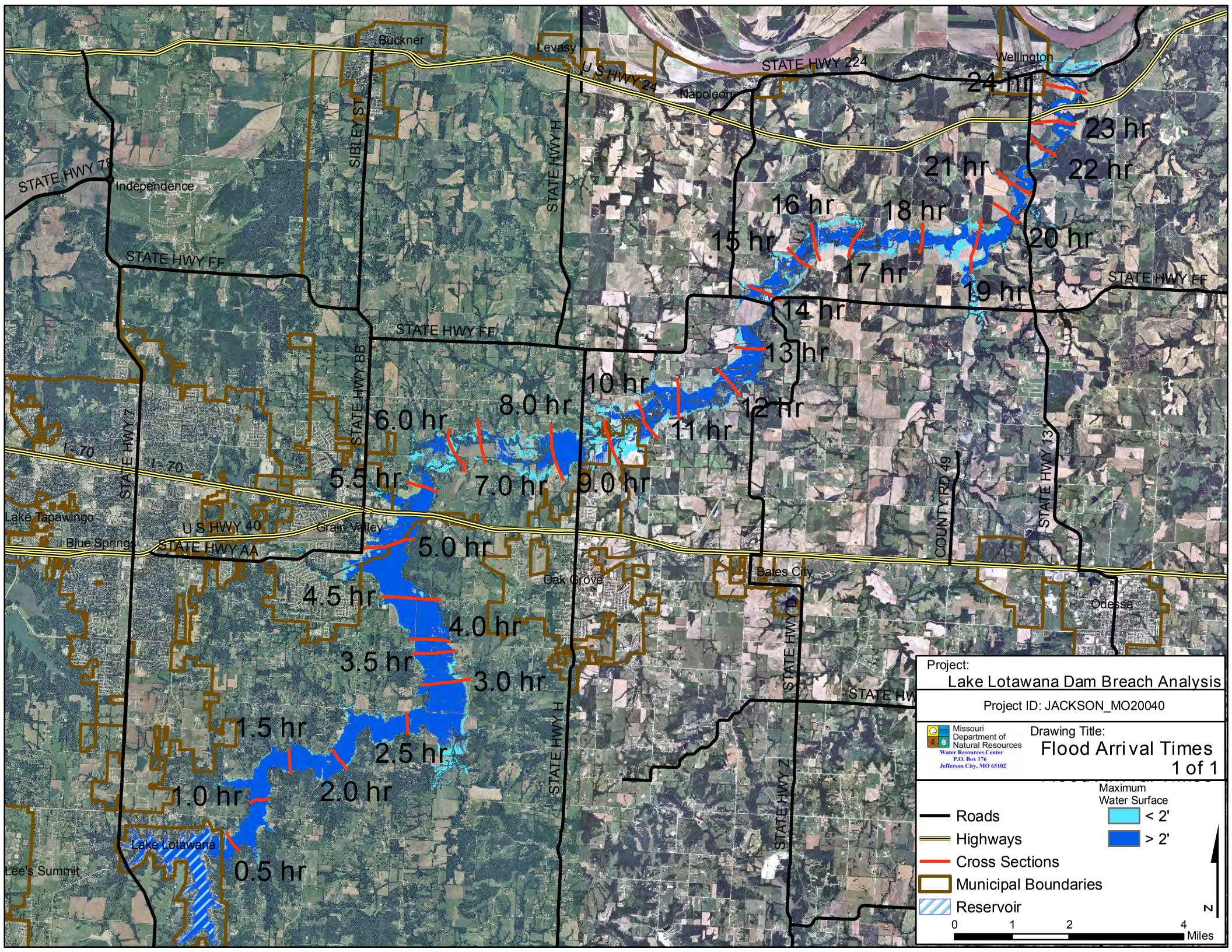


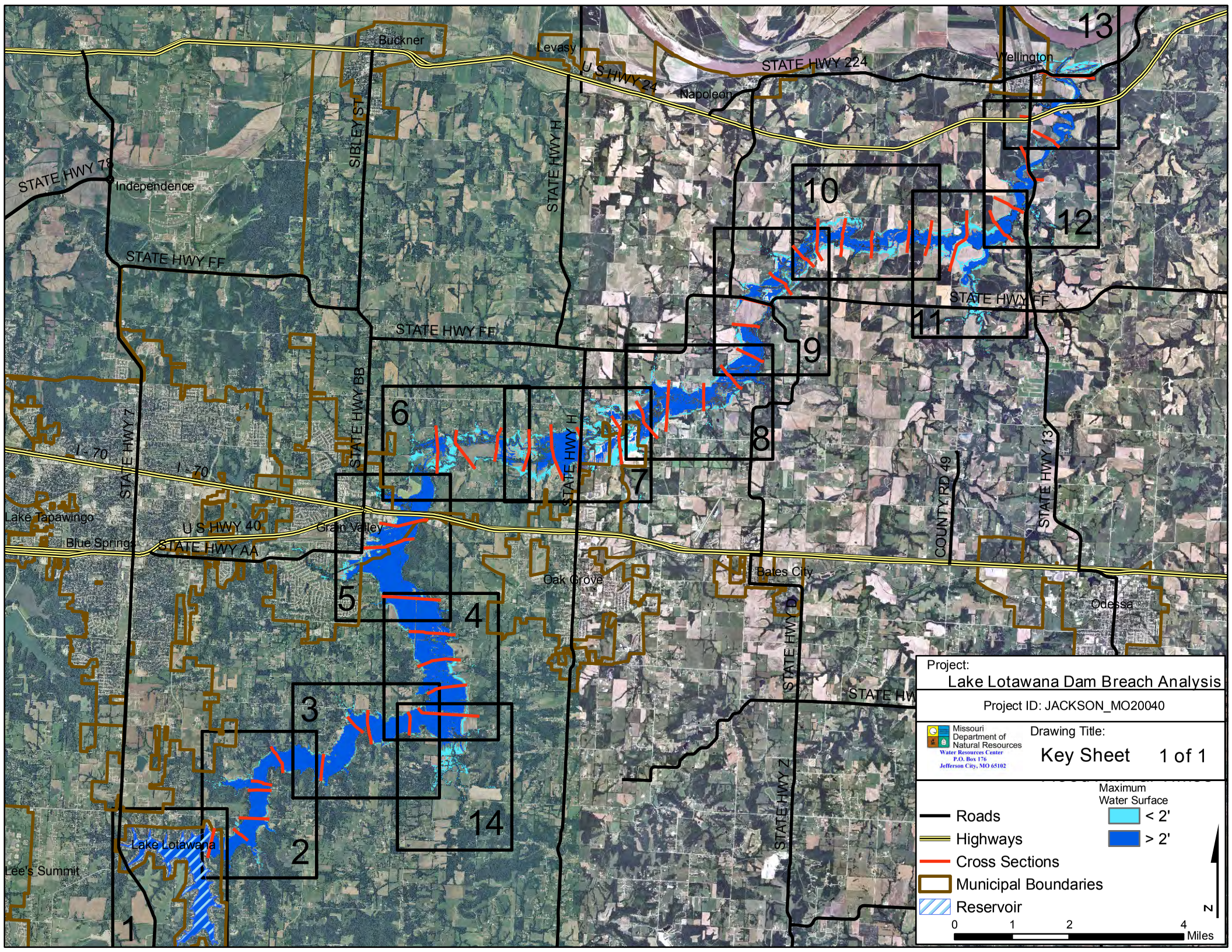
Project:
Lake Lotawana Dam Breach Analysis

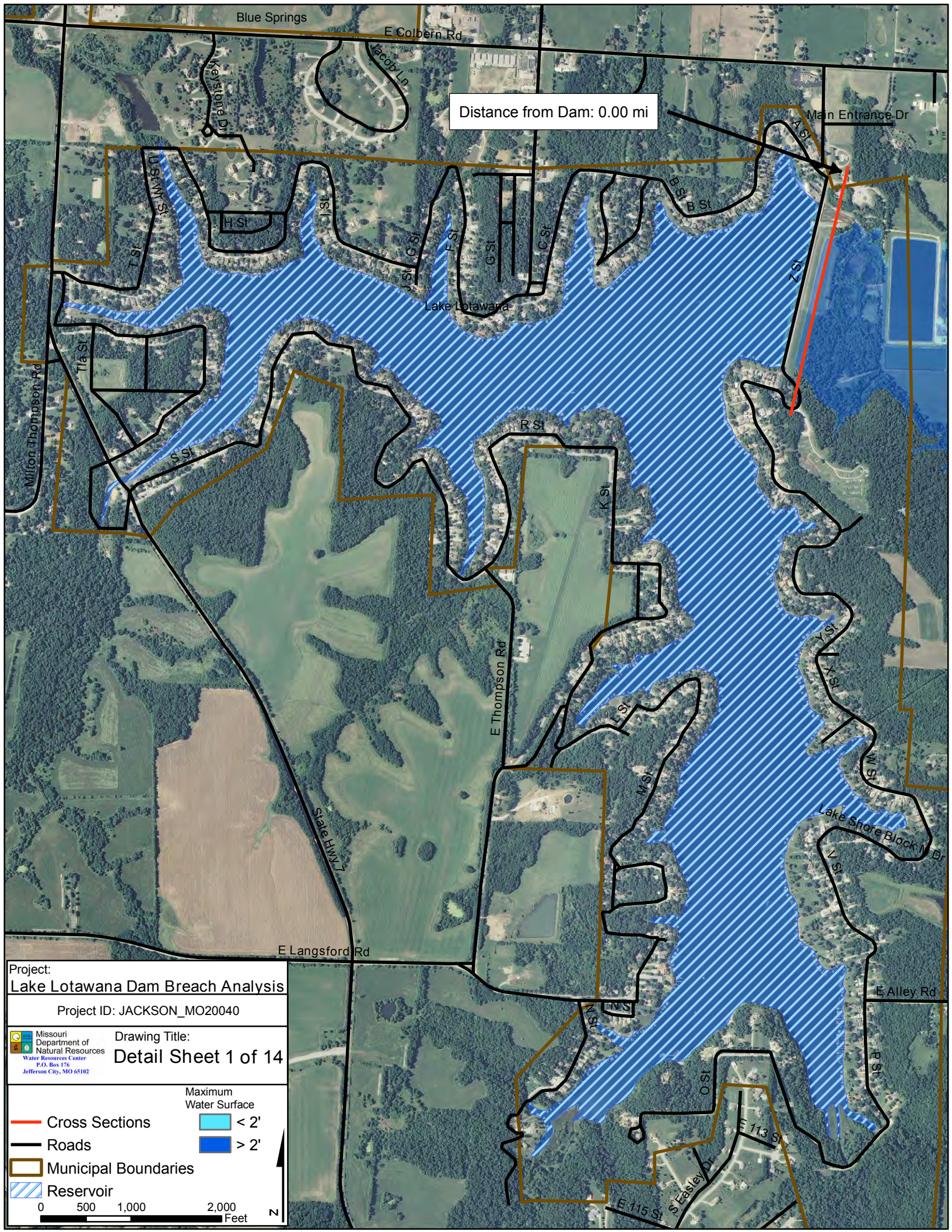
Drawing Title: Fact Sheet 1 of 1

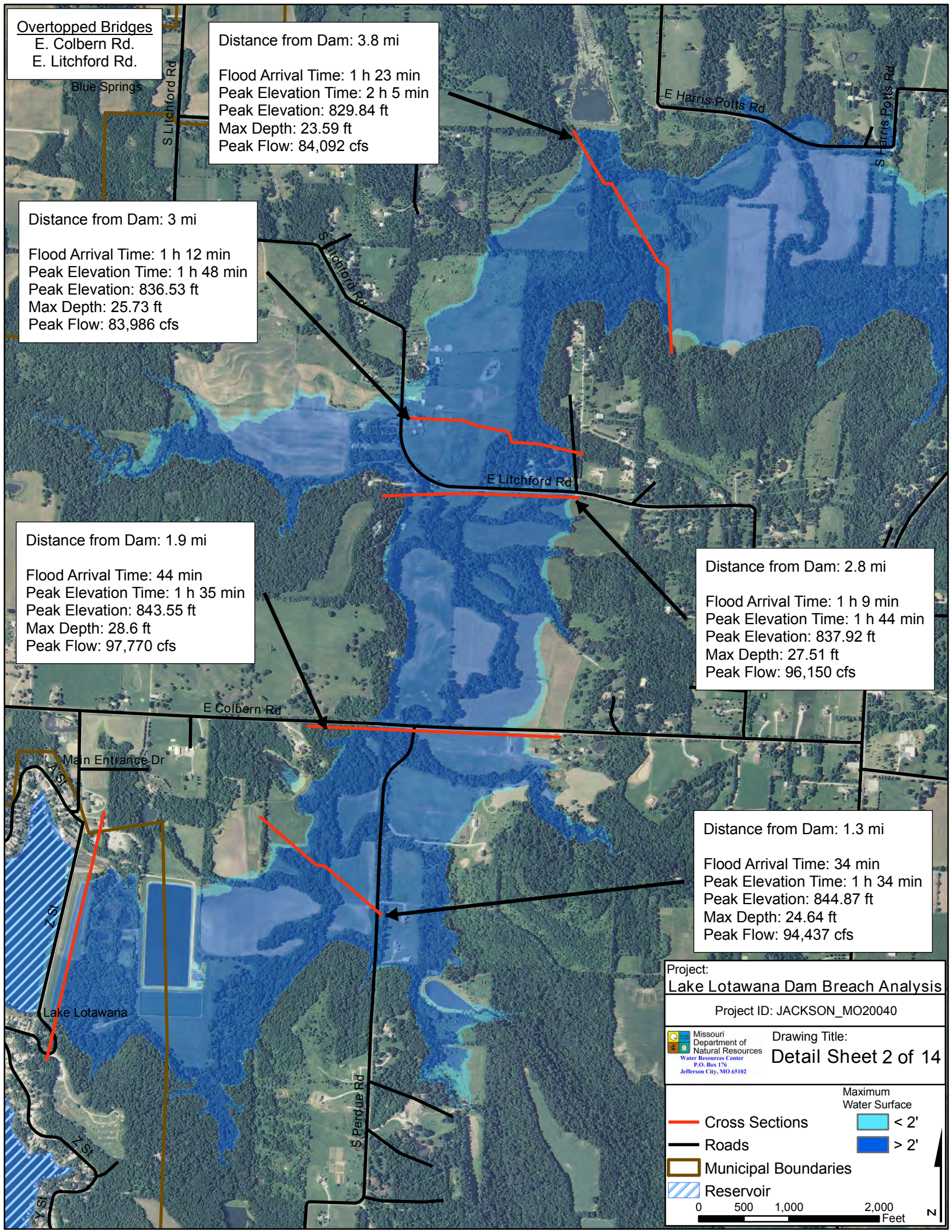
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

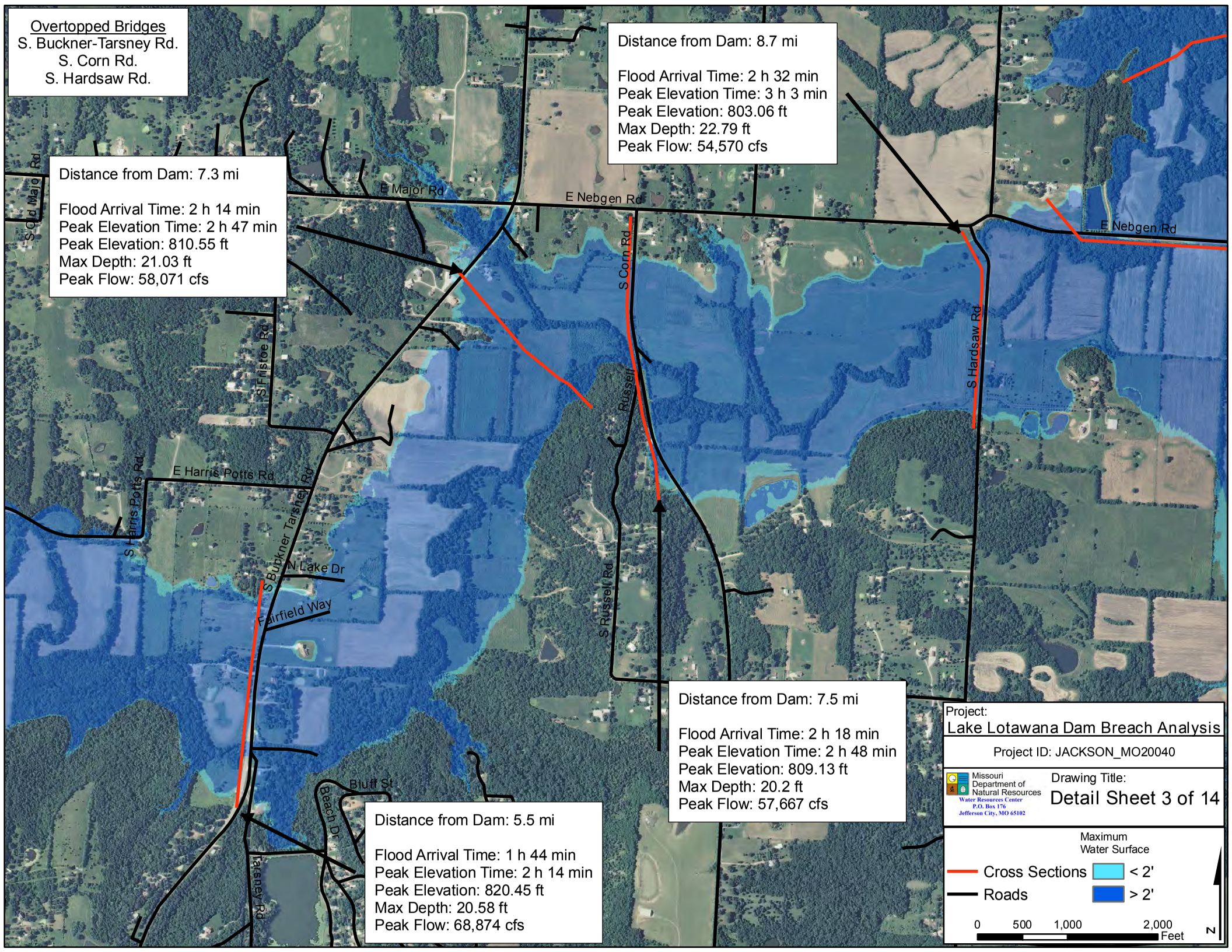
Project ID: Jackson_MO20040

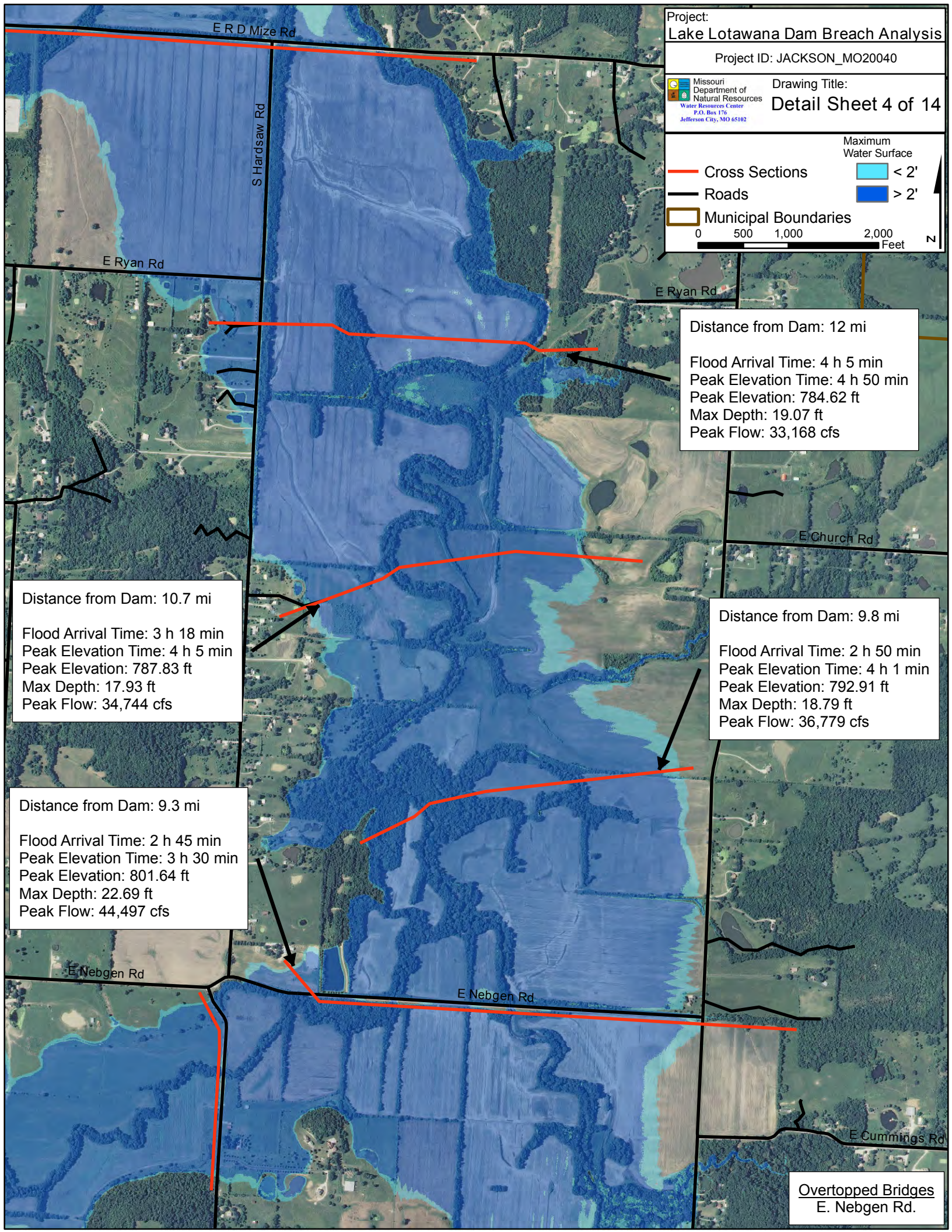

Buckner
Levasy
U S HWY 24
STATE HWY 224
Napoleon
Wellington
24 hr
23 hr
22 hr
21 hr
20 hr
19 hr
18 hr
17 hr
16 hr
15 hr
14 hr
13 hr
12 hr
11 hr
10 hr
9.0 hr
8.0 hr
7.0 hr
6.0 hr
5.5 hr
5.0 hr
4.5 hr
4.0 hr
3.5 hr
3.0 hr
2.5 hr
2.0 hr
1.5 hr
1.0 hr
0.5 hr
STATE HWY 78
Independence
SIBLEY ST
STATE HWY H
STATE HWY FF
STATE HWY BB
STATE HWY 7
I-70
I-70
Lake Tapawingo
Blue Springs
U S HWY 40
STATE HWY AA
Grain Valley
Oak Grove
Bates City
COUNTY RD 49
STATE HWY 13
Odessa
STATE HWY D
STATE HWY Z
Lake Lotawana
Lee's Summit
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
Maximum Water Surface
< 2'
> 2'
Roads
Highways
Cross Sections
Municipal Boundaries
Reservoir
N
0
1
2
4
Miles

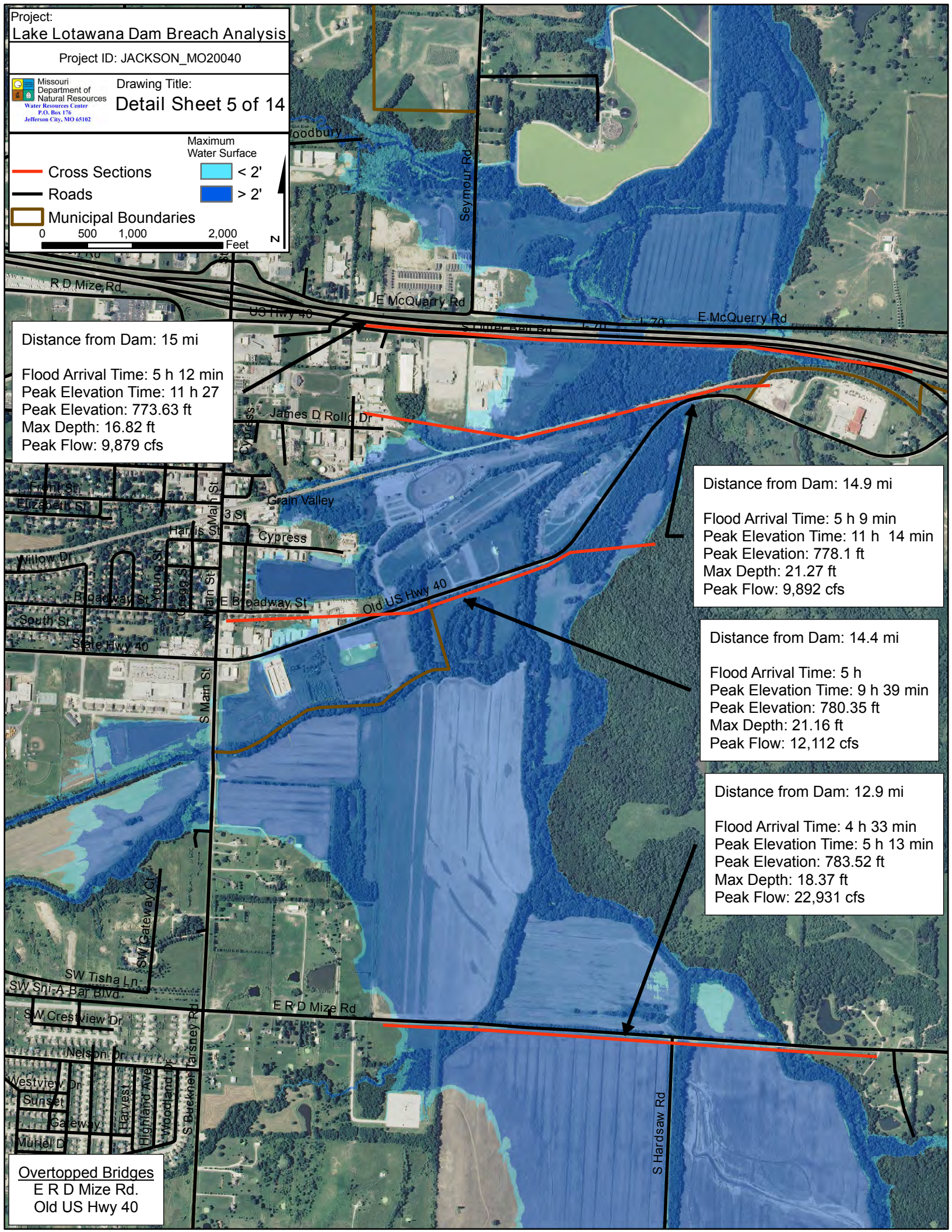

Buckner
Levasy
U S HWY 24
STATE HWY 224
Napoleon
Wellington
SIBLEY ST
STATE HWY H
STATE HWY 78
Independence
STATE HWY FF
STATE HWY BB
STATE HWY 7
I - 70
U S HWY 40
STATE HWY AA
Lake Tapawingo
Blue Springs
Grain Valley
Oak Grove
Bates City
COUNTY RD 49
STATE HWY 13
Odessa
STATE HWY D
STATE HWY Z
Lake Lotawana
Lee's Summit
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Key Sheet
1 of 1
Maximum Water Surface
< 2'
> 2'
Roads
Highways
Cross Sections
Municipal Boundaries
Reservoir
N
0
1
2
4
Miles

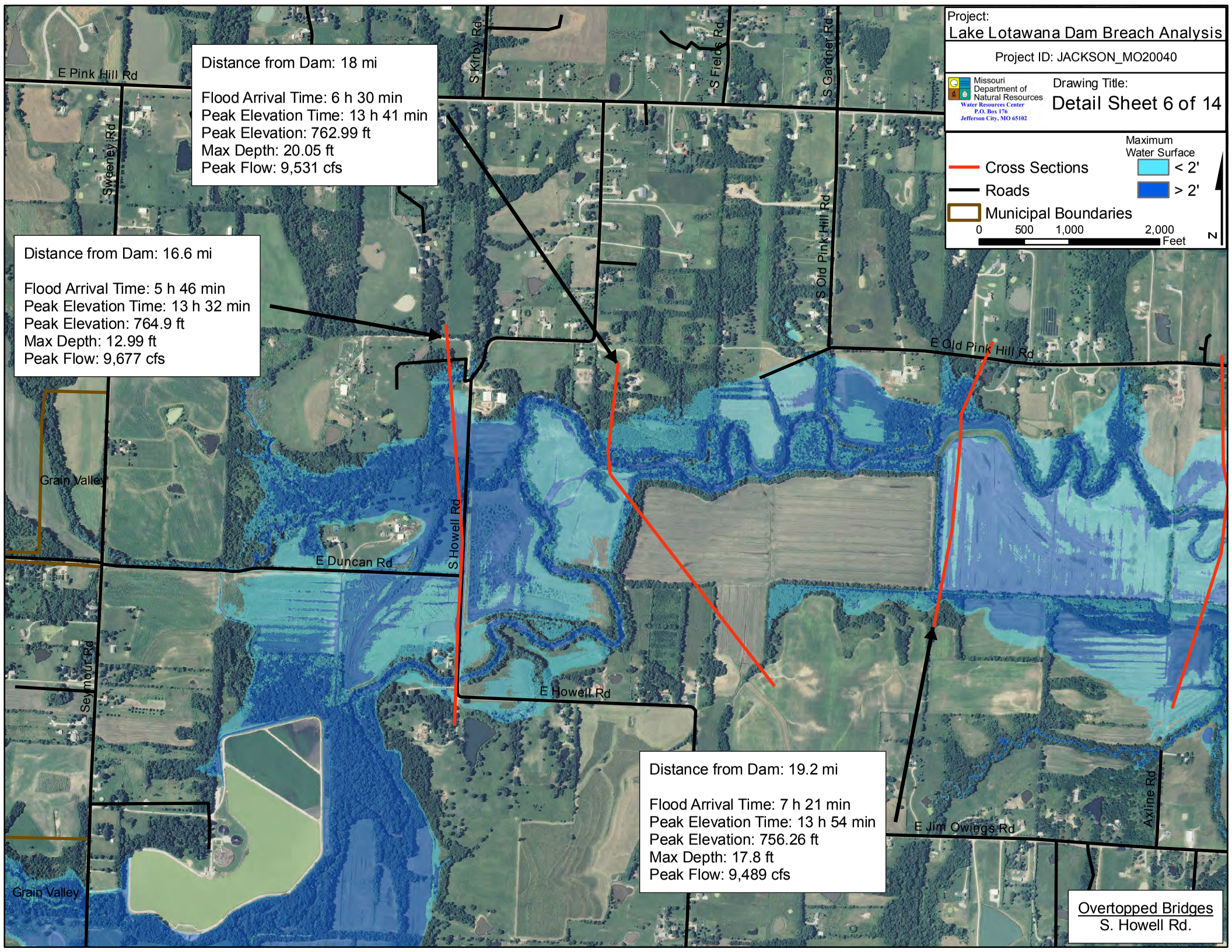

Distance from Dam: 0.00 mi
Blue Springs
E Colbern Rd
Keystone Dr
Jacob Ln
Main Entrance Dr
A St
B St
C St
F St
G St
H St
I St
T St
U St
W St
Z St
Lake Lotawana
T1a St
Milton Thompson Rd
S St
R St
K St
E Thompson Rd
L St
M St
Y St
W St
Lake Shore Block N Dr
V St
State Hwy 7
E Langsford Rd
N St
O St
P St
E 113 St
S Easley Dr
E 115 St
E Alley Rd
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 14
Maximum Water Surface
Cross Sections
< 2'
Roads
> 2'
Municipal Boundaries
Reservoir
0 500 1,000 2,000 Feet
N

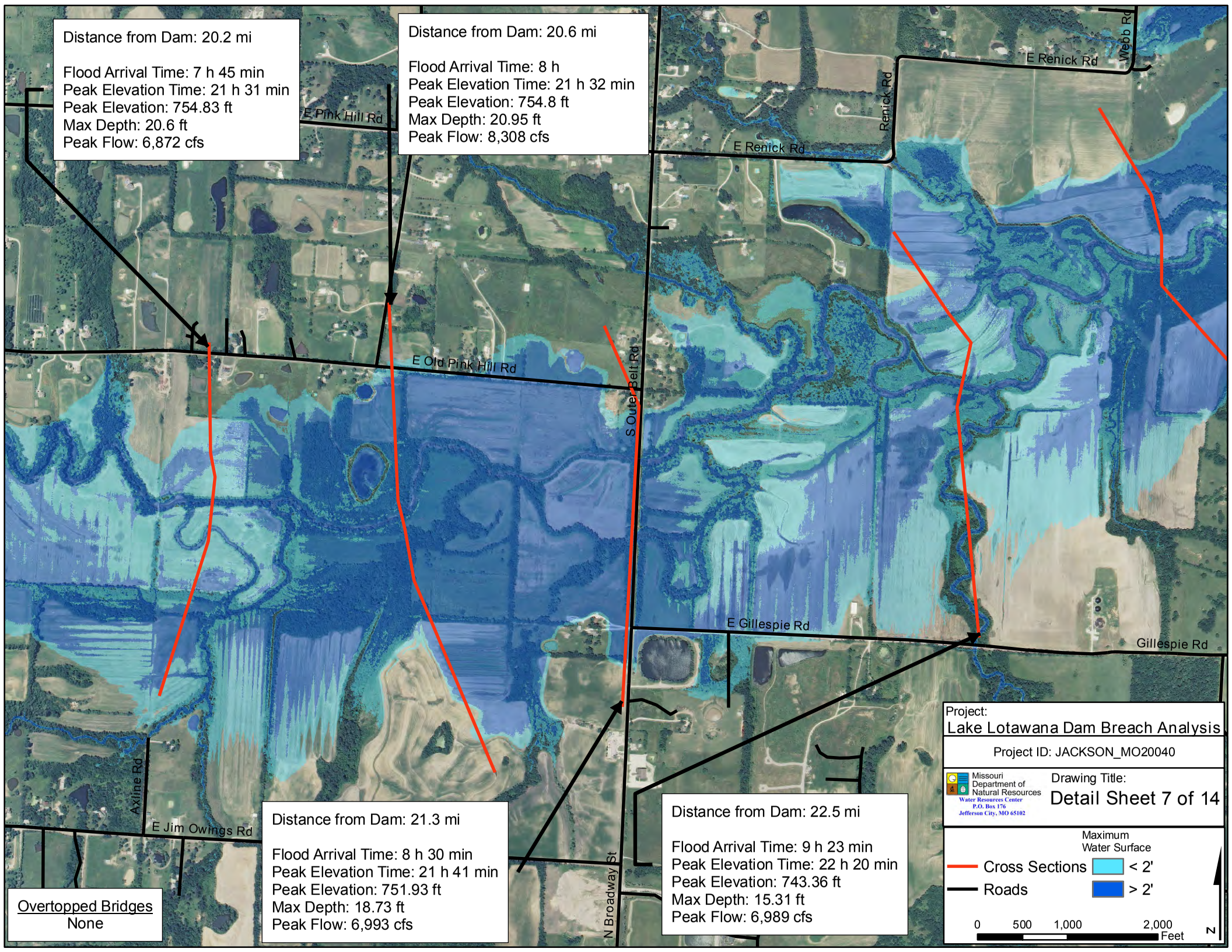

Overtopped Bridges
E. Colbern Rd.
E. Litchford Rd.
Distance from Dam: 3.8 mi
Flood Arrival Time: 1 h 23 min
Peak Elevation Time: 2 h 5 min
Peak Elevation: 829.84 ft
Max Depth: 23.59 ft
Peak Flow: 84,092 cfs
Distance from Dam: 3 mi
Flood Arrival Time: 1 h 12 min
Peak Elevation Time: 1 h 48 min
Peak Elevation: 836.53 ft
Max Depth: 25.73 ft
Peak Flow: 83,986 cfs
Distance from Dam: 1.9 mi
Flood Arrival Time: 44 min
Peak Elevation Time: 1 h 35 min
Peak Elevation: 843.55 ft
Max Depth: 28.6 ft
Peak Flow: 97,770 cfs
Distance from Dam: 2.8 mi
Flood Arrival Time: 1 h 9 min
Peak Elevation Time: 1 h 44 min
Peak Elevation: 837.92 ft
Max Depth: 27.51 ft
Peak Flow: 96,150 cfs
Distance from Dam: 1.3 mi
Flood Arrival Time: 34 min
Peak Elevation Time: 1 h 34 min
Peak Elevation: 844.87 ft
Max Depth: 24.64 ft
Peak Flow: 94,437 cfs
Blue Springs
S Litchford Rd
E Harris Potts Rd
S Harris Potts Rd
E Litchford Rd
E Colbern Rd
Main Entrance Dr
Y St
Z St
Lake Lotawana
S Perdue Rd
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 14
Maximum Water Surface
Cross Sections
Roads
Municipal Boundaries
Reservoir
< 2'
> 2'
0 500 1,000 2,000 Feet
N

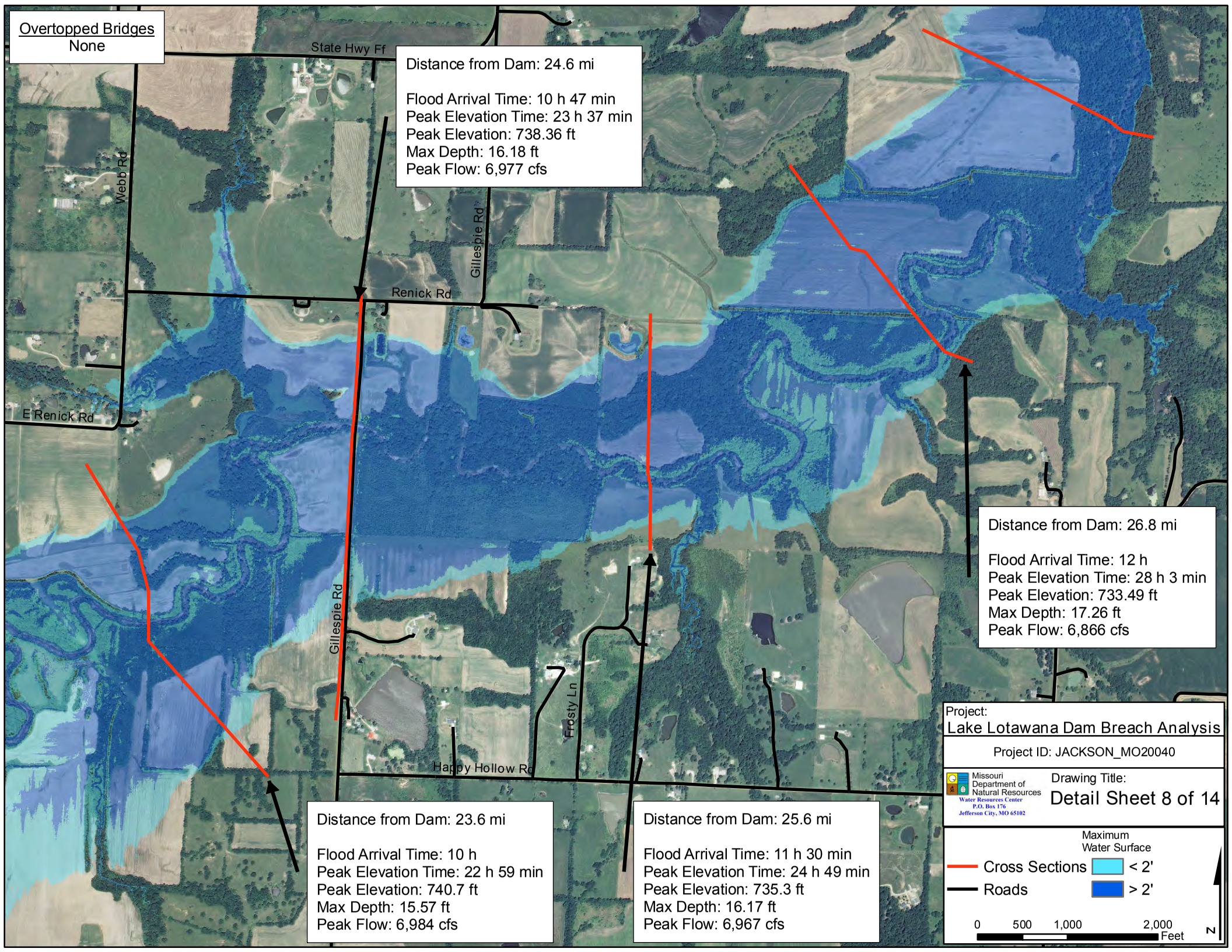

Overtopped Bridges
S. Buckner-Tarsney Rd.
S. Corn Rd.
S. Hardsaw Rd.
Distance from Dam: 8.7 mi
Flood Arrival Time: 2 h 32 min
Peak Elevation Time: 3 h 3 min
Peak Elevation: 803.06 ft
Max Depth: 22.79 ft
Peak Flow: 54,570 cfs
Distance from Dam: 7.3 mi
Flood Arrival Time: 2 h 14 min
Peak Elevation Time: 2 h 47 min
Peak Elevation: 810.55 ft
Max Depth: 21.03 ft
Peak Flow: 58,071 cfs
Distance from Dam: 7.5 mi
Flood Arrival Time: 2 h 18 min
Peak Elevation Time: 2 h 48 min
Peak Elevation: 809.13 ft
Max Depth: 20.2 ft
Peak Flow: 57,667 cfs
Distance from Dam: 5.5 mi
Flood Arrival Time: 1 h 44 min
Peak Elevation Time: 2 h 14 min
Peak Elevation: 820.45 ft
Max Depth: 20.58 ft
Peak Flow: 68,874 cfs
E Major Rd
E Nebgen Rd
S Old Majo Rd
S Corn Rd
S Hardsaw Rd
S Russell Rd
S Fristoe Rd
E Harris Potts Rd
S Buckner Tarsney Rd
N Lake Dr
Fairfield Way
Bluff St
Beach Dr
Tarsney Rd
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0 500 1,000 2,000
Feet
N

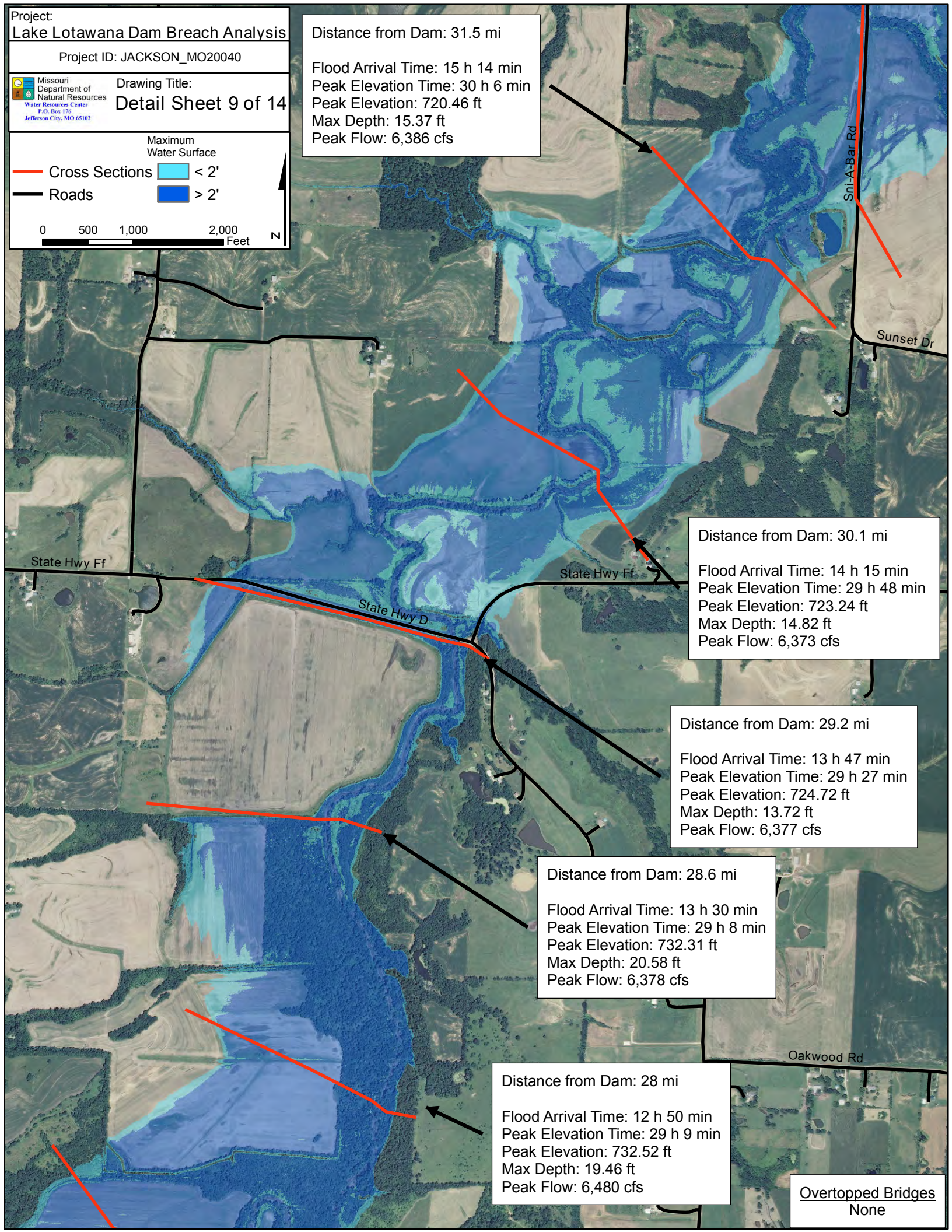

Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 4 of 14
Maximum Water Surface
Cross Sections
Roads
Municipal Boundaries
< 2'
> 2'
0 500 1,000 2,000 Feet
N
E R D Mize Rd
S Hardsaw Rd
E Ryan Rd
E Ryan Rd
E Church Rd
E Nebgen Rd
E Nebgen Rd
E Cummings Rd
Distance from Dam: 12 mi
Flood Arrival Time: 4 h 5 min
Peak Elevation Time: 4 h 50 min
Peak Elevation: 784.62 ft
Max Depth: 19.07 ft
Peak Flow: 33,168 cfs
Distance from Dam: 10.7 mi
Flood Arrival Time: 3 h 18 min
Peak Elevation Time: 4 h 5 min
Peak Elevation: 787.83 ft
Max Depth: 17.93 ft
Peak Flow: 34,744 cfs
Distance from Dam: 9.8 mi
Flood Arrival Time: 2 h 50 min
Peak Elevation Time: 4 h 1 min
Peak Elevation: 792.91 ft
Max Depth: 18.79 ft
Peak Flow: 36,779 cfs
Distance from Dam: 9.3 mi
Flood Arrival Time: 2 h 45 min
Peak Elevation Time: 3 h 30 min
Peak Elevation: 801.64 ft
Max Depth: 22.69 ft
Peak Flow: 44,497 cfs
Overtopped Bridges
E. Nebgen Rd.

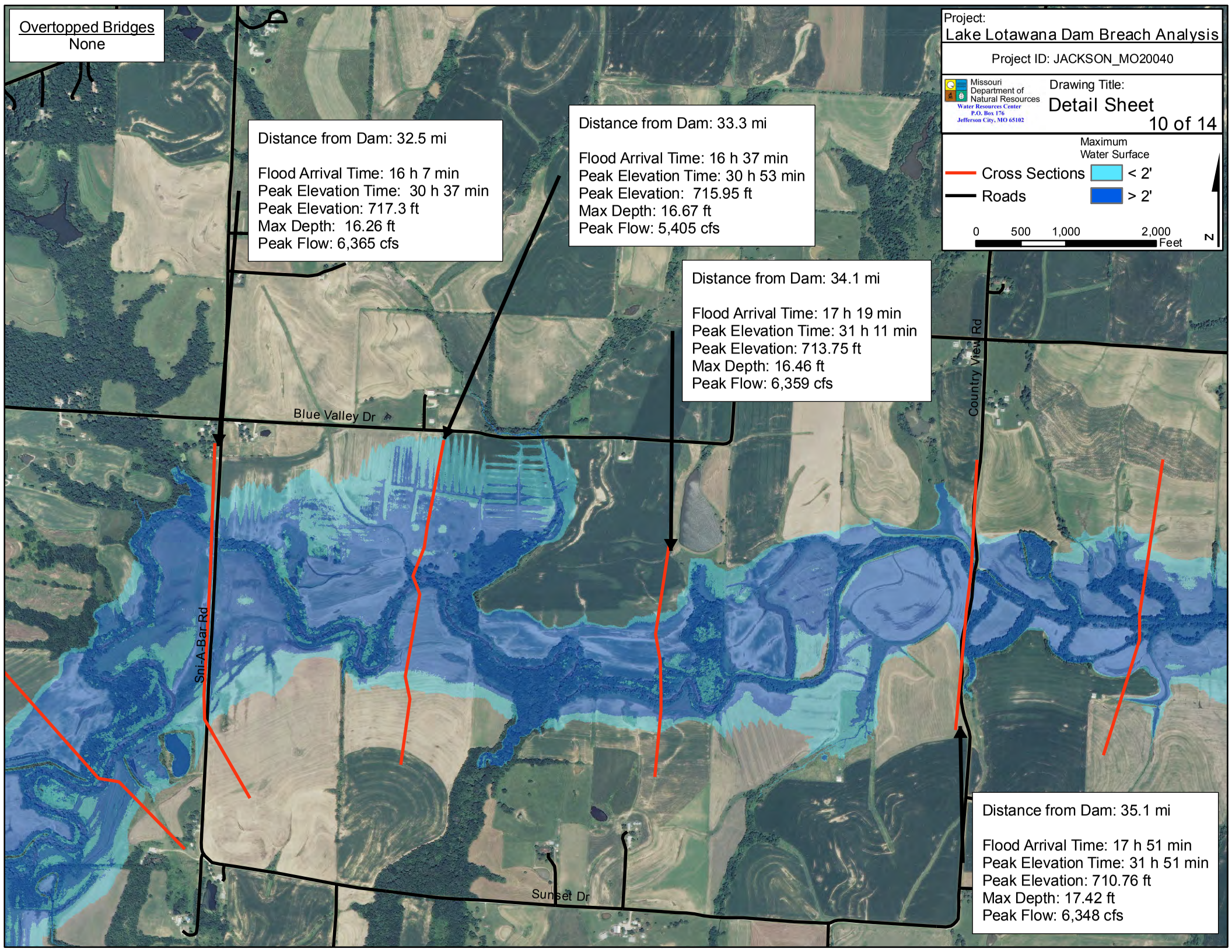

Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 5 of 14
Maximum Water Surface
Cross Sections
Roads
Municipal Boundaries
< 2'
> 2'
0 500 1,000 2,000 Feet
N
Distance from Dam: 15 mi
Flood Arrival Time: 5 h 12 min
Peak Elevation Time: 11 h 27
Peak Elevation: 773.63 ft
Max Depth: 16.82 ft
Peak Flow: 9,879 cfs
Distance from Dam: 14.9 mi
Flood Arrival Time: 5 h 9 min
Peak Elevation Time: 11 h 14 min
Peak Elevation: 778.1 ft
Max Depth: 21.27 ft
Peak Flow: 9,892 cfs
Distance from Dam: 14.4 mi
Flood Arrival Time: 5 h
Peak Elevation Time: 9 h 39 min
Peak Elevation: 780.35 ft
Max Depth: 21.16 ft
Peak Flow: 12,112 cfs
Distance from Dam: 12.9 mi
Flood Arrival Time: 4 h 33 min
Peak Elevation Time: 5 h 13 min
Peak Elevation: 783.52 ft
Max Depth: 18.37 ft
Peak Flow: 22,931 cfs
Overtopped Bridges
E R D Mize Rd.
Old US Hwy 40
R D Mize Rd
E McQuarry Rd
US Hwy 40
I-70
E McQuerry Rd
Seymour Rd
James D Rollo Dr
Cypress
Front St
Elizabeth St
Grain Valley
Harris St
S Main St
Cypress
Willow Dr
Broadway St
Young St
E Broadway St
Old US Hwy 40
South St
State Hwy 40
S Main St
SW Gateway Ct
SW Tisha Ln
SW Sni-A-Bar Blvd
SW Crestview Dr
E R D Mize Rd
Nelson Dr
Westview Dr
Sunset
Gateway
Muriel Dr
Harvest
Highland Ave
Woodland Dr
S Buckner Tarsney Rd
S Hardsaw Rd

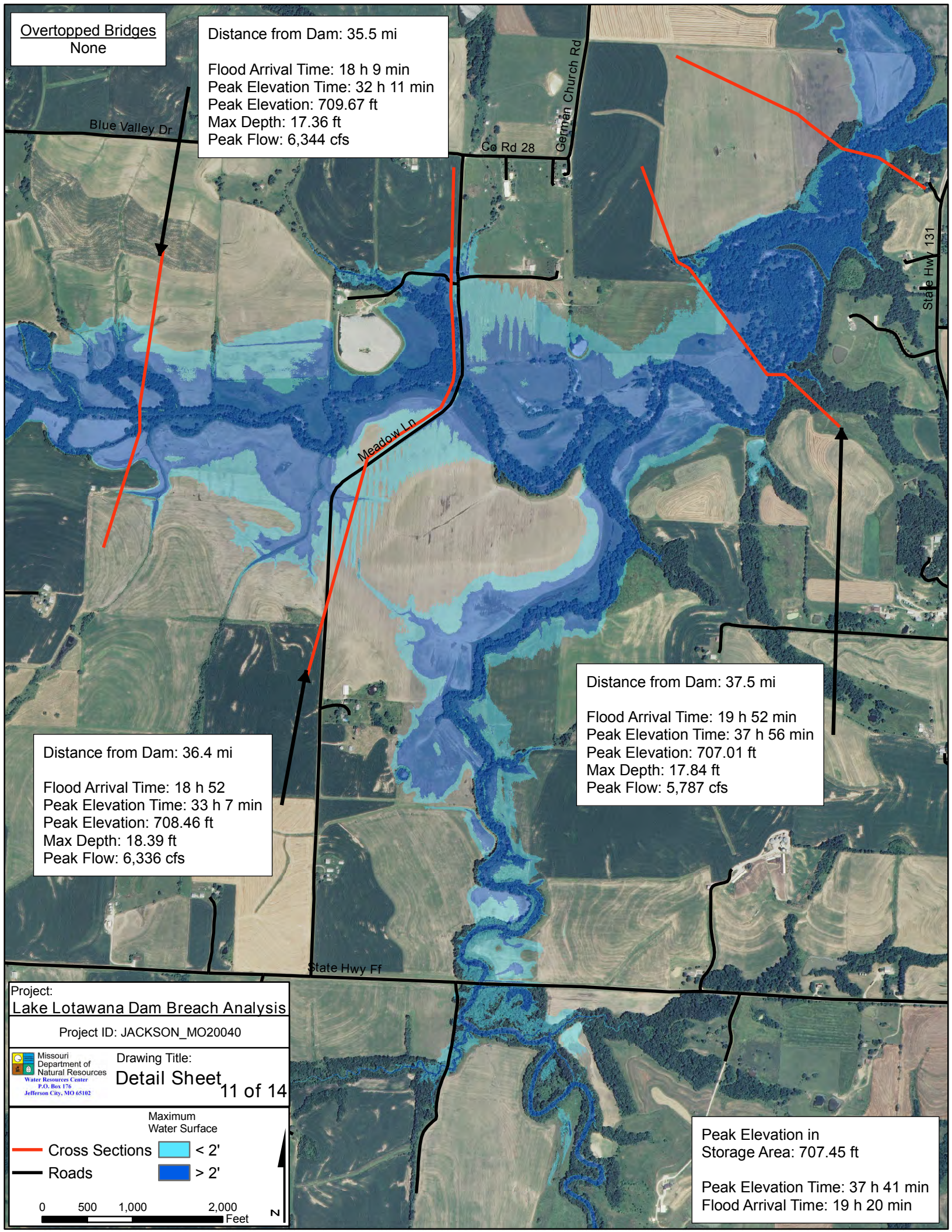

Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 6 of 14
Maximum Water Surface
Cross Sections
Roads
Municipal Boundaries
< 2'
> 2'
0 500 1,000 2,000 Feet
N
Distance from Dam: 18 mi
Flood Arrival Time: 6 h 30 min
Peak Elevation Time: 13 h 41 min
Peak Elevation: 762.99 ft
Max Depth: 20.05 ft
Peak Flow: 9,531 cfs
Distance from Dam: 16.6 mi
Flood Arrival Time: 5 h 46 min
Peak Elevation Time: 13 h 32 min
Peak Elevation: 764.9 ft
Max Depth: 12.99 ft
Peak Flow: 9,677 cfs
Distance from Dam: 19.2 mi
Flood Arrival Time: 7 h 21 min
Peak Elevation Time: 13 h 54 min
Peak Elevation: 756.26 ft
Max Depth: 17.8 ft
Peak Flow: 9,489 cfs
Overtopped Bridges
S. Howell Rd.
E Pink Hill Rd
Sweeney Rd
S Kirby Rd
S Fields Rd
S Gardner Rd
S Old Pink Hill Rd
E Old Pink Hill Rd
Grain Valley
S Howell Rd
E Duncan Rd
Seymour Rd
E Howell Rd
E Jim Owings Rd
Axline Rd
Grain Valley

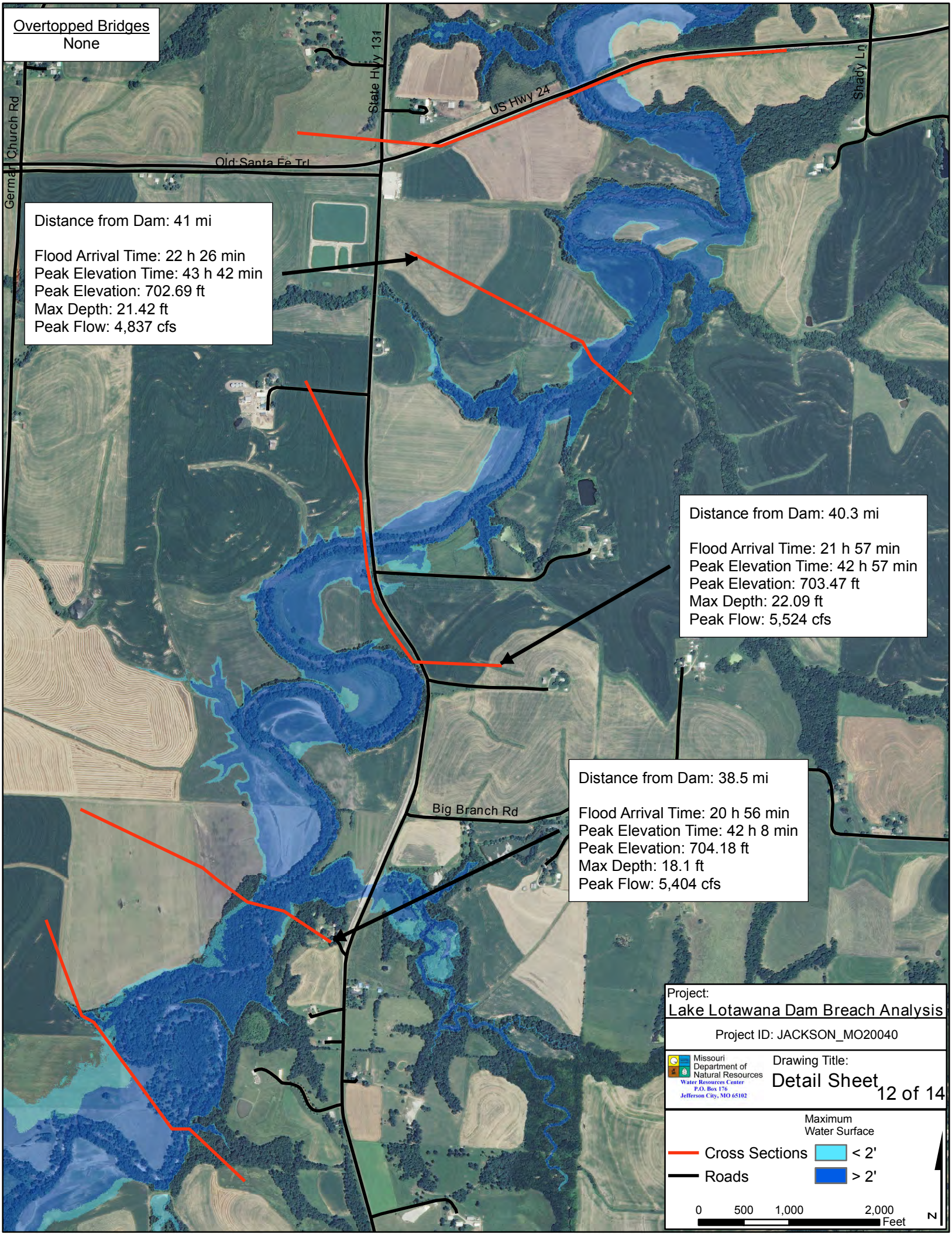

Distance from Dam: 20.2 mi
Flood Arrival Time: 7 h 45 min
Peak Elevation Time: 21 h 31 min
Peak Elevation: 754.83 ft
Max Depth: 20.6 ft
Peak Flow: 6,872 cfs
Distance from Dam: 20.6 mi
Flood Arrival Time: 8 h
Peak Elevation Time: 21 h 32 min
Peak Elevation: 754.8 ft
Max Depth: 20.95 ft
Peak Flow: 8,308 cfs
E Pink Hill Rd
E Old Pink Hill Rd
S Outer Belt Rd
E Renick Rd
Renick Rd
Webb Rd
E Gillespie Rd
Gillespie Rd
Axline Rd
E Jim Owings Rd
N Broadway St
Distance from Dam: 21.3 mi
Flood Arrival Time: 8 h 30 min
Peak Elevation Time: 21 h 41 min
Peak Elevation: 751.93 ft
Max Depth: 18.73 ft
Peak Flow: 6,993 cfs
Distance from Dam: 22.5 mi
Flood Arrival Time: 9 h 23 min
Peak Elevation Time: 22 h 20 min
Peak Elevation: 743.36 ft
Max Depth: 15.31 ft
Peak Flow: 6,989 cfs
Overtopped Bridges
None
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 7 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0 500 1,000 2,000 Feet
N

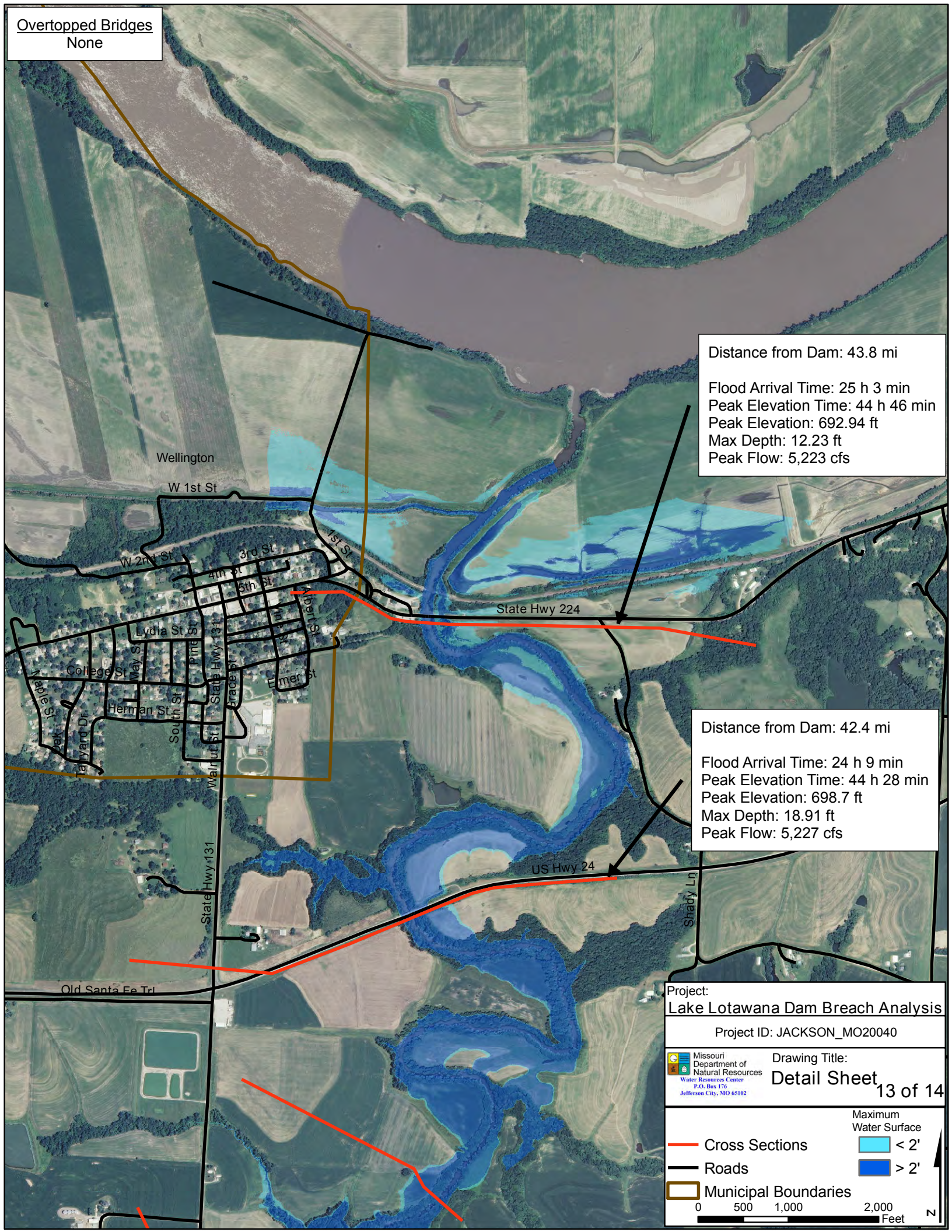

Overtopped Bridges
None
State Hwy Ff
Webb Rd
Gillespie Rd
Renick Rd
E Renick Rd
Gillespie Rd
Frosty Ln
Happy Hollow Rd
Distance from Dam: 24.6 mi
Flood Arrival Time: 10 h 47 min
Peak Elevation Time: 23 h 37 min
Peak Elevation: 738.36 ft
Max Depth: 16.18 ft
Peak Flow: 6,977 cfs
Distance from Dam: 26.8 mi
Flood Arrival Time: 12 h
Peak Elevation Time: 28 h 3 min
Peak Elevation: 733.49 ft
Max Depth: 17.26 ft
Peak Flow: 6,866 cfs
Distance from Dam: 23.6 mi
Flood Arrival Time: 10 h
Peak Elevation Time: 22 h 59 min
Peak Elevation: 740.7 ft
Max Depth: 15.57 ft
Peak Flow: 6,984 cfs
Distance from Dam: 25.6 mi
Flood Arrival Time: 11 h 30 min
Peak Elevation Time: 24 h 49 min
Peak Elevation: 735.3 ft
Max Depth: 16.17 ft
Peak Flow: 6,967 cfs
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 8 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0
500
1,000
2,000
Feet
N

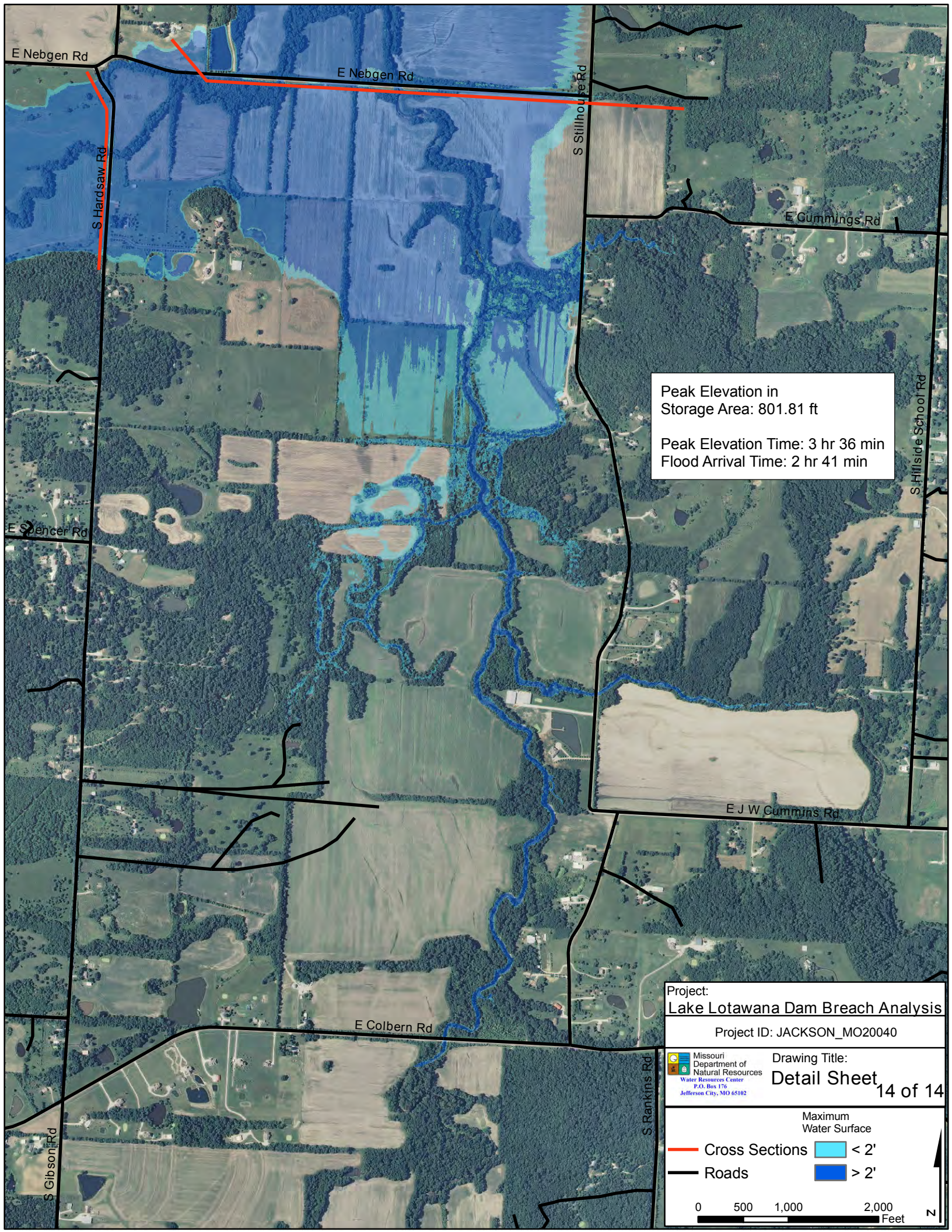

Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 9 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0 500 1,000 2,000 Feet
N
Distance from Dam: 31.5 mi
Flood Arrival Time: 15 h 14 min
Peak Elevation Time: 30 h 6 min
Peak Elevation: 720.46 ft
Max Depth: 15.37 ft
Peak Flow: 6,386 cfs
Sni-A-Bar Rd
Sunset Dr
State Hwy Ff
State Hwy Ff
State Hwy D
Distance from Dam: 30.1 mi
Flood Arrival Time: 14 h 15 min
Peak Elevation Time: 29 h 48 min
Peak Elevation: 723.24 ft
Max Depth: 14.82 ft
Peak Flow: 6,373 cfs
Distance from Dam: 29.2 mi
Flood Arrival Time: 13 h 47 min
Peak Elevation Time: 29 h 27 min
Peak Elevation: 724.72 ft
Max Depth: 13.72 ft
Peak Flow: 6,377 cfs
Distance from Dam: 28.6 mi
Flood Arrival Time: 13 h 30 min
Peak Elevation Time: 29 h 8 min
Peak Elevation: 732.31 ft
Max Depth: 20.58 ft
Peak Flow: 6,378 cfs
Oakwood Rd
Distance from Dam: 28 mi
Flood Arrival Time: 12 h 50 min
Peak Elevation Time: 29 h 9 min
Peak Elevation: 732.52 ft
Max Depth: 19.46 ft
Peak Flow: 6,480 cfs
Overtopped Bridges
None

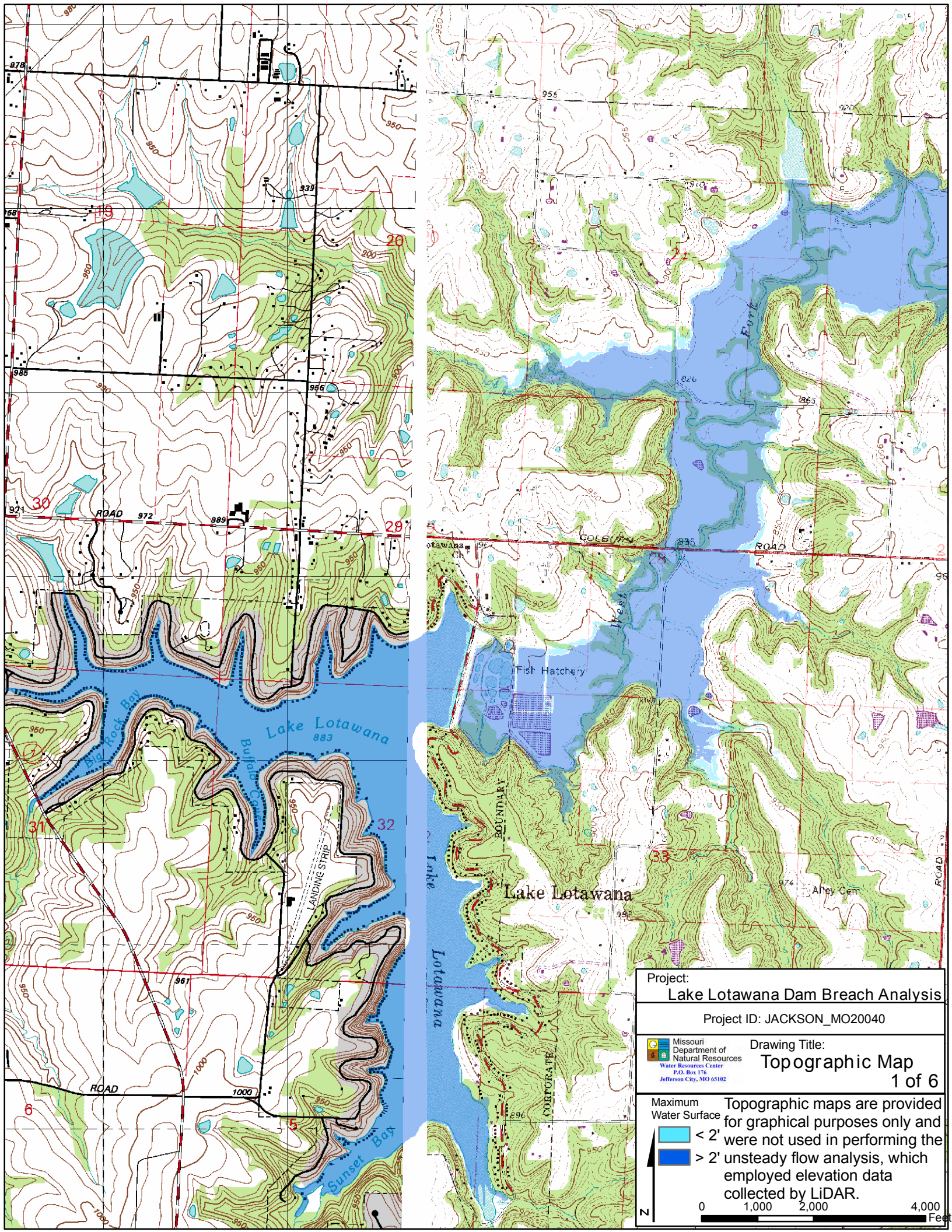

Overtopped Bridges
None
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet
10 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0
500
1,000
2,000
Feet
N
Distance from Dam: 32.5 mi
Flood Arrival Time: 16 h 7 min
Peak Elevation Time: 30 h 37 min
Peak Elevation: 717.3 ft
Max Depth: 16.26 ft
Peak Flow: 6,365 cfs
Distance from Dam: 33.3 mi
Flood Arrival Time: 16 h 37 min
Peak Elevation Time: 30 h 53 min
Peak Elevation: 715.95 ft
Max Depth: 16.67 ft
Peak Flow: 5,405 cfs
Distance from Dam: 34.1 mi
Flood Arrival Time: 17 h 19 min
Peak Elevation Time: 31 h 11 min
Peak Elevation: 713.75 ft
Max Depth: 16.46 ft
Peak Flow: 6,359 cfs
Distance from Dam: 35.1 mi
Flood Arrival Time: 17 h 51 min
Peak Elevation Time: 31 h 51 min
Peak Elevation: 710.76 ft
Max Depth: 17.42 ft
Peak Flow: 6,348 cfs
Blue Valley Dr
Country View Rd
Sni-A-Bar Rd
Sunset Dr


Overtopped Bridges
None
Distance from Dam: 35.5 mi
Flood Arrival Time: 18 h 9 min
Peak Elevation Time: 32 h 11 min
Peak Elevation: 709.67 ft
Max Depth: 17.36 ft
Peak Flow: 6,344 cfs
Blue Valley Dr
Co Rd 28
German Church Rd
State Hwy 131
Meadow Ln
Distance from Dam: 37.5 mi
Flood Arrival Time: 19 h 52 min
Peak Elevation Time: 37 h 56 min
Peak Elevation: 707.01 ft
Max Depth: 17.84 ft
Peak Flow: 5,787 cfs
Distance from Dam: 36.4 mi
Flood Arrival Time: 18 h 52
Peak Elevation Time: 33 h 7 min
Peak Elevation: 708.46 ft
Max Depth: 18.39 ft
Peak Flow: 6,336 cfs
State Hwy Ff
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 11 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0 500 1,000 2,000 Feet
N
Peak Elevation in Storage Area: 707.45 ft
Peak Elevation Time: 37 h 41 min
Flood Arrival Time: 19 h 20 min


Overtopped Bridges
None
German Church Rd
State Hwy 131
US Hwy 24
Old Santa Fe Trl
Shady Ln
Distance from Dam: 41 mi
Flood Arrival Time: 22 h 26 min
Peak Elevation Time: 43 h 42 min
Peak Elevation: 702.69 ft
Max Depth: 21.42 ft
Peak Flow: 4,837 cfs
Distance from Dam: 40.3 mi
Flood Arrival Time: 21 h 57 min
Peak Elevation Time: 42 h 57 min
Peak Elevation: 703.47 ft
Max Depth: 22.09 ft
Peak Flow: 5,524 cfs
Big Branch Rd
Distance from Dam: 38.5 mi
Flood Arrival Time: 20 h 56 min
Peak Elevation Time: 42 h 8 min
Peak Elevation: 704.18 ft
Max Depth: 18.1 ft
Peak Flow: 5,404 cfs
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 12 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0 500 1,000 2,000 Feet
N


Overtopped Bridges
None
Distance from Dam: 43.8 mi
Flood Arrival Time: 25 h 3 min
Peak Elevation Time: 44 h 46 min
Peak Elevation: 692.94 ft
Max Depth: 12.23 ft
Peak Flow: 5,223 cfs
Distance from Dam: 42.4 mi
Flood Arrival Time: 24 h 9 min
Peak Elevation Time: 44 h 28 min
Peak Elevation: 698.7 ft
Max Depth: 18.91 ft
Peak Flow: 5,227 cfs
Wellington
W 1st St
W 2nd St
3rd St
4th St
5th St
1st St
State Hwy 224
Lydia St
College St
May St
Pine St
State Hwy 131
Grace St
Elmer St
Herman St
South St
Walnut St
Tanyard Dr
Oak
Maple St
State Hwy 131
US Hwy 24
Shady Ln
Old Santa Fe Trl
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet
13 of 14
Cross Sections
Roads
Municipal Boundaries
Maximum Water Surface
< 2'
> 2'
0
500
1,000
2,000
Feet
N


E Nebgen Rd
E Nebgen Rd
S Hardsaw Rd
S Stillhouse Rd
E Cummings Rd
S Hillside School Rd
E Spencer Rd
E J W Cummins Rd
E Colbert Rd
S Rankins Rd
S Gibson Rd
Peak Elevation in Storage Area: 801.81 ft
Peak Elevation Time: 3 hr 36 min
Flood Arrival Time: 2 hr 41 min
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet
14 of 14
Maximum Water Surface
Cross Sections
Roads
< 2'
> 2'
0
500
1,000
2,000
Feet
N



Project:
Lake Lotawana Dam Breach Analysis

Project ID: JACKSON_MO20040

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

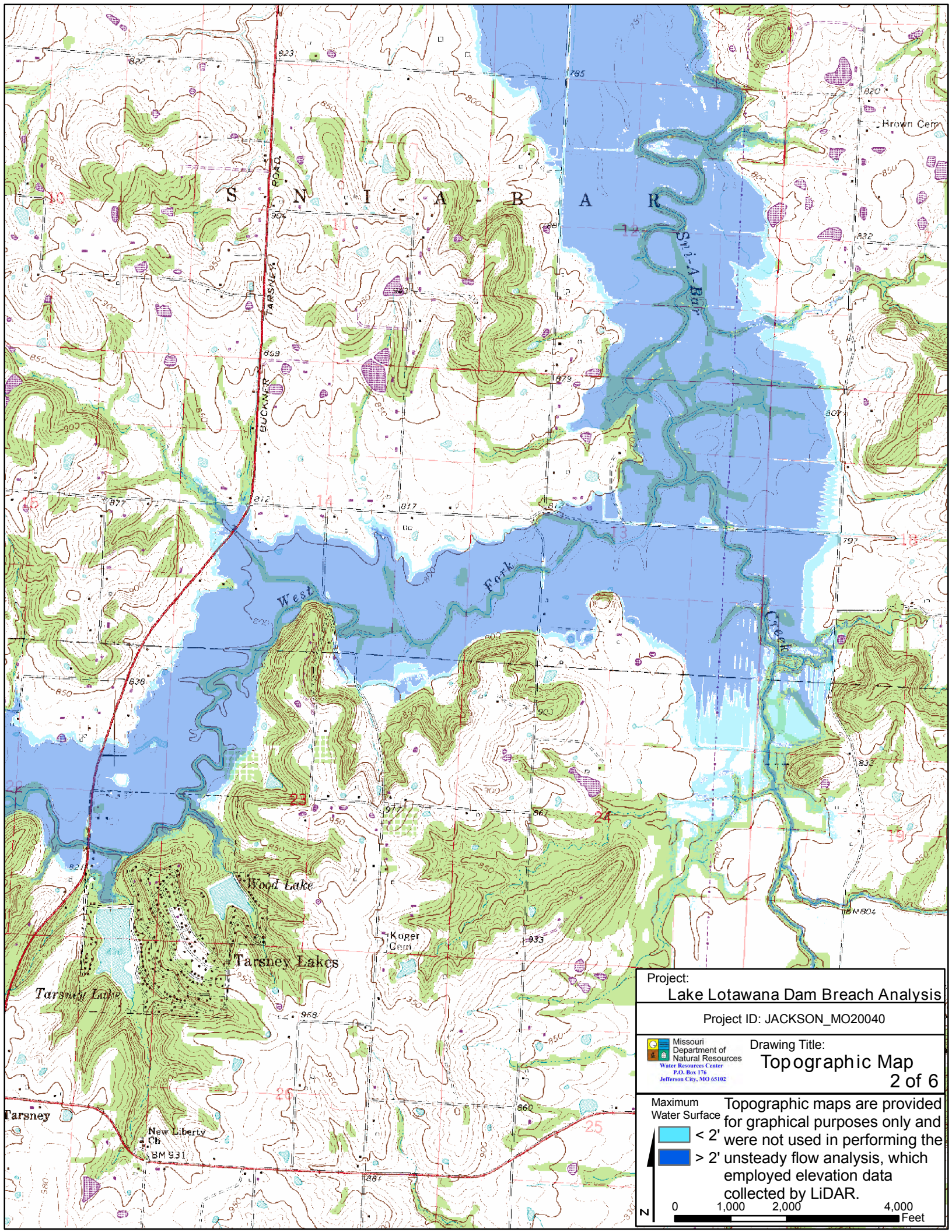
Drawing Title:
Topographic Map
1 of 6

Maximum Water Surface
< 2'
> 2'

Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.

N

0 1,000 2,000 4,000 Feet


S N I - A - B A R
Brown Cem
Sni-A-Bar
West Fork Creek
Wood Lake
Tarsney Lakes
Tarsney Lake
Koger Cem
Tarsney
New Liberty Ch
BM 931
BUCKNER TARSNEY ROAD
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topographic Map
2 of 6
Maximum Water Surface
< 2'
> 2'
Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.
N
0
1,000
2,000
4,000
Feet

Project:
Lake Lotawana Dam Breach Analysis

Project ID: JACKSON_MO20040

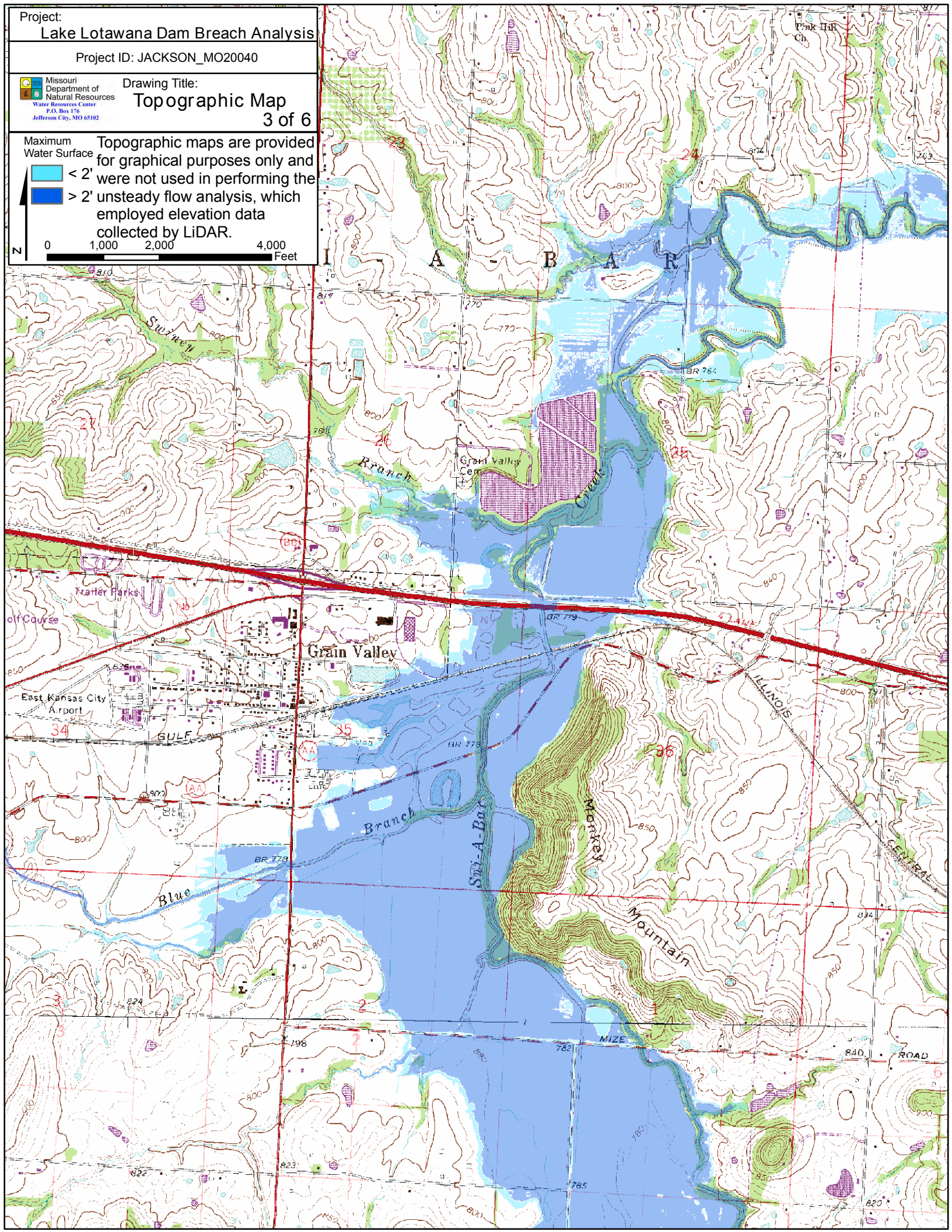
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

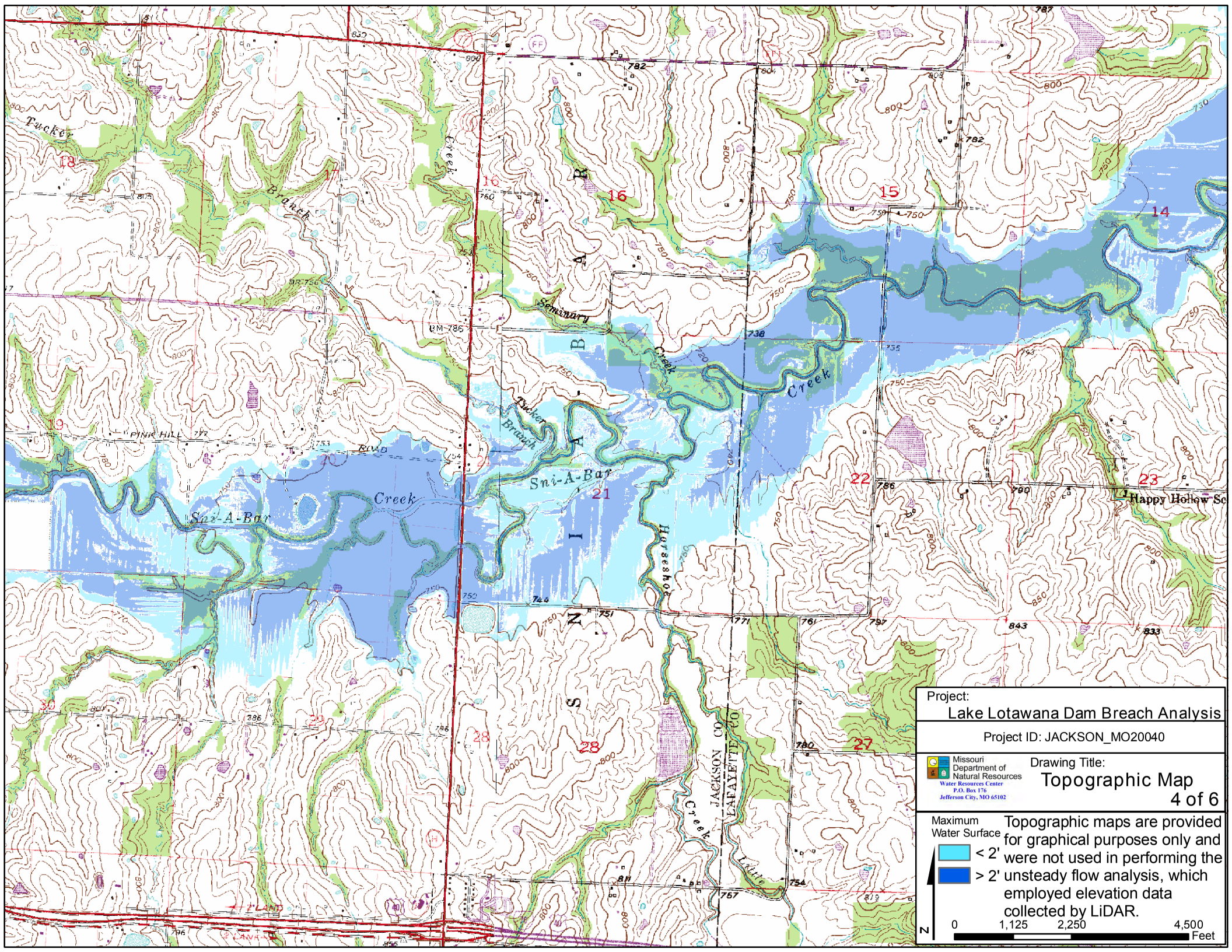
Drawing Title:
Topographic Map
3 of 6

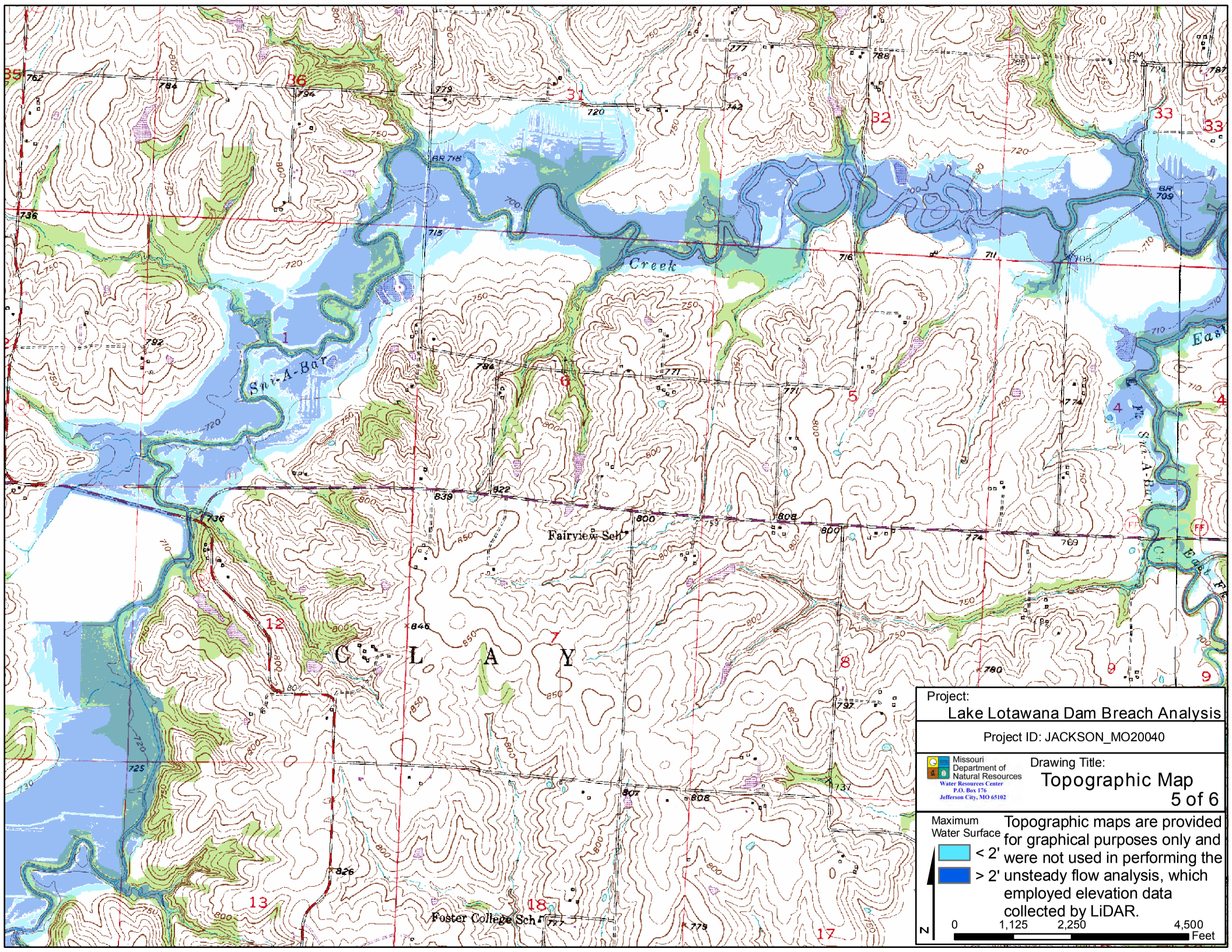
Maximum Water Surface
< 2'
> 2'

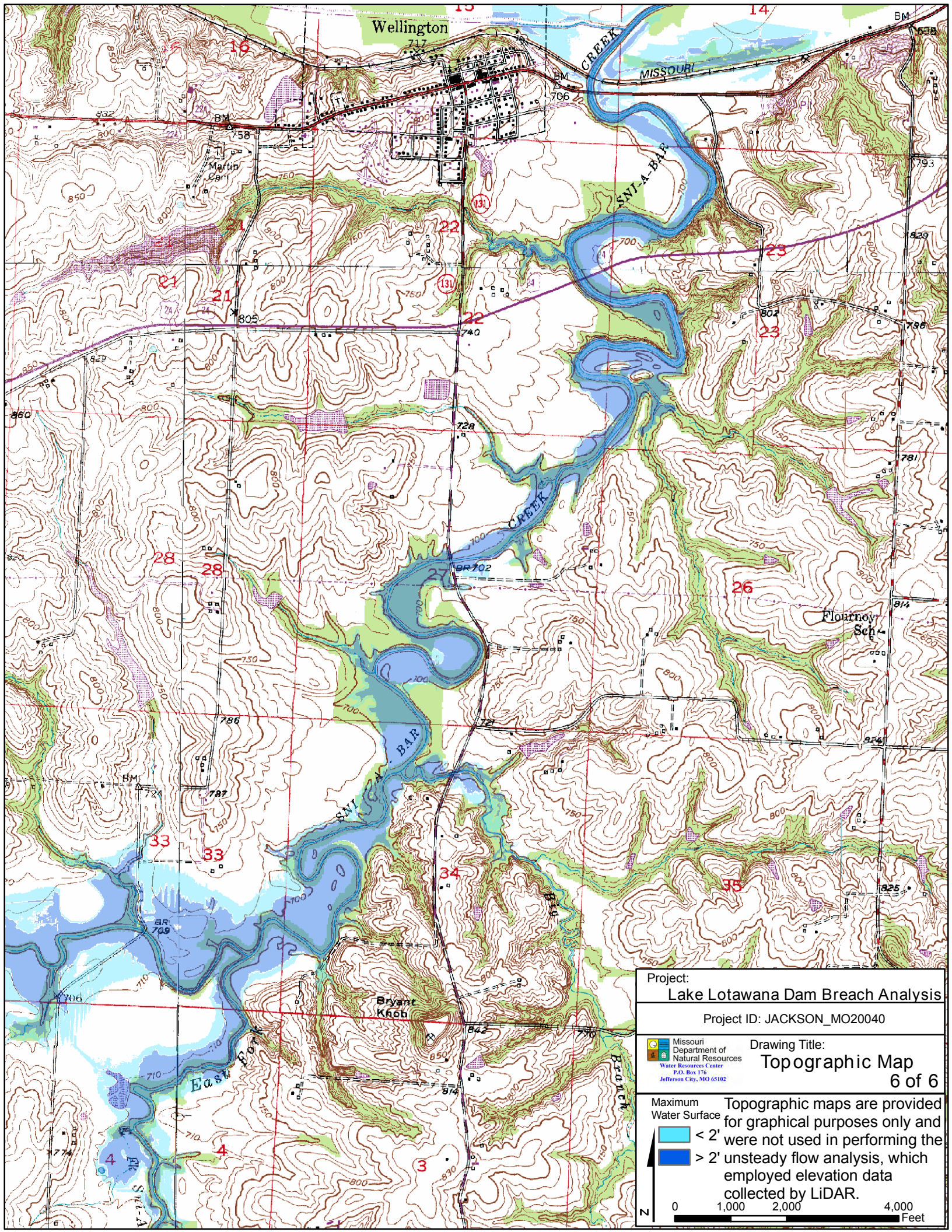
Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.

N
0 1,000 2,000 4,000 Feet




Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topographic Map
4 of 6
Maximum Water Surface
< 2'
> 2'
Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.
N
0
1,125
2,250
4,500
Feet
Tucker Branch
Seminary Creek
Tucker Branch
Sni-A-Bar Creek
Sni-A-Bar Creek
Horseshoe Creek
Little Creek
JACKSON CO
LAFAYETTE CO
PINK HILL ROAD
BM 786
Happy Hollow Sc


Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topographic Map
5 of 6
Maximum Water Surface
< 2'
> 2'
Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.
N
0
1,125
2,250
4,500
Feet
Creek
Fairview Sch
Foster College Sch
CLAY


Wellington
MISSOURI CREEK
SNI-A-BAR CREEK
BR 702
BR 709
Martin Cem
Flournoy Sch
Bryant Knob
East Fork
Project:
Lake Lotawana Dam Breach Analysis
Project ID: JACKSON_MO20040
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topographic Map
6 of 6
Maximum Water Surface
< 2'
> 2'
Topographic maps are provided for graphical purposes only and were not used in performing the unsteady flow analysis, which employed elevation data collected by LiDAR.
N
0
1,000
2,000
4,000
Feet

12/21/09

Lake Tapawingo Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20127

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20127

County: JACKSON

Location: S34, T49 N, R31 W

Height of Dam: 55'

Storage Capacity (Normal Pool): 1680 ac-ft

Tributary: Unnamed Trib. to East Fork of Little Blue River

Lake Area: 85 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 82.75’

Bottom elevation: 782’

Breach formation time: 0.47 hr

Pool Elevation at Failure: 847.73’

Pool Volume at Failure: 2509 ac-ft

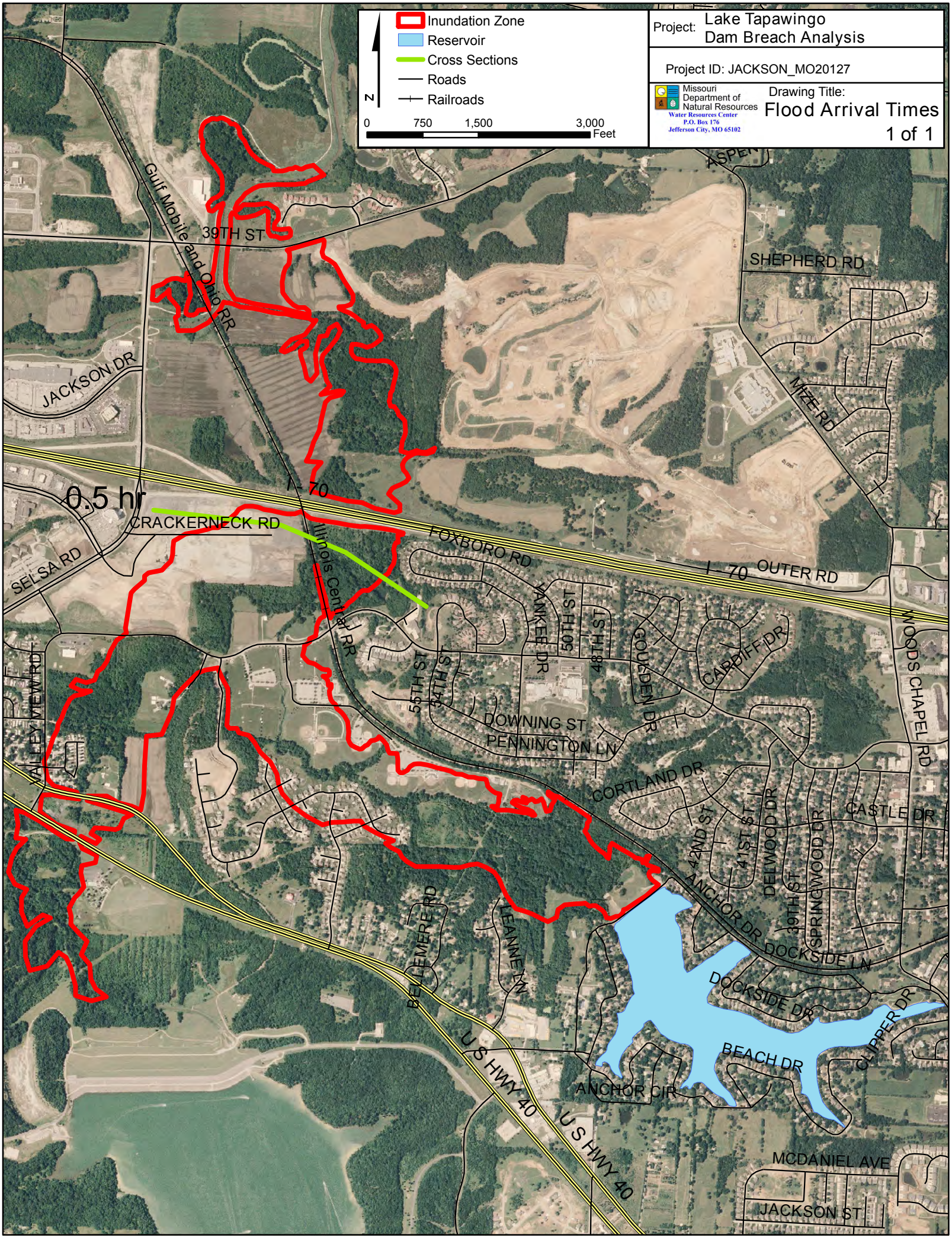
Date of Aerial Photo: August 8, 2009

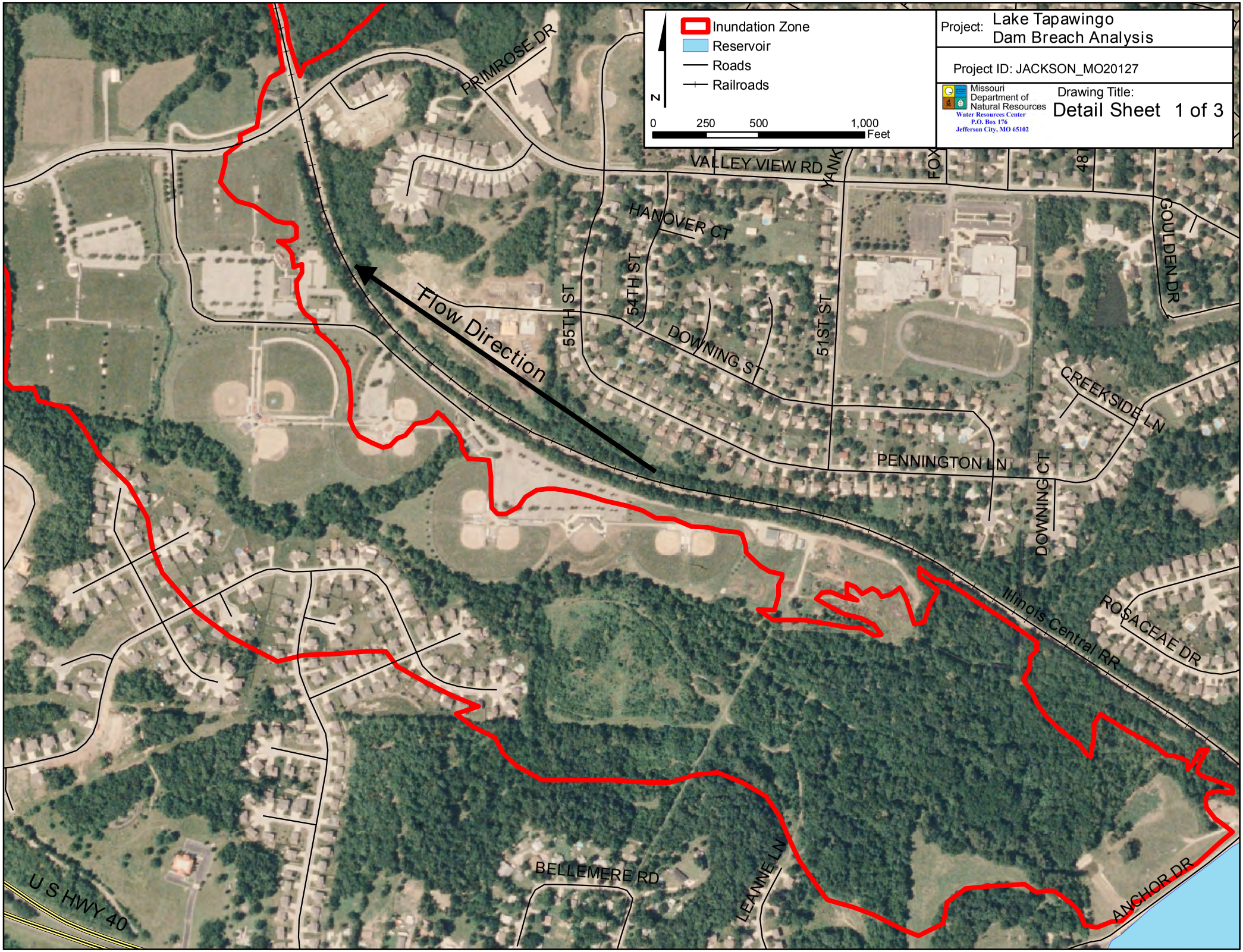
Project: Lake Tapawingo Dam Breach Analysis

Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

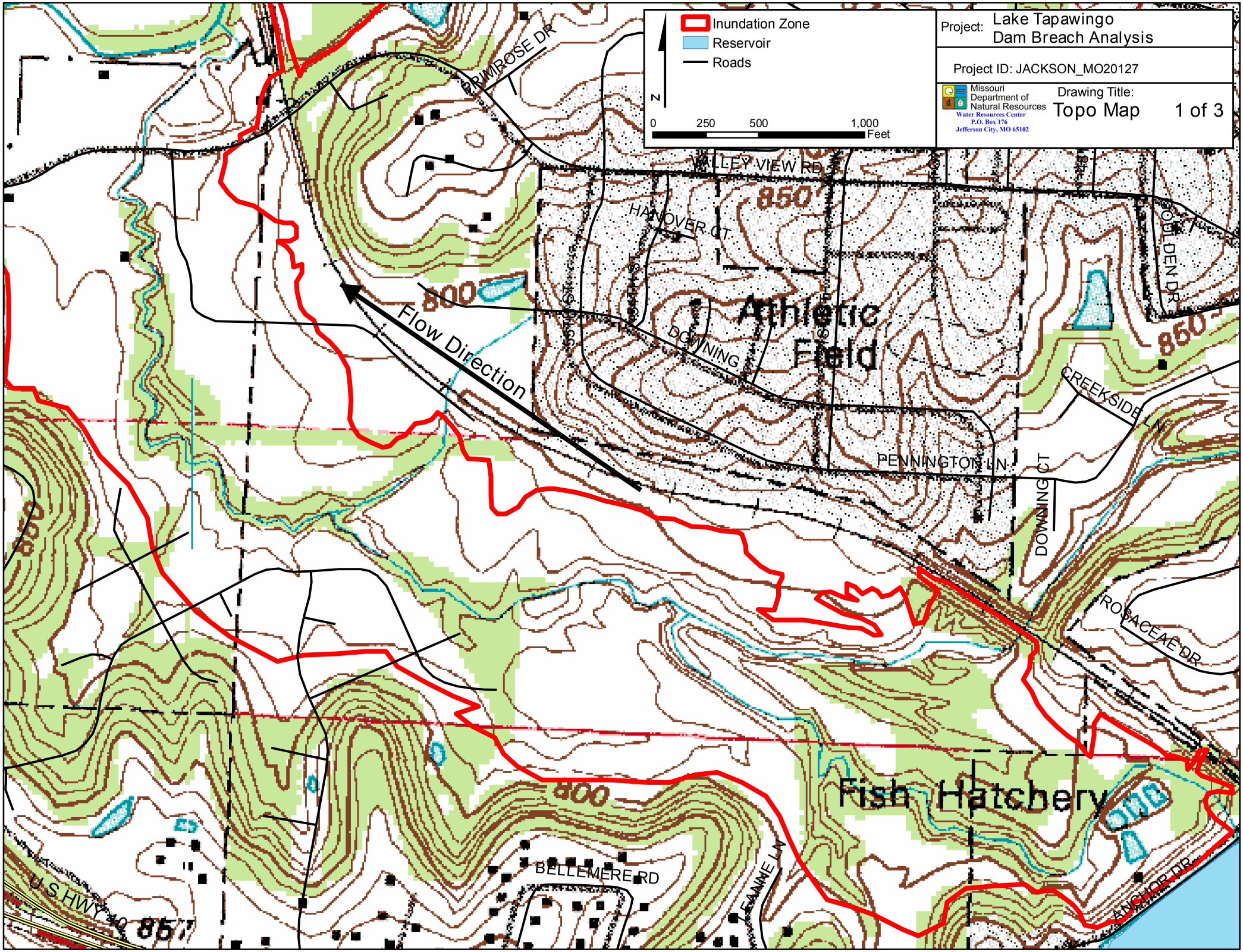
Project ID: JACKSON_MO20127

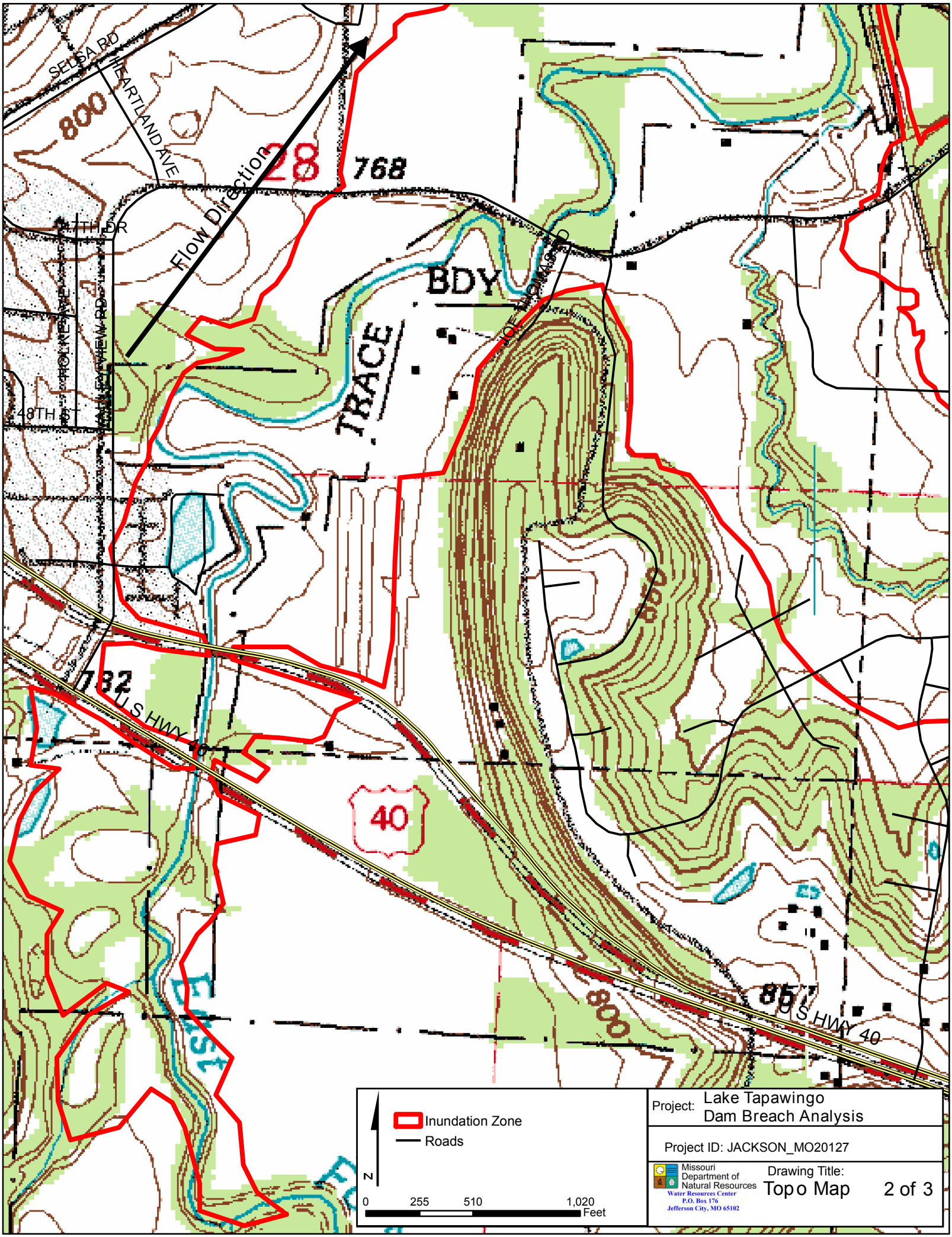

Inundation Zone
Reservoir
Cross Sections
Roads
Railroads
N
0
750
1,500
3,000
Feet
Project: Lake Tapawingo Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
0.5 hr
Gulf Mobile and Ohio RR
39TH ST
JACKSON DR
CRACKERNECK RD
SELSA RD
I - 70
Illinois Central RR
FOXBORO RD
YANKEE DR
50TH ST
48TH ST
GOULDEN DR
CARDIFF DR
55TH ST
54TH ST
DOWNING ST
PENNINGTON LN
CORTLAND DR
42ND ST
41ST ST
DELWOOD DR
39TH ST
SPRINGWOOD DR
CASTLE DR
WOODS CHAPEL RD
MIZE RD
SHEPHERD RD
ASPEN
VALLEY VIEW RD
BELLEMERE RD
LEANNE LN
ANCHOR DR
DOCKSIDE LN
DOCKSIDE DR
CLIPPER DR
BEACH DR
ANCHOR CIR
U S HWY 40
MCDANIEL AVE
JACKSON ST

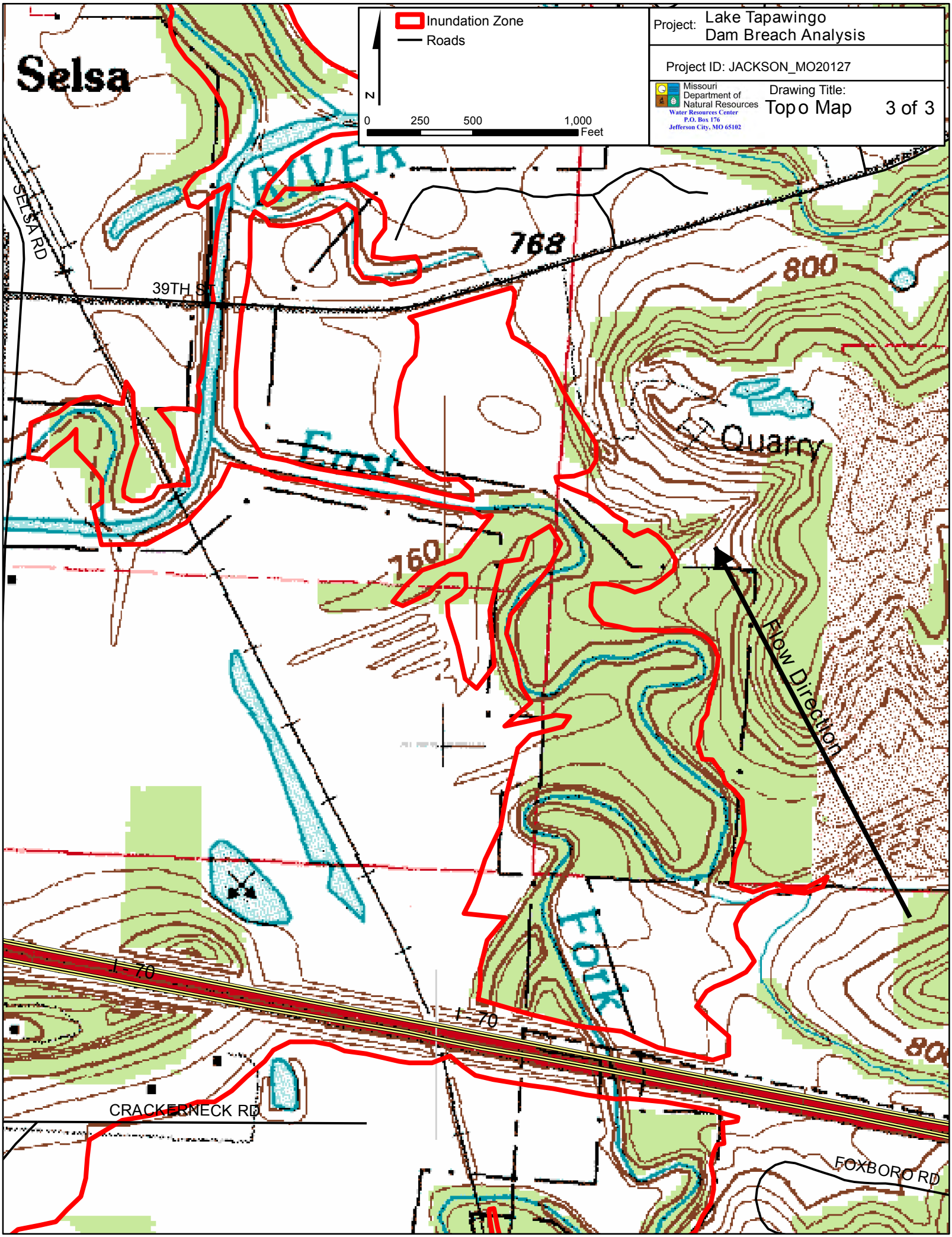

Inundation Zone
Reservoir
Roads
Railroads
N
0 250 500 1,000
Feet
Project: Lake Tapawingo Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 3
PRIMROSE DR
VALLEY VIEW RD
YANK
FOX
487
GOULDEN DR
HANOVER CT
54TH ST
55TH ST
51ST ST
DOWNING ST
Flow Direction
CREEKSIDE LN
PENNINGTON LN
DOWNING CT
Illinois Central RR
ROSACEAE DR
BELLEMERE RD
LEANNE LN
ANCHOR DR
U S HWY 40


SELSA RD
HEARTLAND AVE
Flow Direction
47TH DR
HOLKE AVE
VALLEY VIEW RD
48TH ST
JOE THOMAS RD
Illinois Central RR
U S HWY 40
U S HWY 40
Inundation Zone
Roads
Railroads
N
0
250
500
1,000
Feet
Project: Lake Tapawingo
Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 3


Inundation Zone
Roads
Railroads
N
0
250
500
1,000
Feet
Project: Lake Tapawingo
Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 3
SELSA RD
39TH ST
Gulf Mobile and Ohio RR
Flow Direction
I - 70
I - 70
Illinois Central RR
CRACKERNECK RD
FOXBORO RD


Inundation Zone
Reservoir
Roads
N
0 250 500 1,000
Feet
Project: Lake Tapawingo Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
1 of 3
PRIMROSE DR
VALLEY VIEW RD
HANOVER CT
850
800
Flow Direction
Athletic Field
DOWNING
GOLDEN DR
860
CREEKSIDE LN
PENNINGTON LN
DOWNING CT
ROSACEAE DR
800
Fish Hatchery
BELLEMERE RD
LAINE LN
ANCHOR DR
U.S. HWY 40
850


SELSA RD
HEARTLAND AVE
800
28
768
Flow Direction
47TH DR
BDY
TRACE
48TH ST
782
U S HWY 40
40
800
800
U S HWY 40
Inundation Zone
Roads
N
0
255
510
1,020
Feet
Project: Lake Tapawingo
Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 3


Inundation Zone
Roads
N
0
250
500
1,000
Feet
Project: Lake Tapawingo Dam Breach Analysis
Project ID: JACKSON_MO20127
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
3 of 3
Selsa
RIVER
SELSA RD
39TH ST
768
800
East
Quarry
760
Flow Direction
FORK
I-70
I-70
CRACKERNECK RD
FOXBORO RD

2/3/10

Lakewood-East Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20373

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20373

County: JACKSON

Location: S05, T48 N, R31 W

Height of Dam: 75'

Storage Capacity (Normal Pool): 4045 ac-ft (East lake only)

Tributary: East Fork of May Brook

Lake Area: 133 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 127’

Bottom elevation: 782’

Breach formation time: 0.60 hr

Pool Elevation at Failure: 858.09’

Pool Volume at Failure: 6448 ac-ft

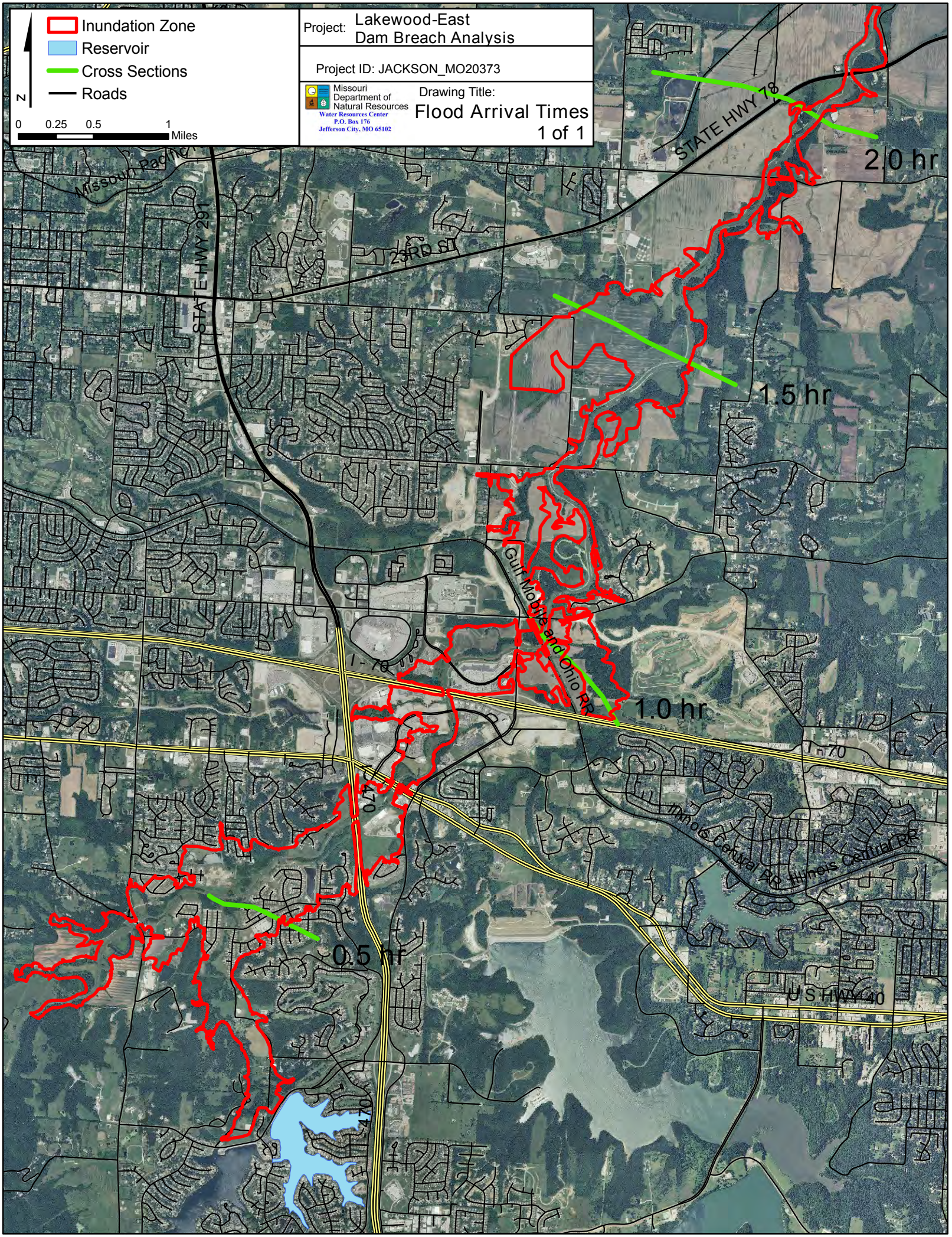
Date of Aerial Photo: August 8, 2009

Project: Lakewood-East Dam Breach Analysis

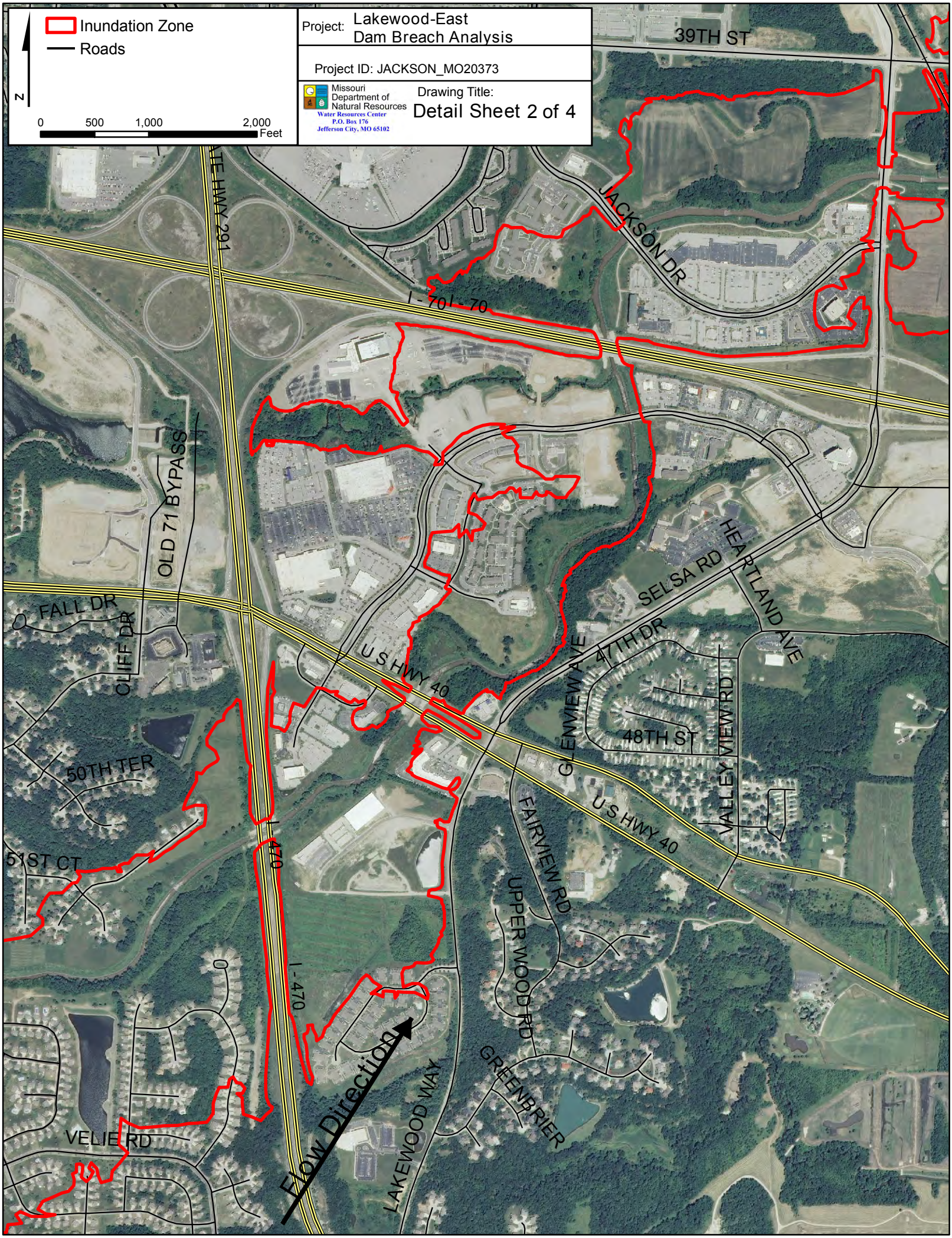
Drawing Title: Explanation Sheet 1 of 1

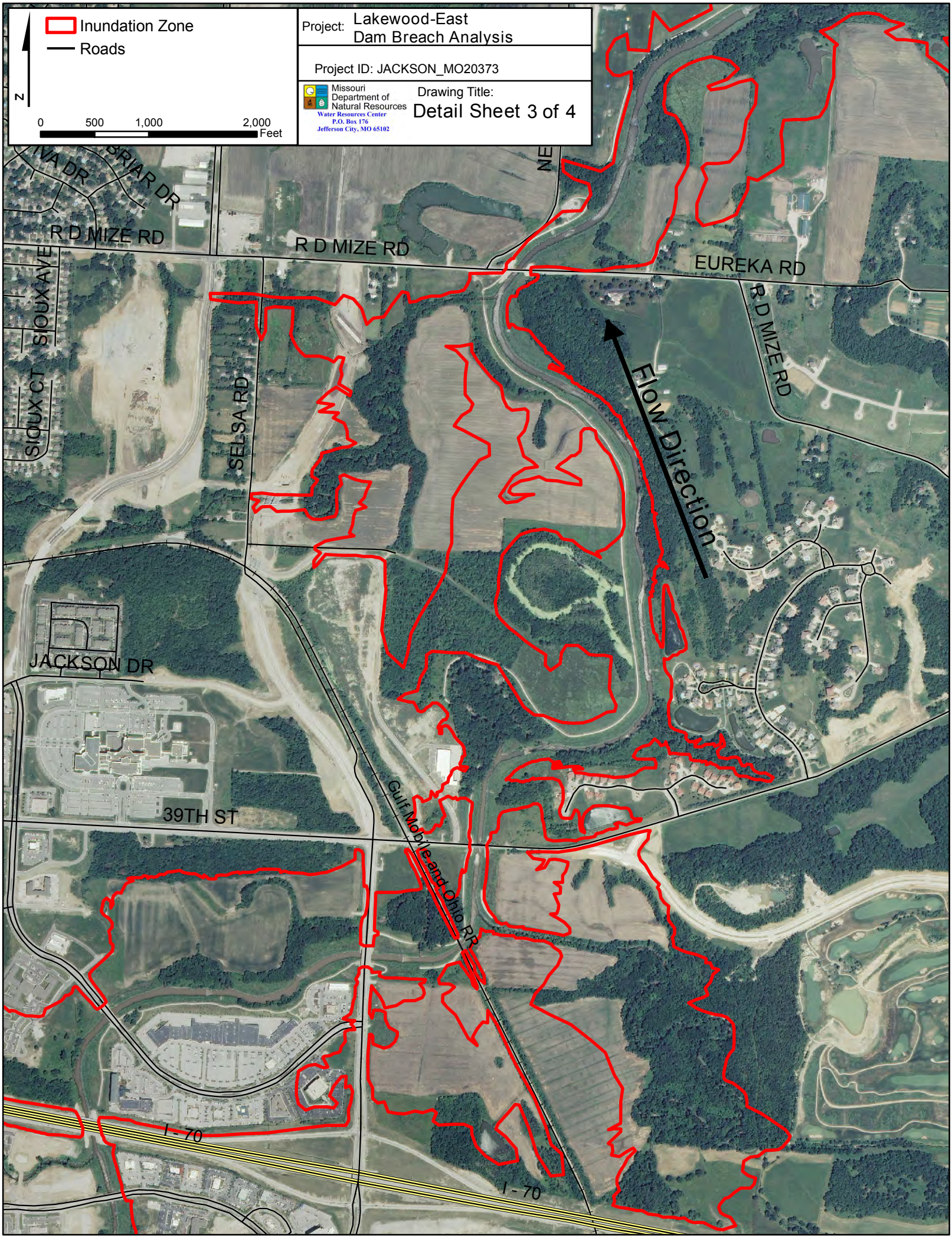
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

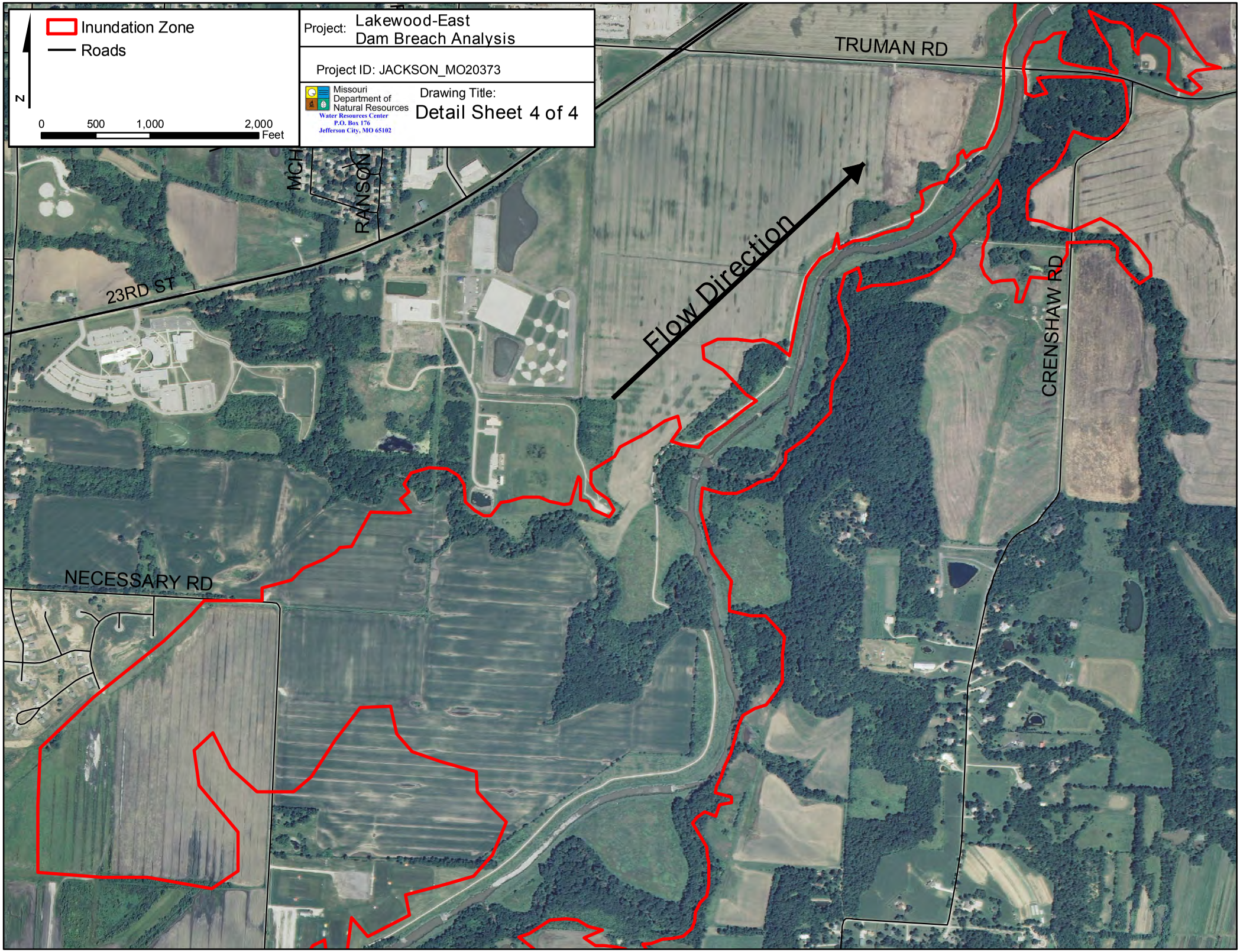
Project ID: JACKSON_MO20373

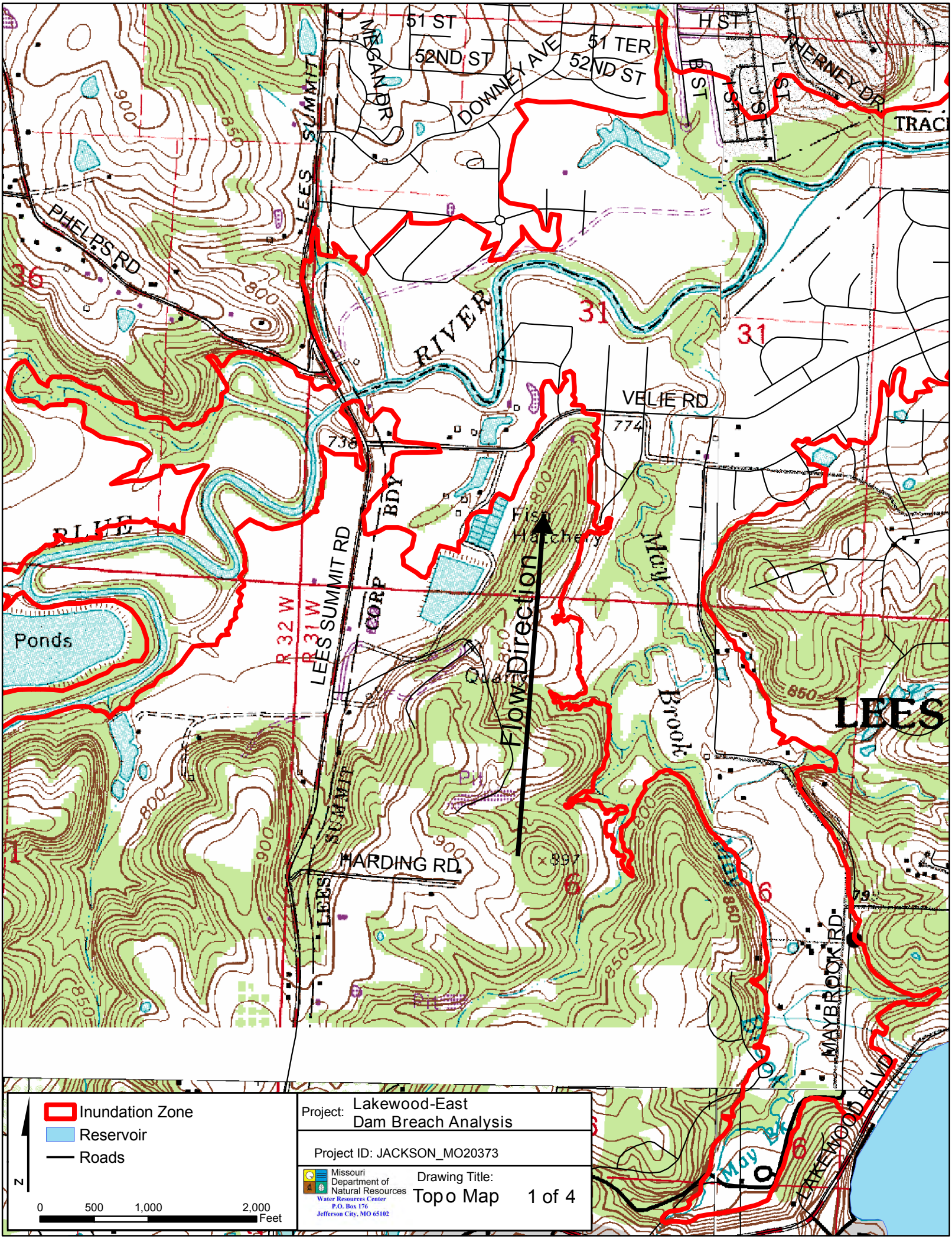

Inundation Zone
Reservoir
Cross Sections
Roads
N
0 0.25 0.5 1 Miles
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
STATE HWY 78
2.0 hr
Missouri Pacific
STATE HWY 291
23RD ST
1.5 hr
Gulf Mobile and Ohio RR
I - 70
1.0 hr
I - 70
470
Illinois Central RR
Illinois Central RR
0.5 hr
U S HWY 40
470

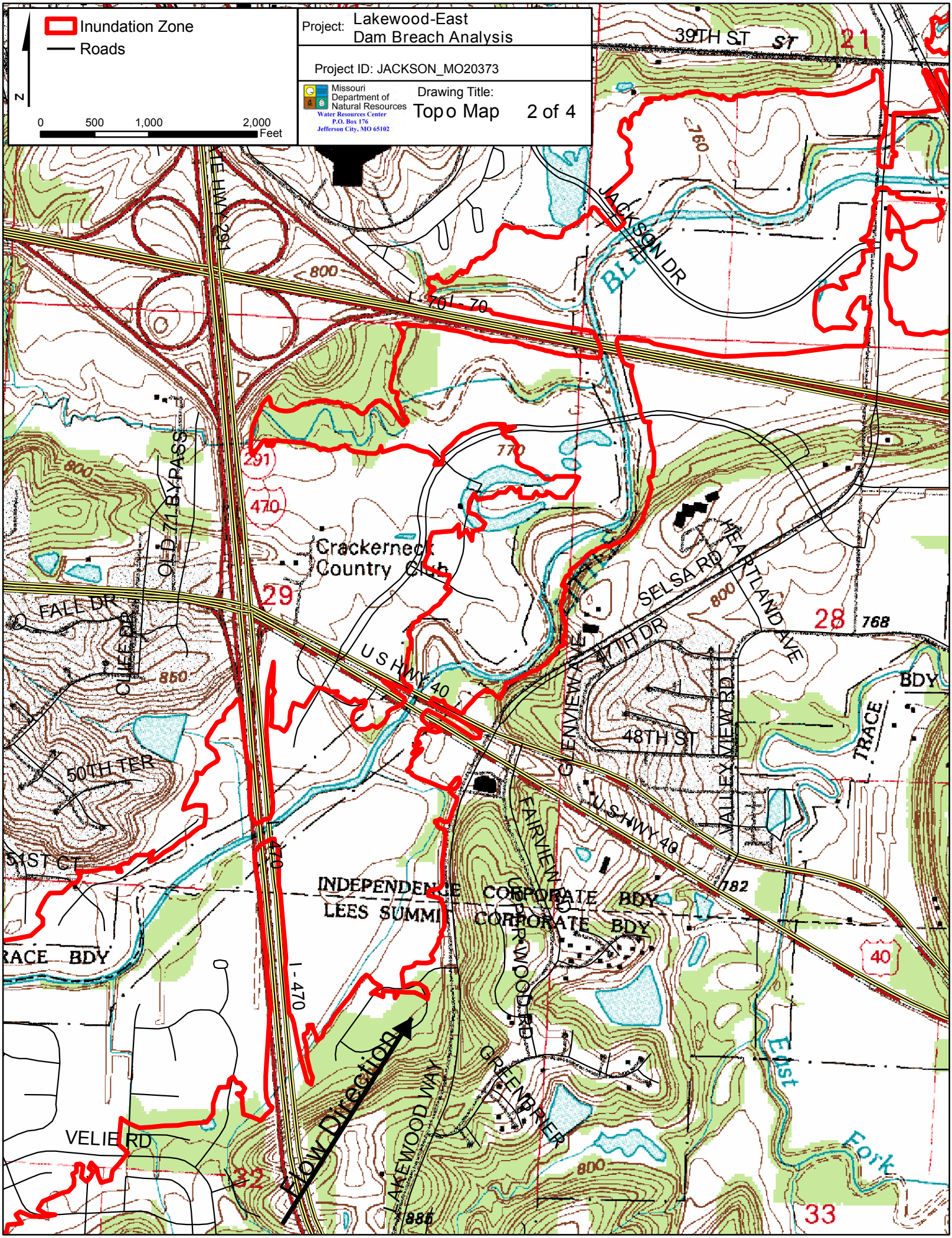

51 ST
52ND ST
MEGAN DR
DOWNEY AVE
51 TER
52ND ST
H ST
B ST
I ST
J ST
L ST
THERNEY DR
PHELPS RD
VELIE RD
LEES SUMMIT RD
Flow Direction
HARDING RD
MAYBROOK RD
LAKEWOOD BLVD
Inundation Zone
Reservoir
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 4


Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 4
39TH ST
JACKSON DR
I - 70
I - 70
OLD 71 BYPASS
FALL DR
CLIFF DR
50TH TER
51ST CT
VELIE RD
U S HWY 40
SELSA RD
HEARTLAND AVE
47TH DR
GLENVIEW AVE
48TH ST
VALLEY VIEW RD
U S HWY 40
FAIRVIEW RD
UPPER WOOD RD
GREENBRIER
LAKEWOOD WAY
I - 470
I - 470
Flow Direction

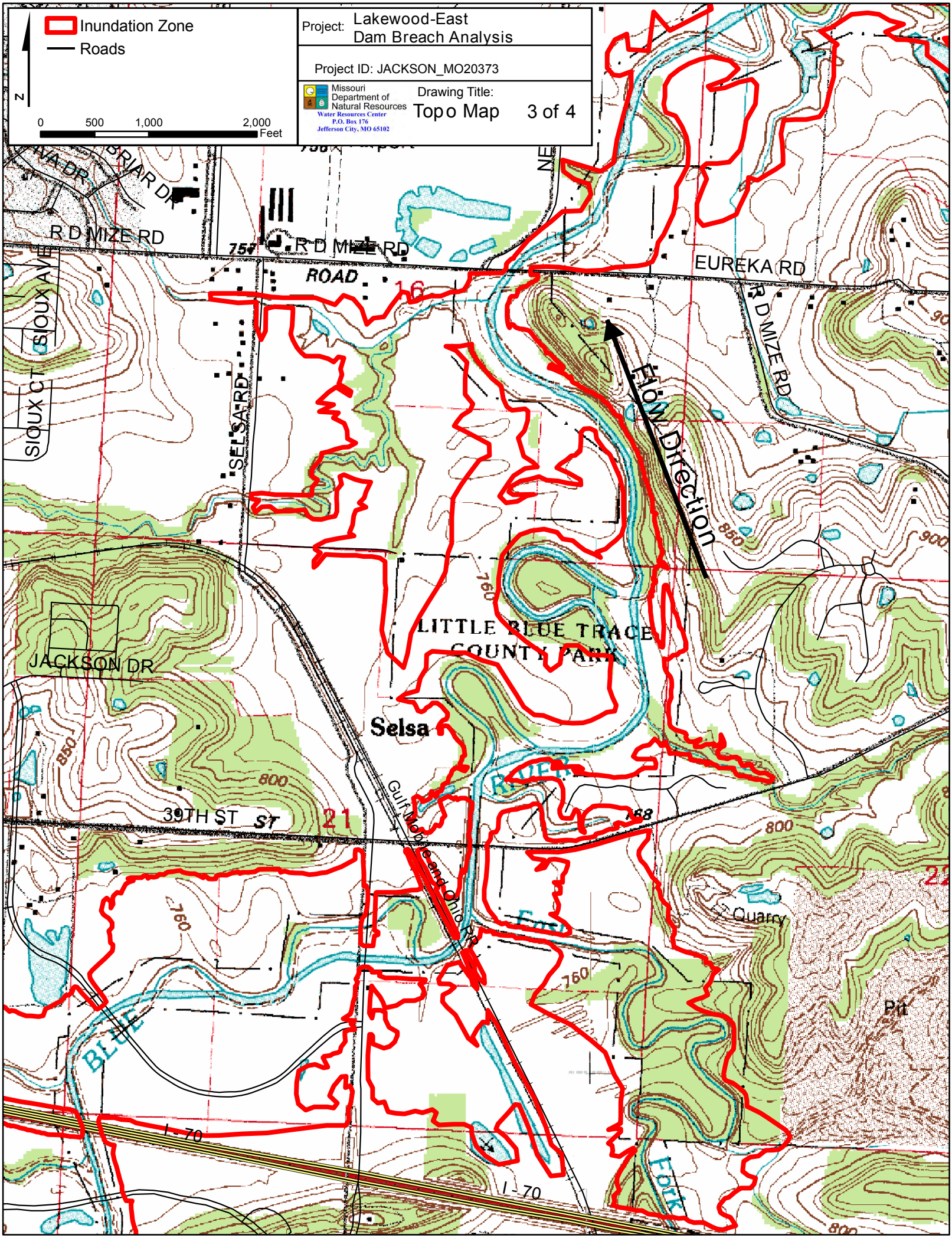

Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 4
R D MIZE RD
R D MIZE RD
EUREKA RD
R D MIZE RD
SIOUX AVE
SIOUX CT
SELSA RD
Flow Direction
JACKSON DR
39TH ST
Gulf, Mobile and Ohio RR
I - 70
I - 70

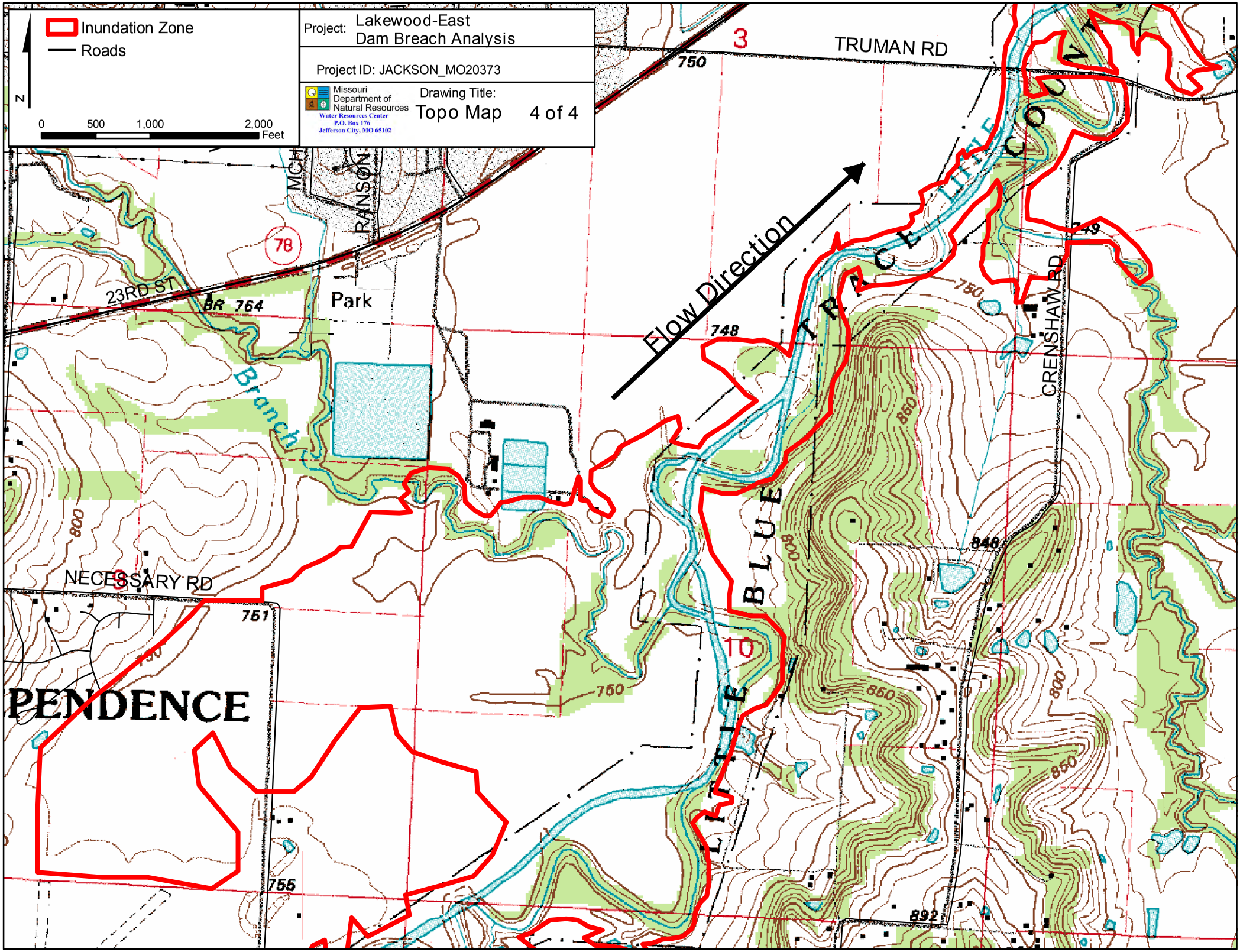

Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 4 of 4
TRUMAN RD
MCH
RANSON
23RD ST
Flow Direction
CRENSHAW RD
NECESSARY RD


51 ST
52ND ST
MEGAN DR
DOWNEY AVE
51 TER
52ND ST
H ST
B ST
I ST
J ST
L ST
THERNEY DR
TRAC
LEES SUMMIT
PHELPS RD
RIVER
VELIE RD
774
738
BLUE
Ponds
R 32 W
R 31 W
LEES SUMMIT RD
CORP BDY
Fish Hatchery
Flow Direction
May Brook
LEES
HARDING RD
MAYBROOK RD
LAKEWOOD BLVD
May Bk
Inundation Zone
Reservoir
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 4



Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 4
39TH ST
ST
21
760
JACKSON DR
BLU
800
I-70
I-70
770
291
470
Crackerneck Country Club
29
OLD 71 BYPASS
FALL DR
CLIFF DR
850
U S HWY 40
SELSA RD
HEARTLAND AVE
47TH DR
28
768
BDY
TRACE
GLENVIEW AVE
48TH ST
VALLEY VIEW RD
50TH TER
FAIRVIEW RD
U S HWY 40
51ST CT
INDEPENDENCE CORPORATE BDY
LEES SUMMIT CORPORATE BDY
782
RACE BDY
I-470
40
Flow Direction
GREENBRIER
LAKEWOOD WAY
East Fork
VELIE RD
32
800
885
33

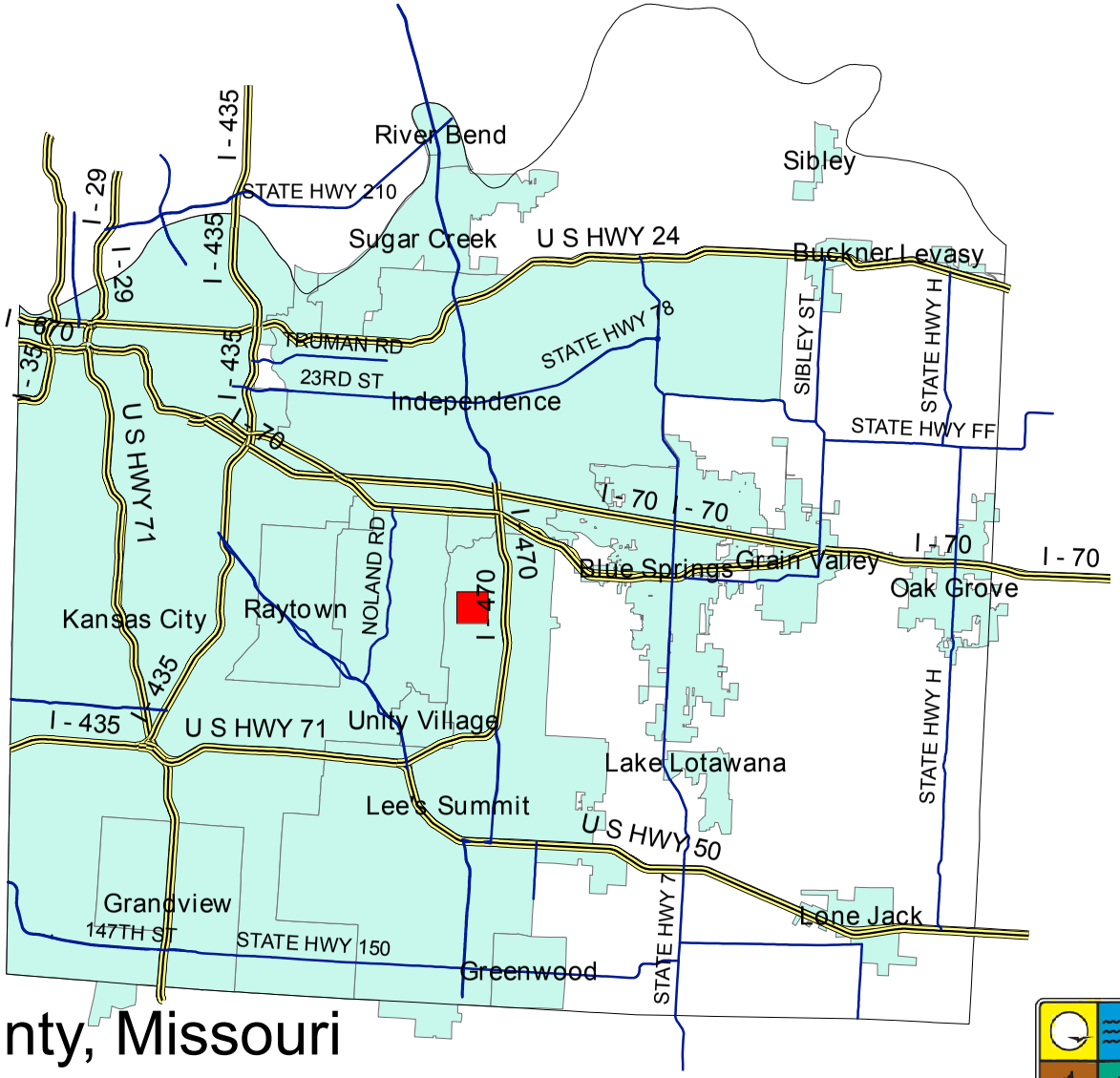

Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
3 of 4
R D MIZE RD
EUREKA RD
SIOUX AVE
SIOUX CT
SELSA RD
JACKSON DR
FLOW Direction
LITTLE BLUE TRACE COUNTY PARK
Selsa
39TH ST
Gulf Mobile and Ohio RR
Quarry
Pit
I-70
I-70
BLUE
Fork



Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-East Dam Breach Analysis
Project ID: JACKSON_MO20373
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
4 of 4
TRUMAN RD
23RD ST
NECESSARY RD
CRENSHAW RD
Flow Direction
Park
Branch
LITTLE BLUE TRACE
PENDENCE
750
748
764
751
755
848
892

Lakewood-West Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20242

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20242

County: JACKSON

Location: S07, T48 N, R31 W

Height of Dam: 84'

Storage Capacity (Normal Pool): 3591 ac-ft (West Lake only)

Tributary: West Fork of May Brook

Lake Area: 146 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 135’

Bottom elevation: 799’

Breach formation time: 0.705 hr

Pool Elevation at Failure: 858.09’

Pool Volume at Failure: 5951 ac-ft

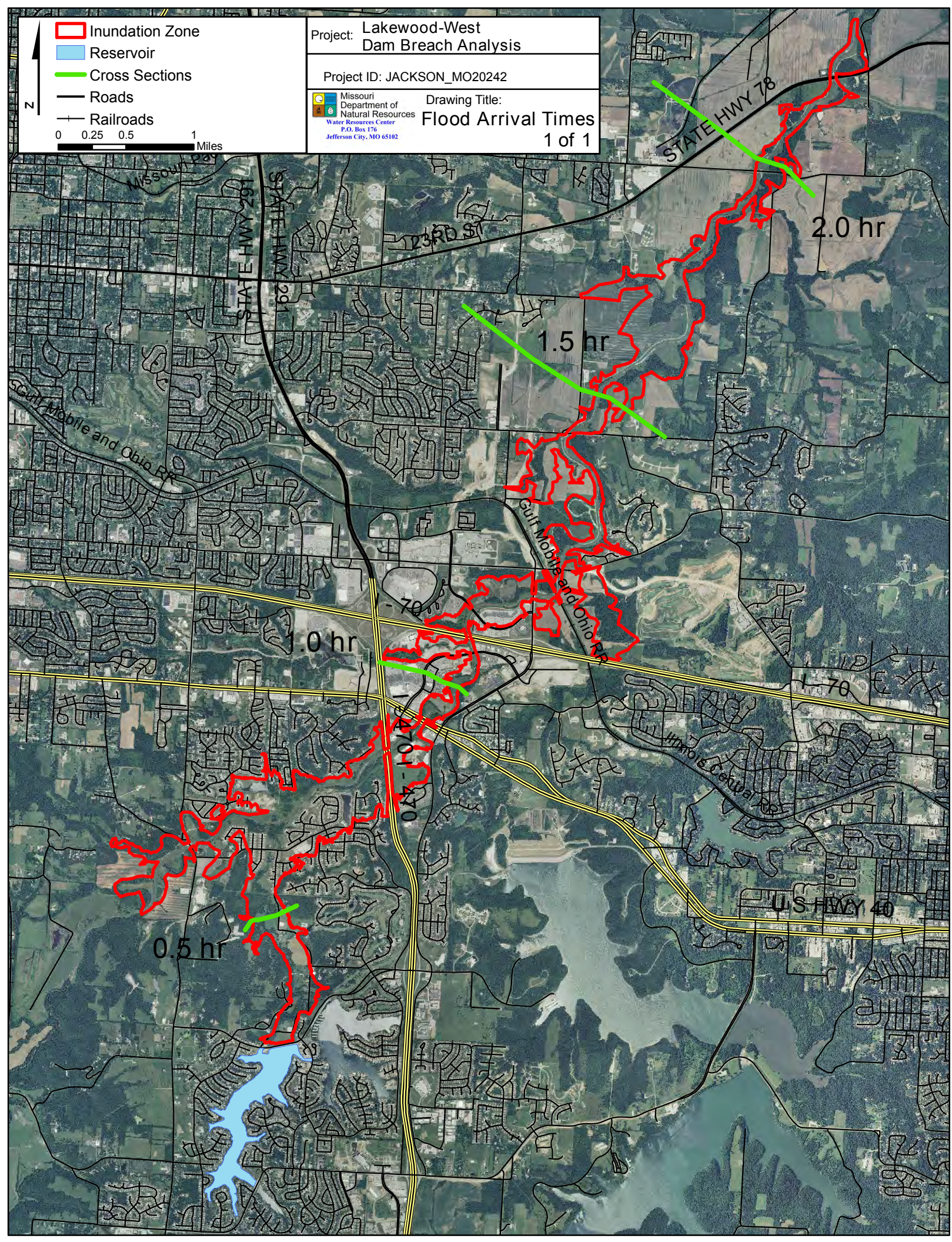
Date of Aerial Photo: August 8, 2009

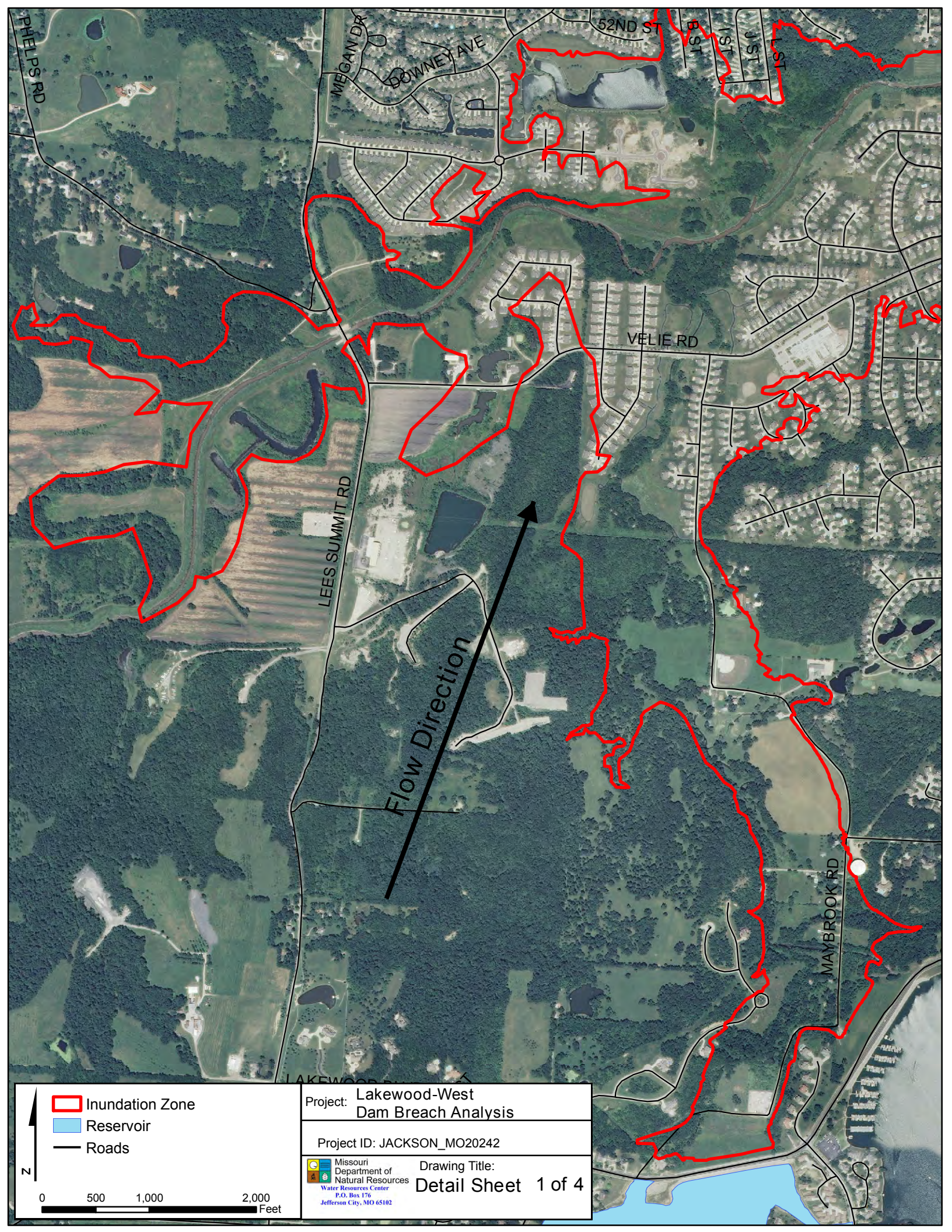
Project: Lakewood-West Dam Breach Analysis

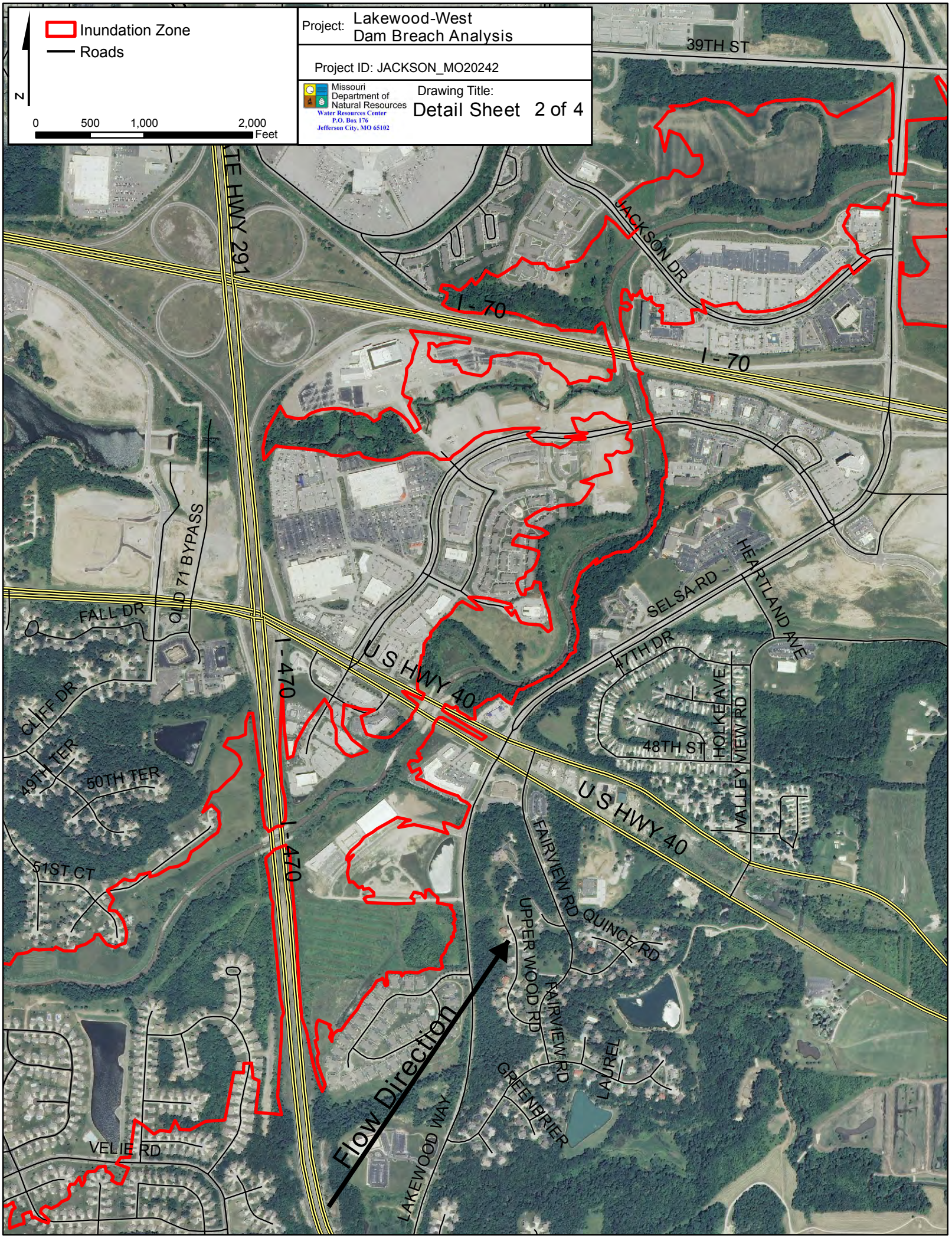
Drawing Title: Explanation Sheet 1 of 1

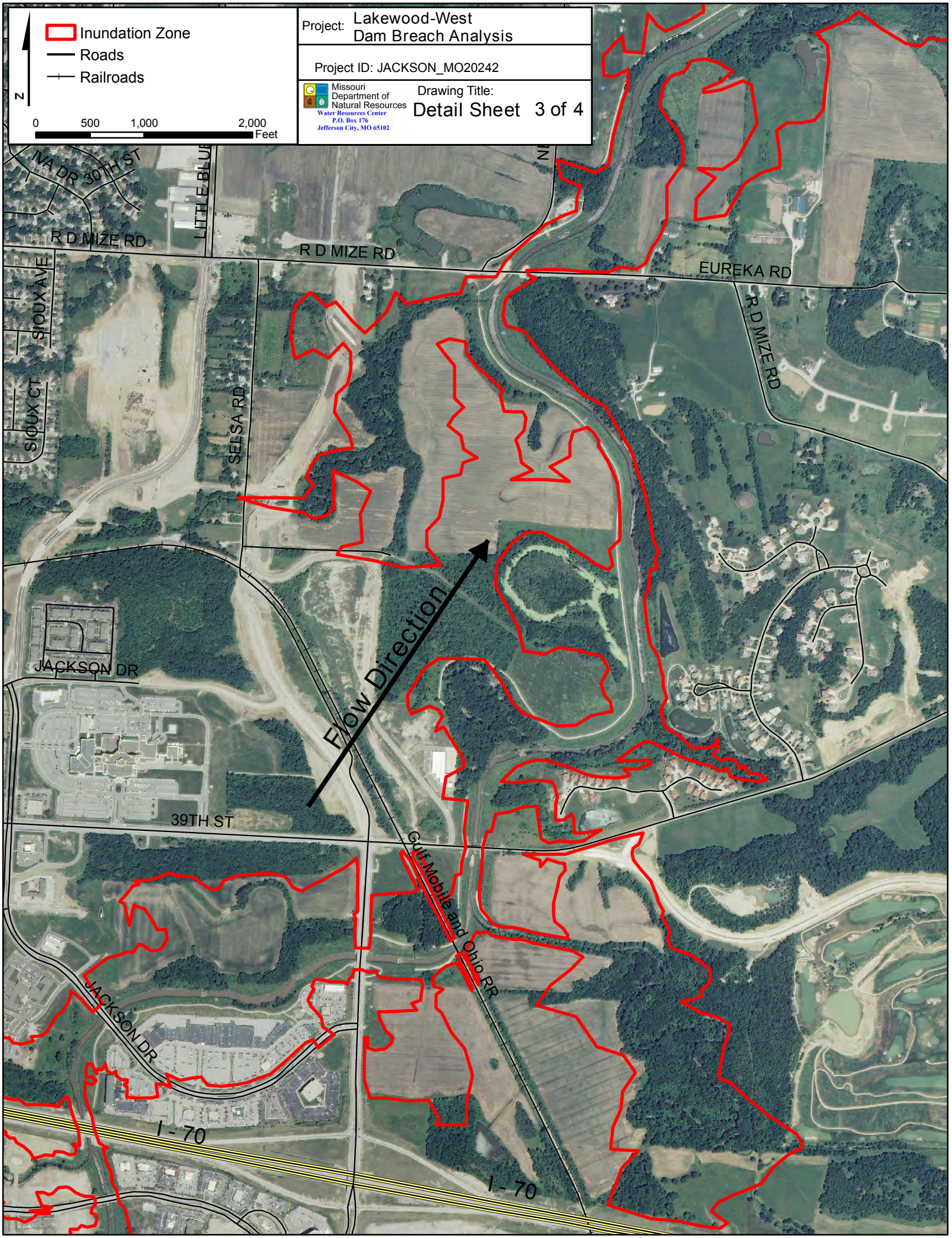
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

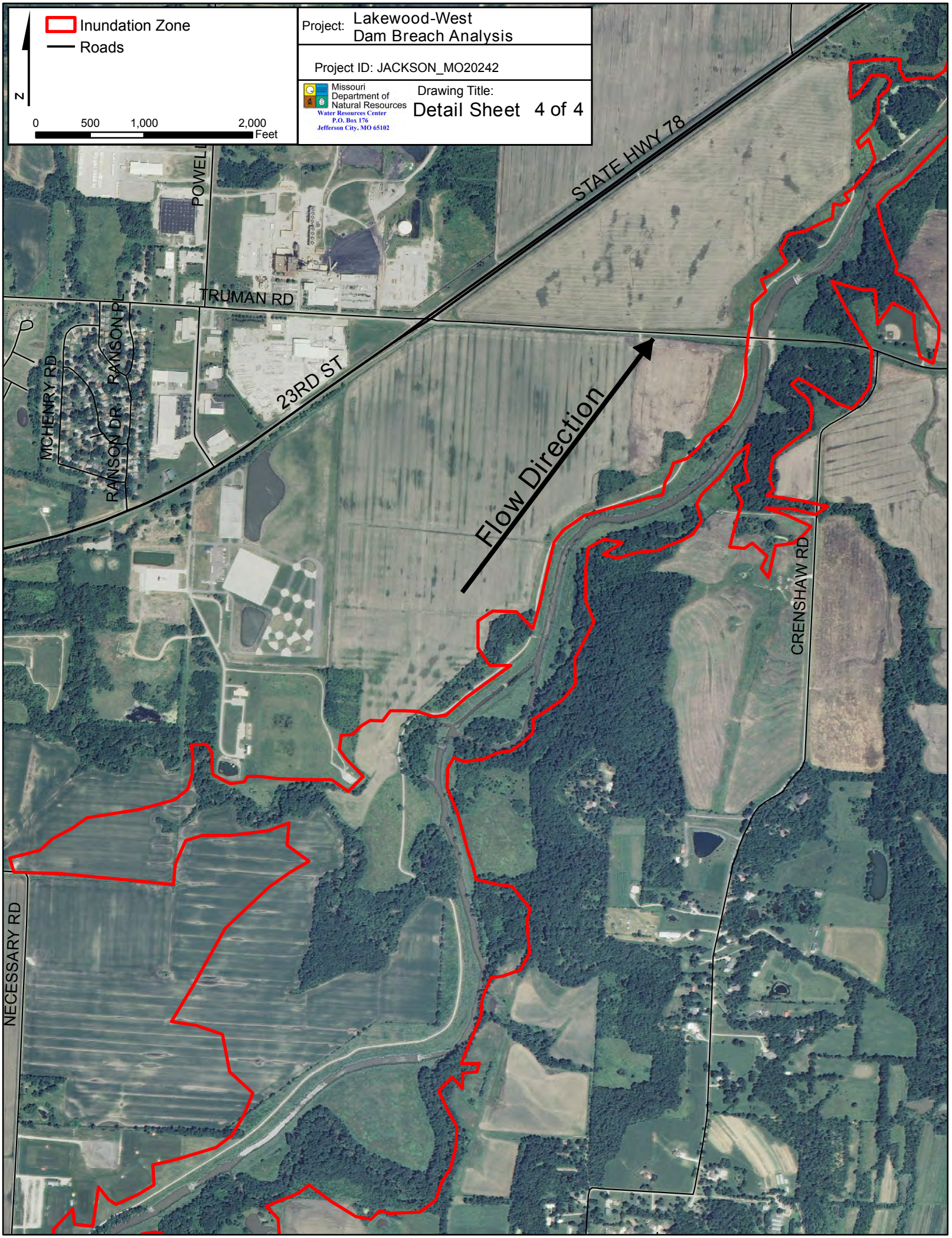
Project ID: JACKSON_MO20242

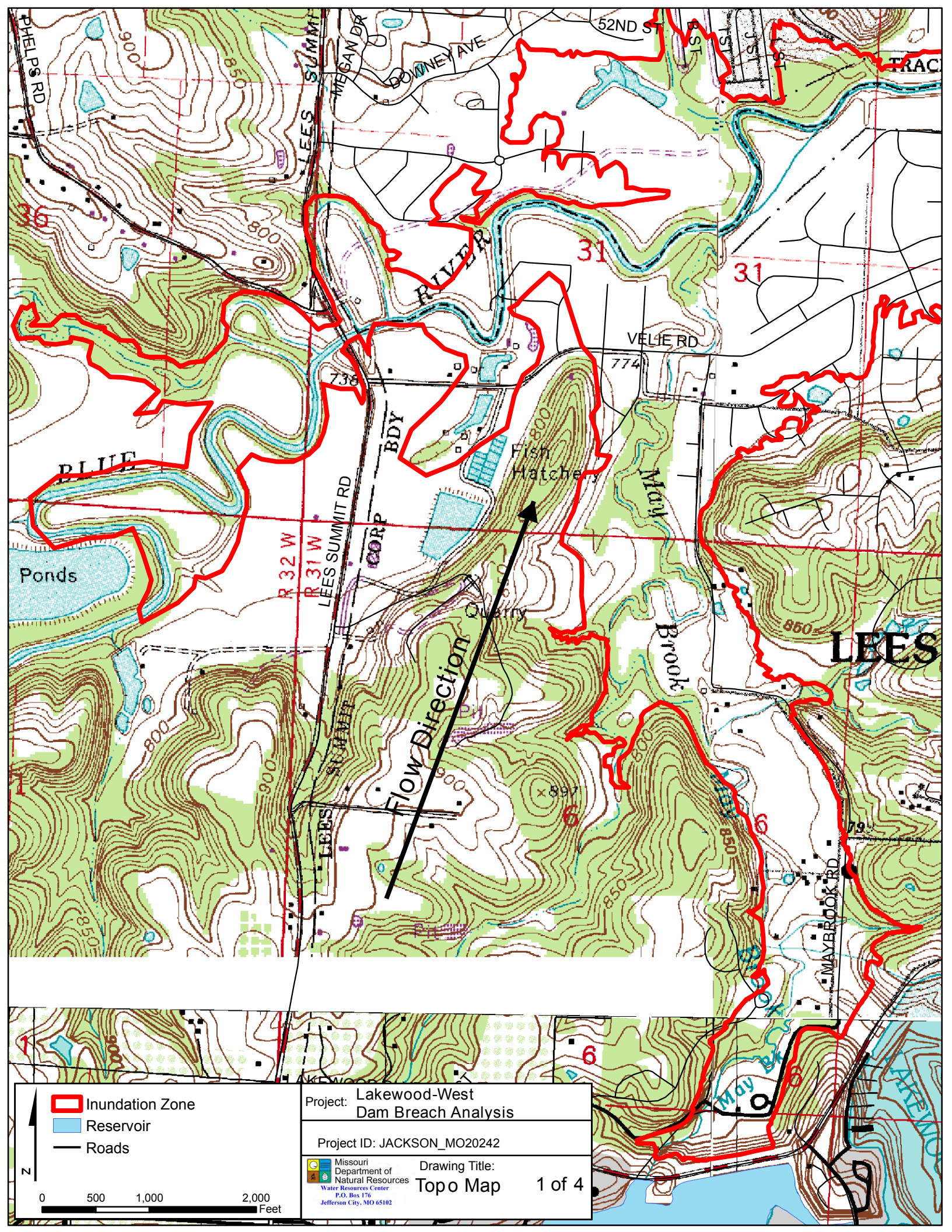

Inundation Zone
Reservoir
Cross Sections
Roads
Railroads
N
0 0.25 0.5 1
Miles
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
STATE HWY 78
2.0 hr
1.5 hr
1.0 hr
0.5 hr
Missouri 291
STATE HWY 291
23RD ST
Gulf Mobile and Ohio RR
I-70
I-470
Illinois Central RR
U.S. HWY 40


PHELPS RD
MEGAN DR
DOWNEY AVE
52ND ST
VELIE RD
LEES SUMMIT RD
Flow Direction
MAYBROOK RD
Inundation Zone
Reservoir
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet
1 of 4


Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 4
39TH ST
TE HWY 291
JACKSON DR
I - 70
I - 70
OLD 71 BYPASS
FALL DR
SELSA RD
HEARTLAND AVE
47TH DR
HOLKE AVE
VIEW RD
48TH ST
VALLEY
I - 470
U S HWY 40
U S HWY 40
CLIFF DR
49TH TER
50TH TER
51ST CT
I - 470
FAIRVIEW RD
QUINCY RD
UPPER WOOD RD
FAIRVIEW RD
LAUREL
GREENBRIER
LAKEWOOD WAY
Flow Direction
VELIE RD


Inundation Zone
Roads
Railroads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 4
NA DR 30TH ST
R D MIZE RD
LITTLE BLUE
R D MIZE RD
EUREKA RD
R D MIZE RD
SIOUX AVE
SIOUX CT
SELSA RD
JACKSON DR
Flow Direction
39TH ST
Gulf Mobile and Ohio RR
JACKSON DR
I - 70
I - 70


Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 4 of 4
STATE HWY 78
POWELL
TRUMAN RD
RANSON PL
MCHENRY RD
RANSON DR
23RD ST
Flow Direction
CRENSHAW RD
NECESSARY RD



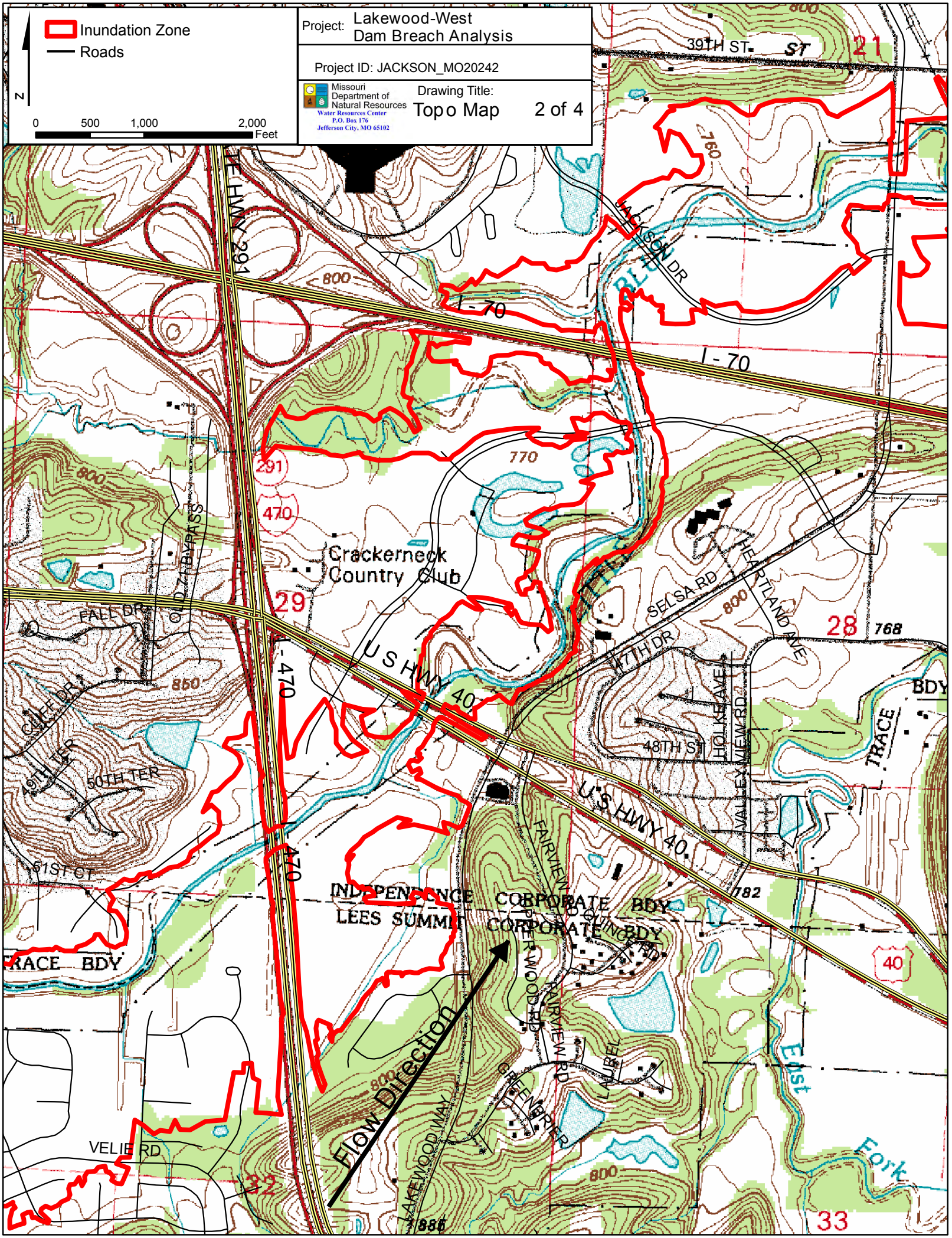
Project: Lakewood-West Dam Breach Analysis

Project ID: JACKSON_MO20242

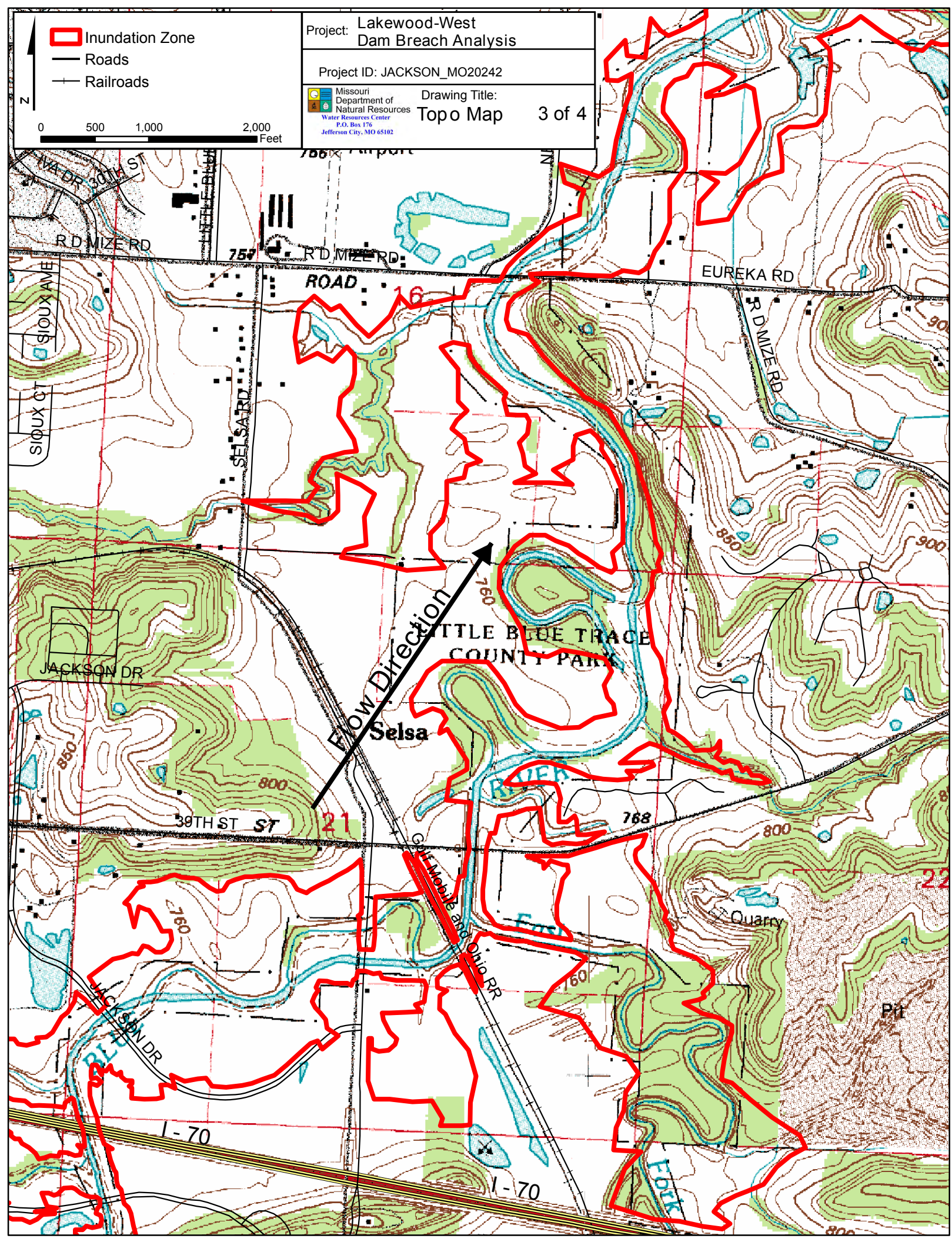
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

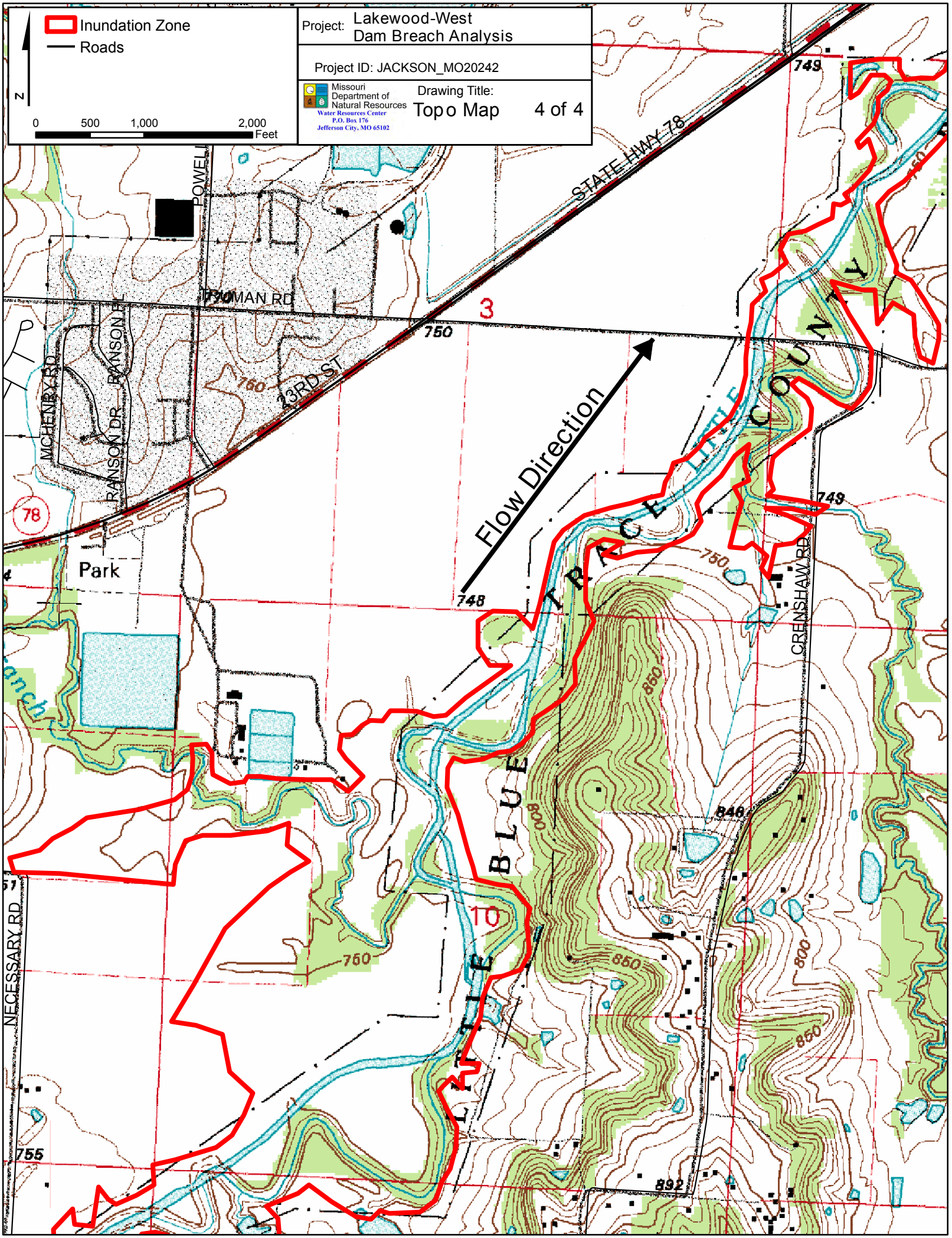
Drawing Title: Topo Map

1 of 4



Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 4
39TH ST
ST
21
760
JACKSON DR
I - 70
I - 70
800
770
291
470
Crackerneck Country Club
29
FALL DR
OLD 71 BYPASS
850
I - 470
U S HWY 40
SELSA RD
HEARTLAND AVE
28
768
47TH DR
HOLKE AVE
VALLEY VIEW RD
48TH ST
TRACE
BDY
CLIFF DR
49TH TER
50TH TER
51ST CT
U S HWY 40
FAIRVIEW RD
782
INDEPENDENCE CORPORATE BDY
LEES SUMMIT CORPORATE BDY
TRACE BDY
40
Flow Direction
LAKEWOOD WAY
GREENBRIER
LAUREL
East Fork
VELIE RD
32
33


Inundation Zone
Roads
Railroads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
3 of 4
IVA DR
30TH ST
R D MIZE RD
LITTLE BLUE
R D MIZE RD
ROAD 16
EUREKA RD
R D MIZE RD
SIOUX AVE
SIOUX CT
SELSA RD
JACKSON DR
Flow Direction
TTLE BLUE TRACE
COUNTY PARK
Selsa
39TH ST
ST 21
RIVER
Gulf Mobile and Ohio RR
Quarry
Pit
JACKSON DR
I - 70
I - 70
FORK
850
800
760
768
900


Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lakewood-West Dam Breach Analysis
Project ID: JACKSON_MO20242
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
4 of 4
STATE HWY 78
TRUMAN RD
23RD ST
MCHENRY RD
RANSON DR
RANSON PL
POWELL
Park
Flow Direction
LITTLE BLUE TRACE COUNTY
CRENSHAW RD
NECESSARY RD
749
750
748
748
755
892
850
800
3
10
78

11/17/09

Lone Jack Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20768

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20768

County: JACKSON

Location: S11, T47 N, R30 W

Height of Dam: 47'

Storage Capacity (Normal Pool): 400 ac-ft

Tributary: Unnamed trib. to Sni-a-bar Creek

Lake Area: 32 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 39.6’

Bottom elevation: 893’

Breach formation time: 0.31 hr

Pool Elevation at Failure: 930.04’

Pool Volume at Failure: 568 ac-ft

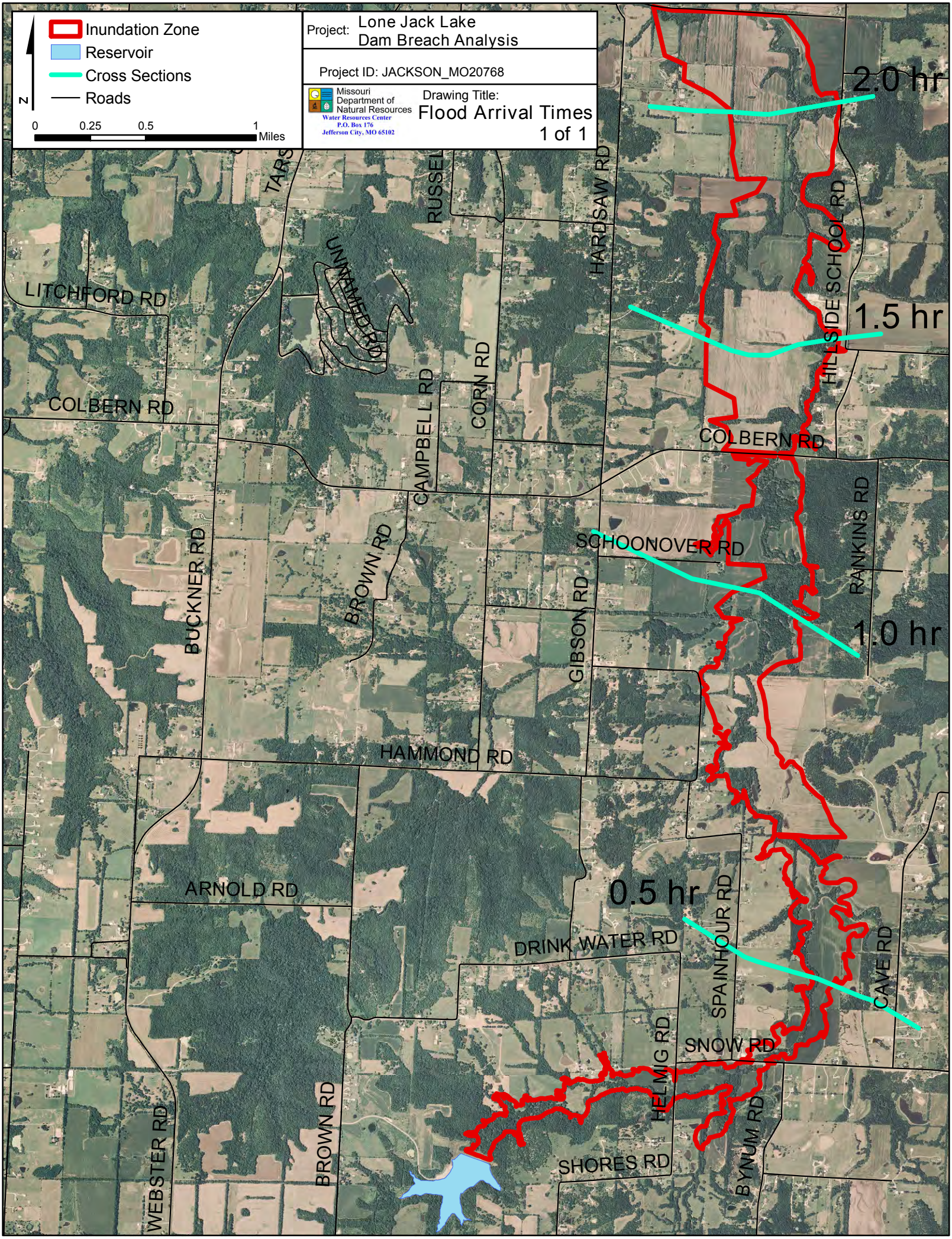
Date of Aerial Photo: August 22, 2007

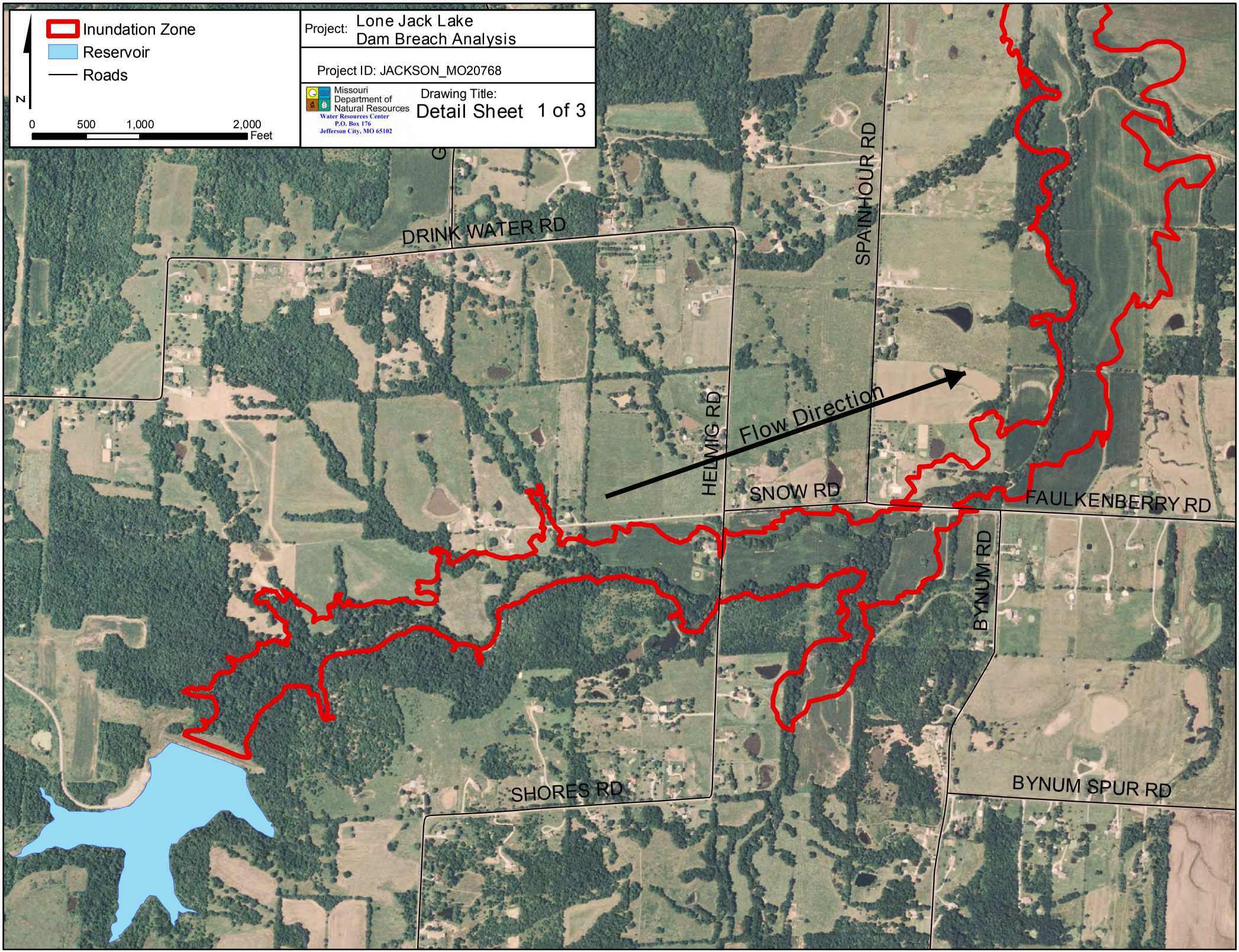
Project: Lone Jack Lake Dam Breach Analysis

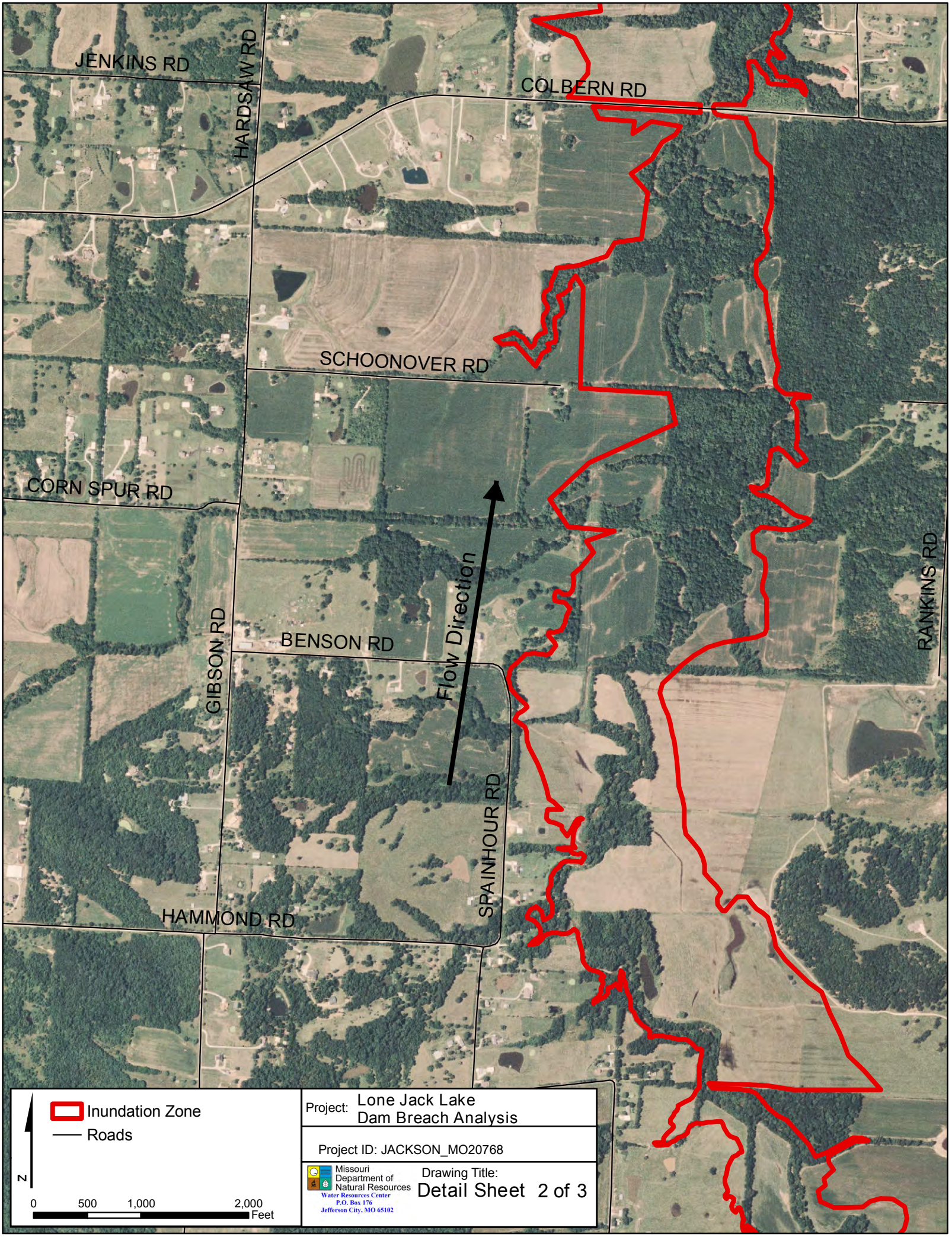
Drawing Title: Explanation Sheet 1 of 1

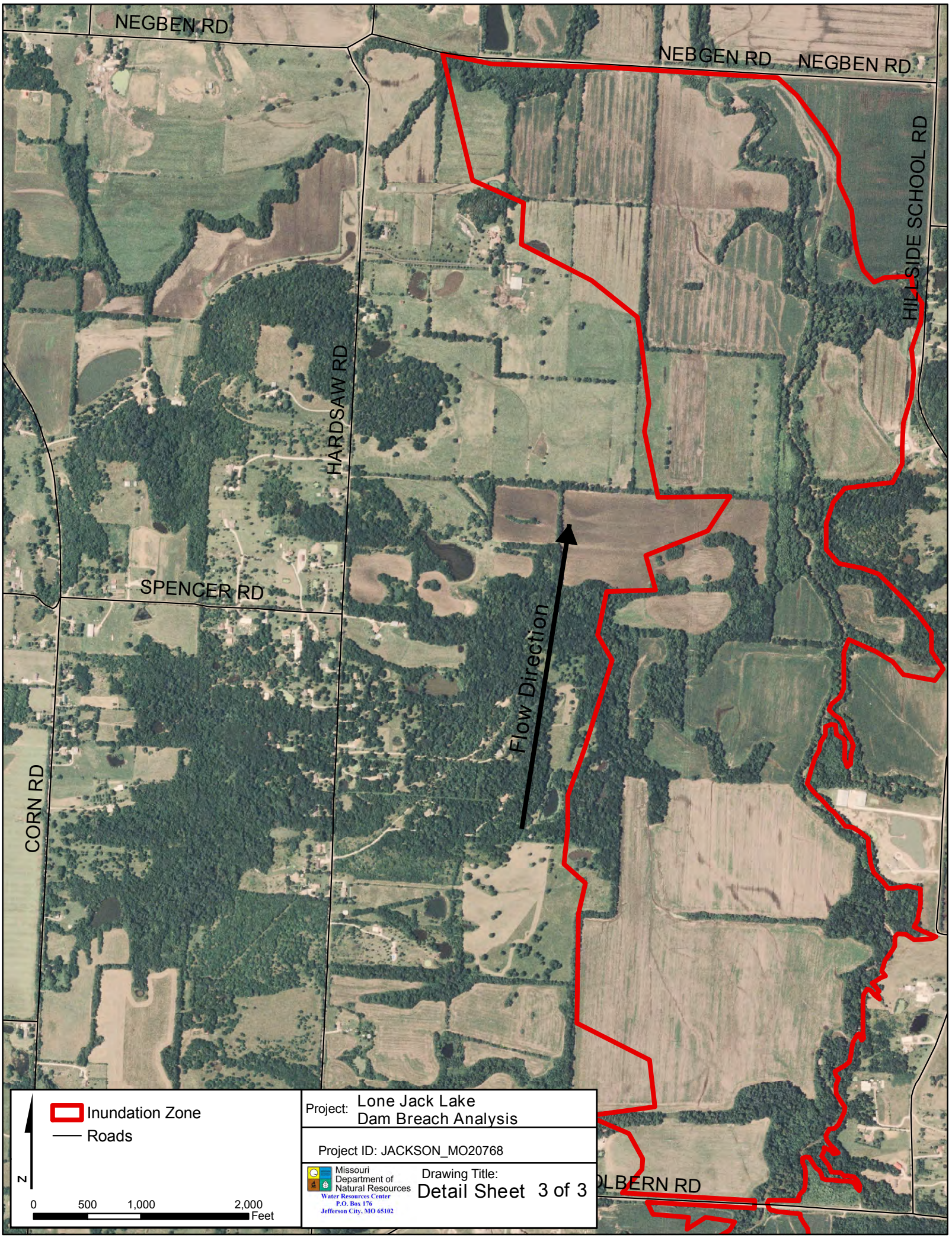
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

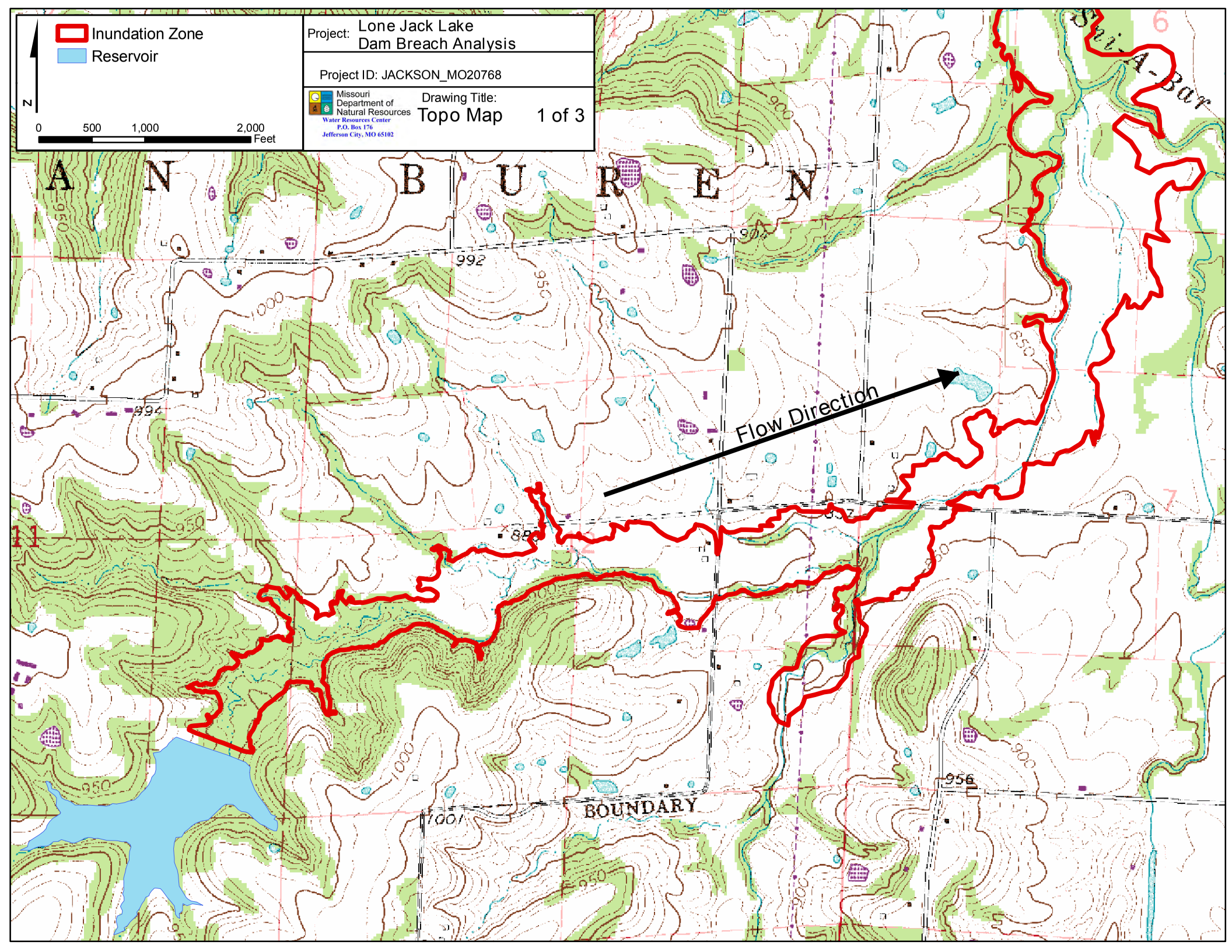
Project ID: JACKSON_MO20768

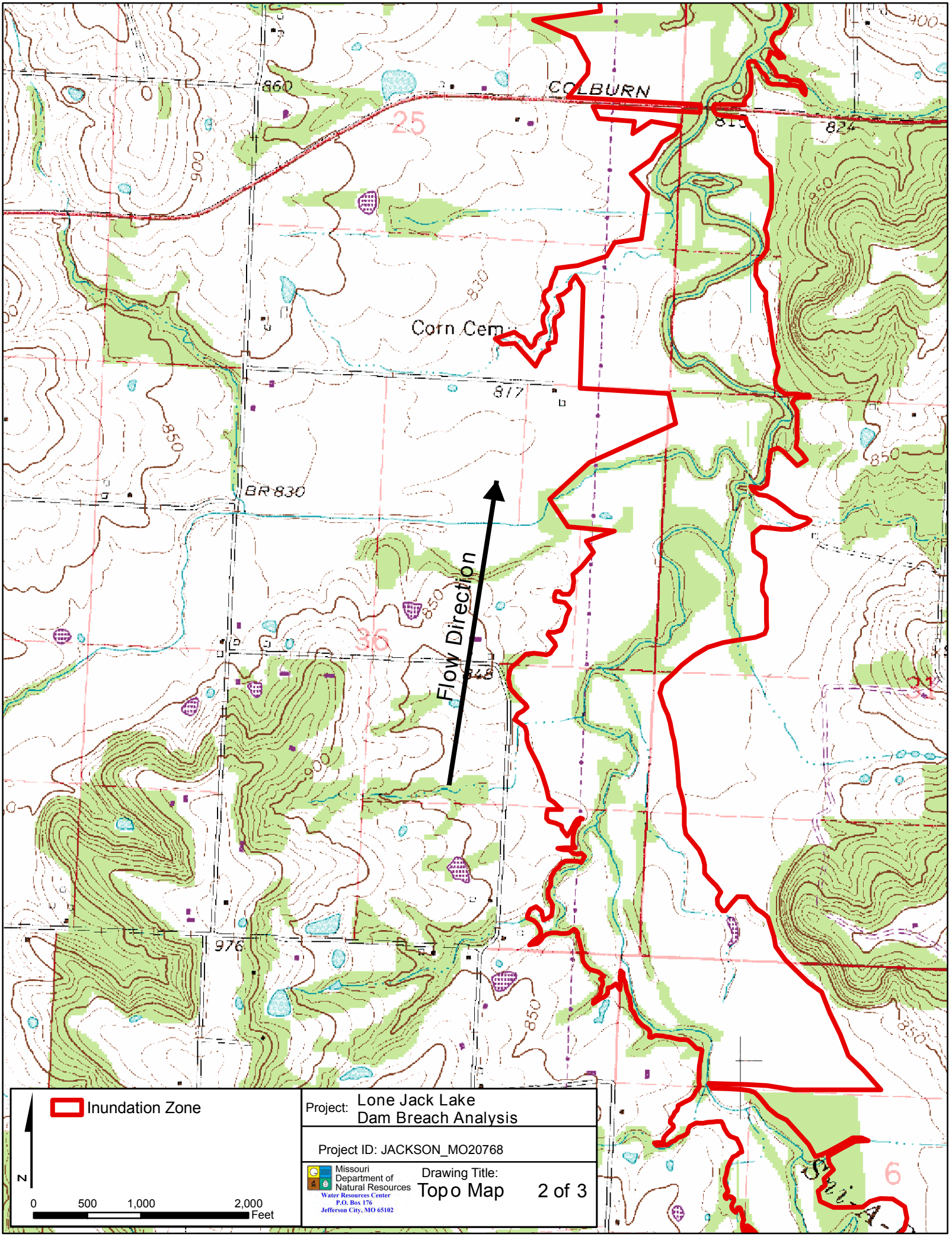

Inundation Zone
Reservoir
Cross Sections
Roads
N
0 0.25 0.5 1 Miles
Project: Lone Jack Lake Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Flood Arrival Times
1 of 1
2.0 hr
1.5 hr
1.0 hr
0.5 hr
LITCHFORD RD
COLBERN RD
TARS
RUSSEL
UNNAMED RD
HARDSAW RD
HILLSIDE SCHOOL RD
CAMPBELL RD
CORN RD
COLBERN RD
BUCKNER RD
BROWN RD
SCHOONOVER RD
RANKINS RD
GIBSON RD
HAMMOND RD
ARNOLD RD
DRINK WATER RD
SPAINHOUR RD
CAVE RD
SNOW RD
HELMIG RD
BROWN RD
WEBSTER RD
SHORES RD
BYNUM RD

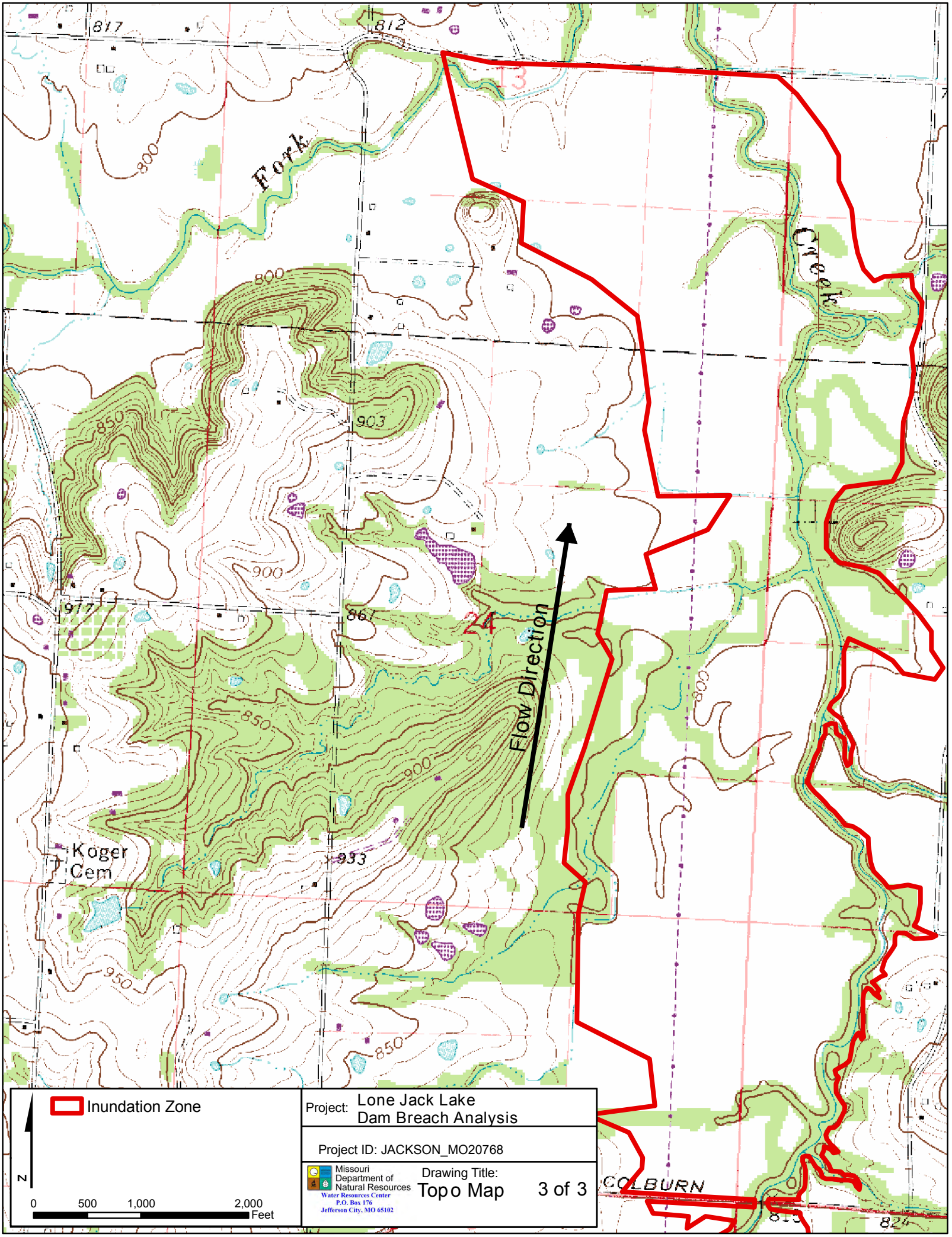

Inundation Zone
Reservoir
Roads
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 3
DRINK WATER RD
SPAINHOUR RD
HELMIG RD
Flow Direction
SNOW RD
FAULKENBERRY RD
BYNUM RD
SHORES RD
BYNUM SPUR RD


JENKINS RD
HARDSAW RD
COLBERN RD
SCHOONOVER RD
CORN SPUR RD
GIBSON RD
BENSON RD
Flow Direction
SPAINHOUR RD
RANKINS RD
HAMMOND RD
Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 3


NEGBEN RD
NEBGEN RD
NEGBEN RD
HILLSIDE SCHOOL RD
HARDSAW RD
SPENCER RD
CORN RD
Flow Direction
Inundation Zone
Roads
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 3


Inundation Zone
Reservoir
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 3
A N B U R E N
Flow Direction
BOUNDARY


COLBURN
Corn Cem
BR 830
Flow Direction
Inundation Zone
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 3


817
812
Fork
Creek
800
850
903
900
917
861
24
Flow Direction
Koger
Cem
933
950
850
COLBURN
Inundation Zone
N
0
500
1,000
2,000
Feet
Project: Lone Jack Lake
Dam Breach Analysis
Project ID: JACKSON_MO20768
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
3 of 3

11/20/09

Prairie Lee Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO10044

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_10044

County: JACKSON

Location: S34, T48 N, R31 W

Height of Dam: 69'

Storage Capacity (Normal Pool): 2600 ac-ft

Tributary: East Fork Little Blue River

Lake Area: 143 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Pool Elevation at Failure: 894.07’

Pool Volume at Failure: 5540 ac-ft

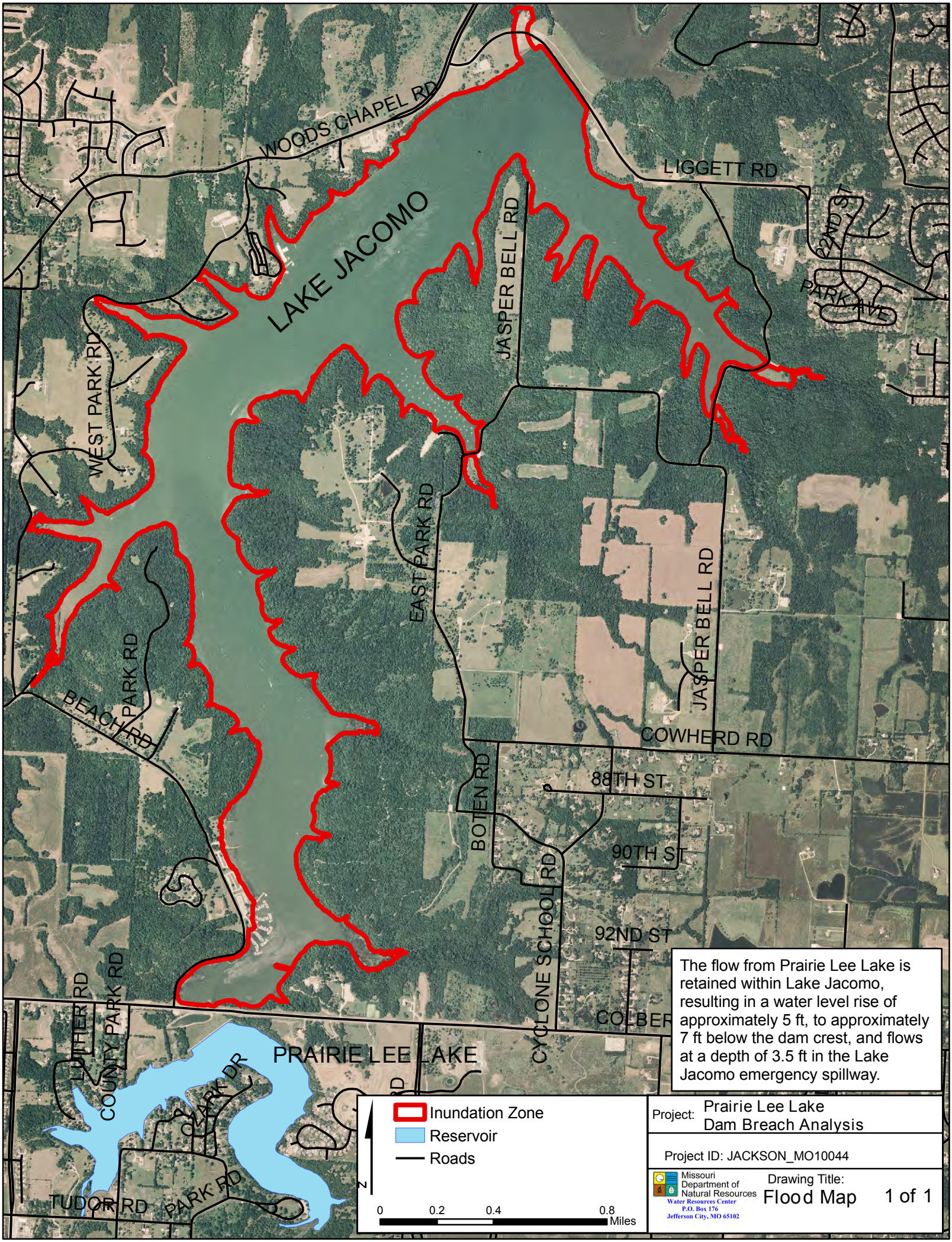
Date of Aerial Photo: August 22, 2007

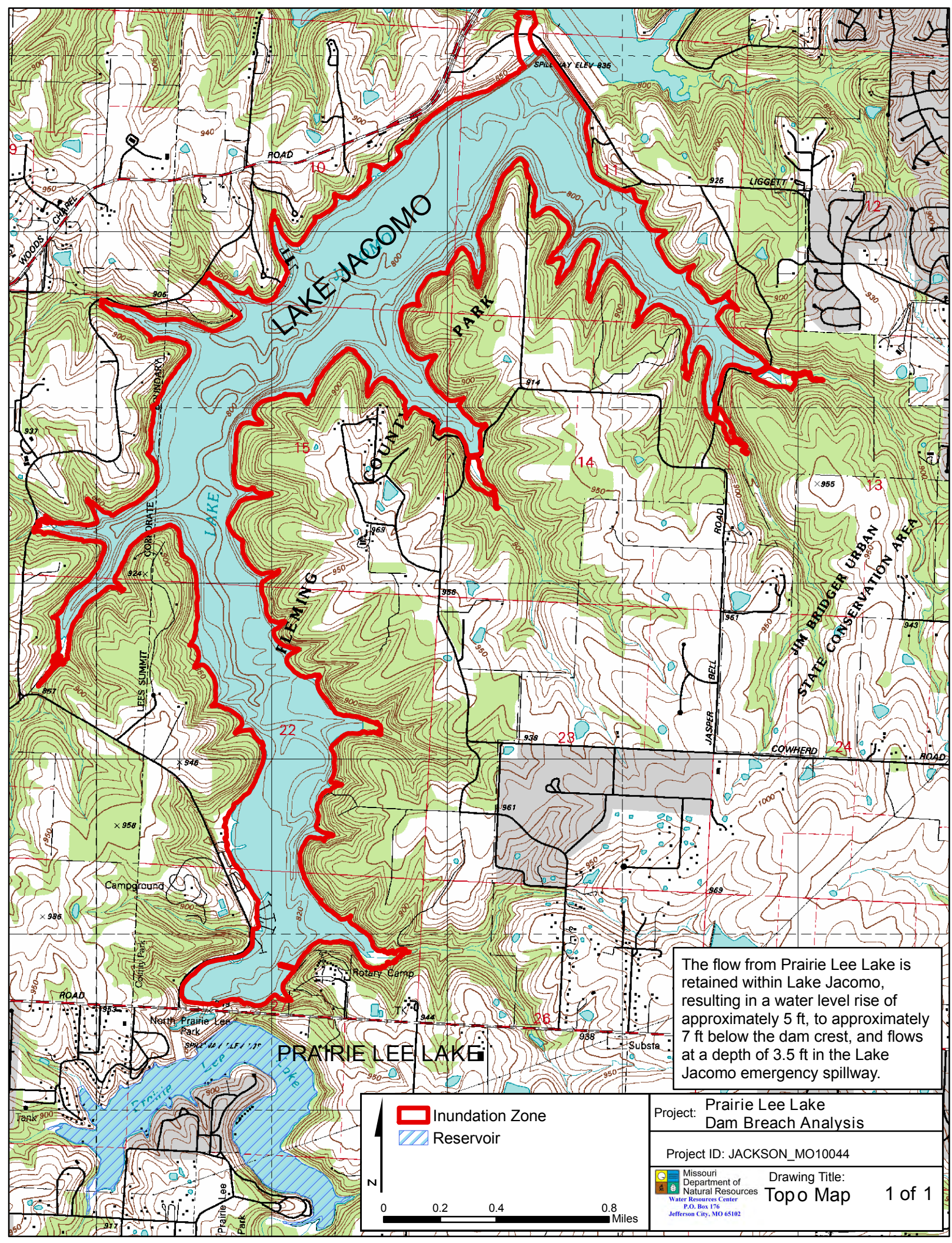
Project: Prairie Lee Lake Dam Breach Analysis

Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Project ID: JACKSON_MO10044


WOODS CHAPEL RD
LIGGETT RD
LAKE JACOMO
JASPER BELL RD
62ND ST
PARK AVE
WEST PARK RD
EAST PARK RD
BEACH PARK RD
JASPER BELL RD
COWHERD RD
88TH ST
BOTEN RD
90TH ST
CYCLONE SCHOOL RD
92ND ST
COLBER
LUTHER RD
COUNTY PARK RD
PRAIRIE LEE LAKE
CLARK DR
TUDOR RD
PARK RD
The flow from Prairie Lee Lake is retained within Lake Jacomo, resulting in a water level rise of approximately 5 ft, to approximately 7 ft below the dam crest, and flows at a depth of 3.5 ft in the Lake Jacomo emergency spillway.
Inundation Zone
Reservoir
Roads
N
0
0.2
0.4
0.8
Miles
Project: Prairie Lee Lake Dam Breach Analysis
Project ID: JACKSON_MO10044
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Flood Map
1 of 1



The flow from Prairie Lee Lake is retained within Lake Jacomo, resulting in a water level rise of approximately 5 ft, to approximately 7 ft below the dam crest, and flows at a depth of 3.5 ft in the Lake Jacomo emergency spillway.

Project: Prairie Lee Lake Dam Breach Analysis

Project ID: JACKSON_MO10044

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Drawing Title: Topo Map

11/16/09

Rosenfelt Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO40116

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_40116

County: JACKSON

Location: S28, T47 N, R33 W

Height of Dam: 57'

Storage Capacity (Normal Pool): 238 ac-ft

Tributary: Unnamed Trib. to Blue River

Lake Area: 14.25 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 6.82’

Bottom elevation: 936’

Breach formation time: 0.17 hr

Pool Elevation at Failure: 988.76’

Pool Volume at Failure: 284 ac-ft

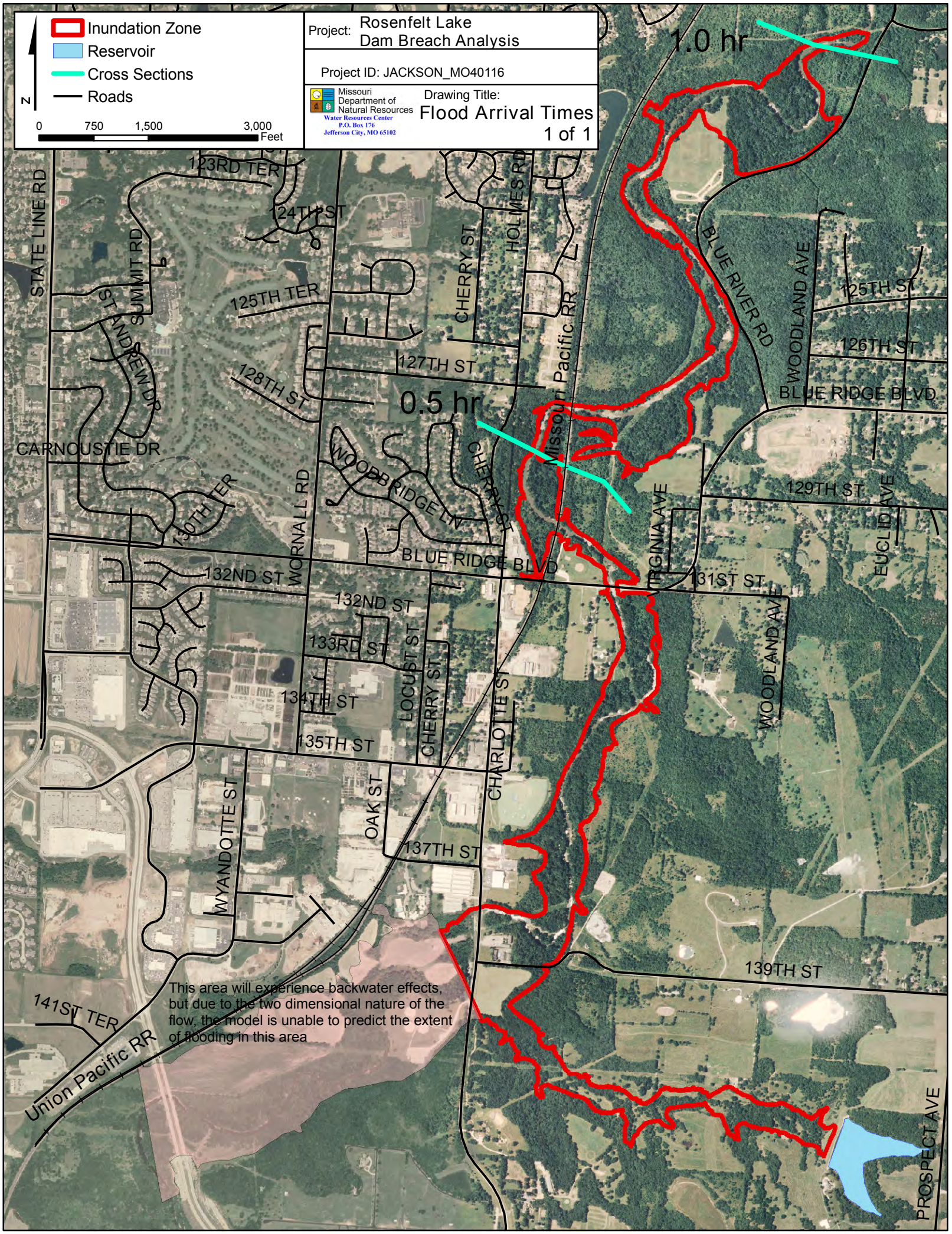
Date of Aerial Photo: August 22, 2007

Project: Rosenfelt Lake Dam Breach Analysis

Drawing Title: Explanation Sheet 1 of 1

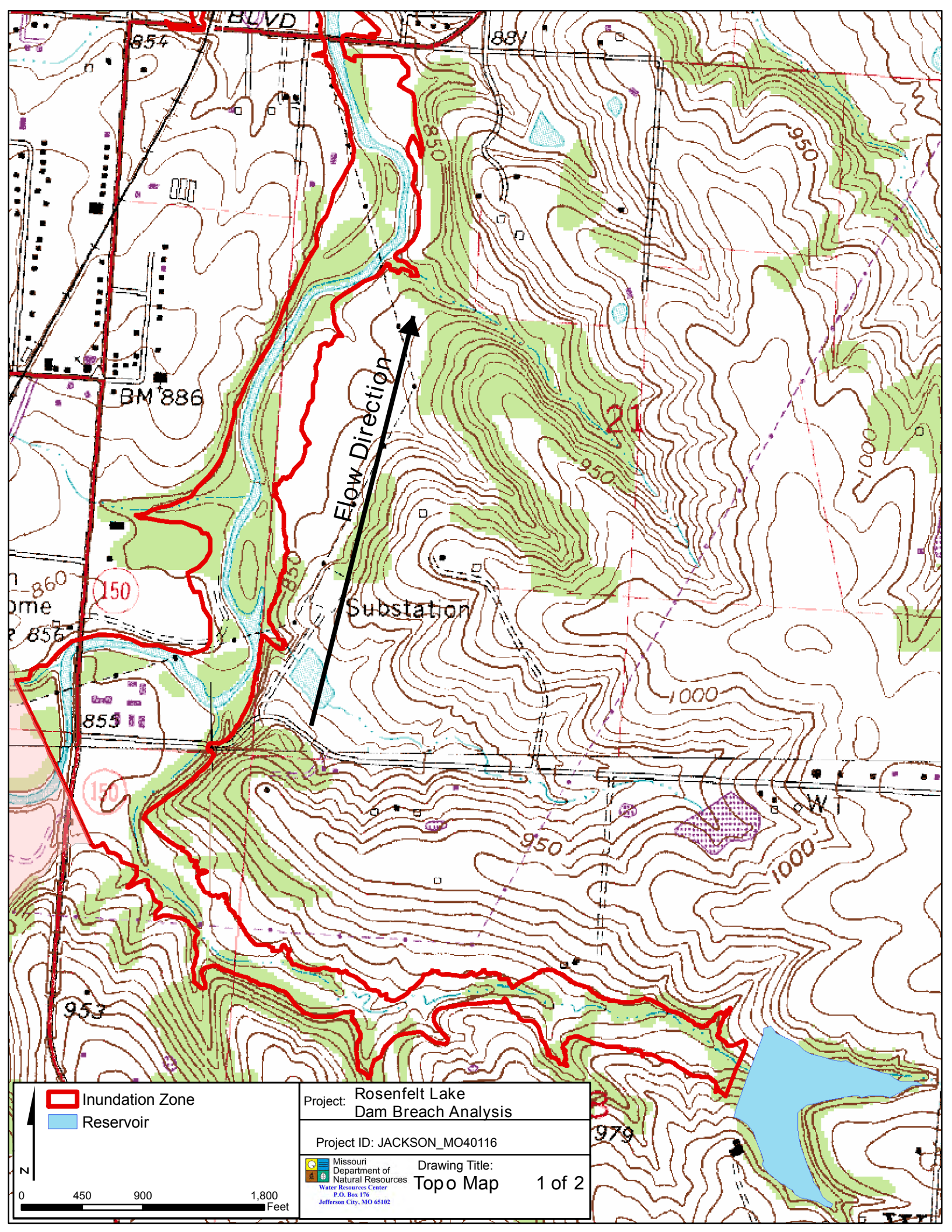
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

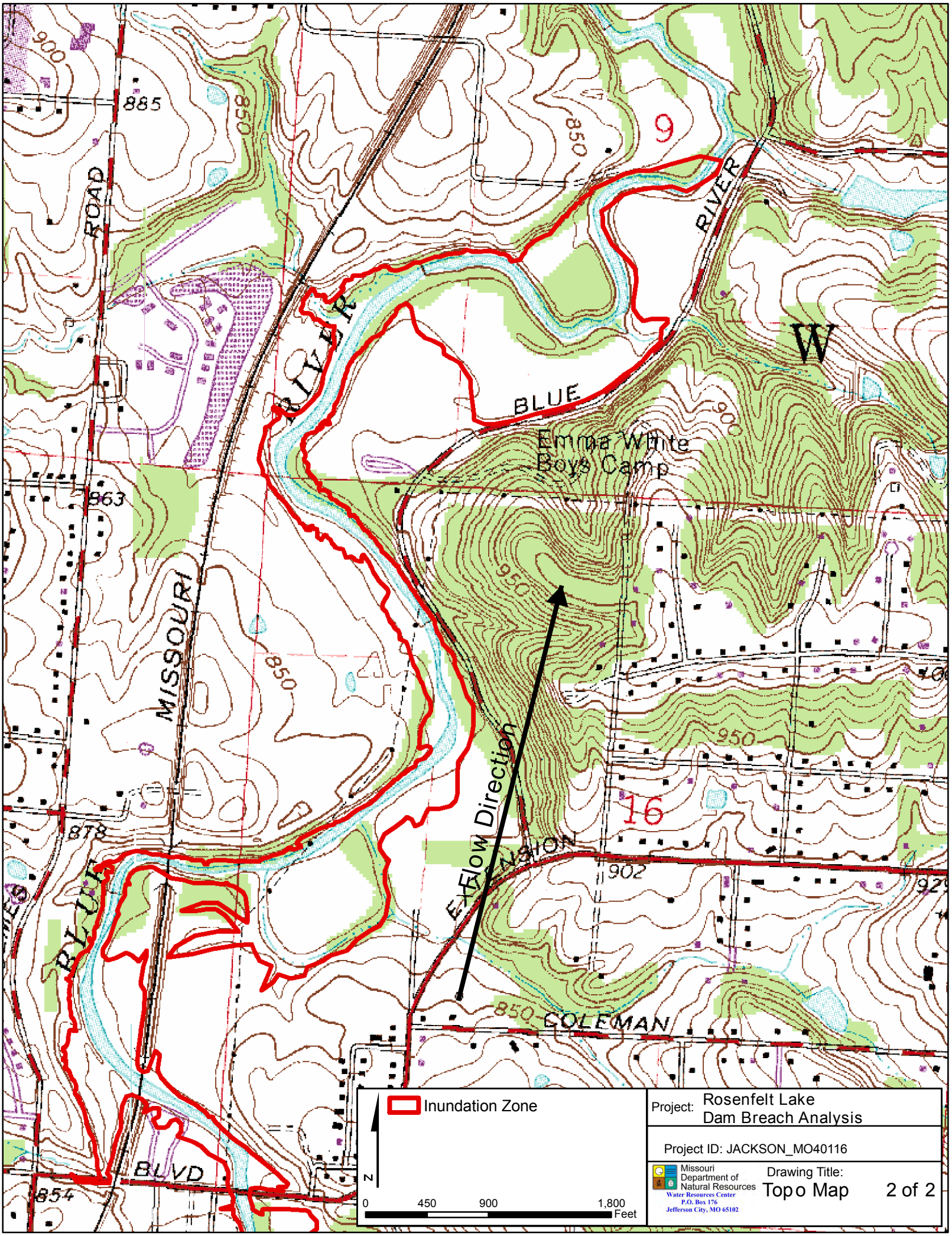
Project ID: JACKSON_MO40116


Inundation Zone
Reservoir
Cross Sections
Roads
N
0 750 1,500 3,000 Feet
Project: Rosenfelt Lake Dam Breach Analysis
Project ID: JACKSON_MO40116
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
1.0 hr
0.5 hr
STATE LINE RD
SUMMIT RD
ST ANDREWS DR
CARNOUSTIE DR
123RD TER
124TH ST
125TH TER
127TH ST
128TH ST
130TH TER
WORNALL RD
WOODBRIDGE LN
CHERRY ST
HOLMES RD
Missouri Pacific RR
BLUE RIVER RD
WOODLAND AVE
125TH ST
126TH ST
BLUE RIDGE BLVD
129TH ST
EUCLID AVE
VIRGINIA AVE
131ST ST
132ND ST
133RD ST
134TH ST
135TH ST
LOCUST ST
CHARLOTTE ST
OAK ST
MYANDOTTE ST
137TH ST
139TH ST
141ST TER
Union Pacific RR
PROSPECT AVE
This area will experience backwater effects, but due to the two dimensional nature of the flow, the model is unable to predict the extent of flooding in this area


BLUE RIDGE BLVD
131ST ST
WOODLAND AVE
Missouri Pacific RR
HOLMES RD
CHARLOTTE ST
Flow Direction
137TH ST
139TH ST
Inundation Zone
Reservoir
Roads
N
0
450
900
1,800
Feet
Project: Rosenfelt Lake
Dam Breach Analysis
Project ID: JACKSON_MO40116
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 2


118TH TER
113TH ST
TROOST AVE
CHARLOTTE ST
120TH ST
HOLMES RD
CHARLOTTE ST
121ST TER
122ND TER
MICHIGAN AVE
125TH ST
OLIVE ST
WOODLAND AVE
126TH ST
127TH ST
Missouri Pacific RR
Flow Direction
BLUE RIDGE BLVD
GARFIELD ST
129TH ST
VIRGINIA AVE
BLUE RIDGE BLVD
Inundation Zone
Roads
N
0
450
900
1,800
Feet
Project: Rosenfelt Lake Dam Breach Analysis
Project ID: JACKSON_MO40116
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Detail Sheet 2 of 2


BLVD
854
881
850
950
BM 886
Flow Direction
21
950
1000
860
150
Substation
856
855
1000
150
950
1000
953
979
Inundation Zone
Reservoir
N
0
450
900
1,800
Feet
Project: Rosenfelt Lake
Dam Breach Analysis
Project ID: JACKSON_MO40116
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 2



Inundation Zone
N
0
450
900
1,800
Feet
Project: Rosenfelt Lake
Dam Breach Analysis
Project ID: JACKSON_MO40116
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 2
Flow Direction
Emma White Boys Camp
BLUE RIVER
MISSOURI RIVER
ROAD
EXTENSION
COLEMAN
BLVD
885
863
878
854
902
850
900
950
9
16
W

10/21/09

Unity #1 Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20039

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20039

County: JACKSON

Location: S25, T48 N, R32 W

Height of Dam: 48'

Storage Capacity (Normal Pool): 141 ac-ft

Tributary: Unnamed Trib. to Little Cedar Creek

Lake Area: 16.86 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 18.91’

Bottom elevation: 877’

Breach formation time: 0.21 hr

Pool Elevation at Failure: 917.90’

Pool Volume at Failure: 248 ac-ft

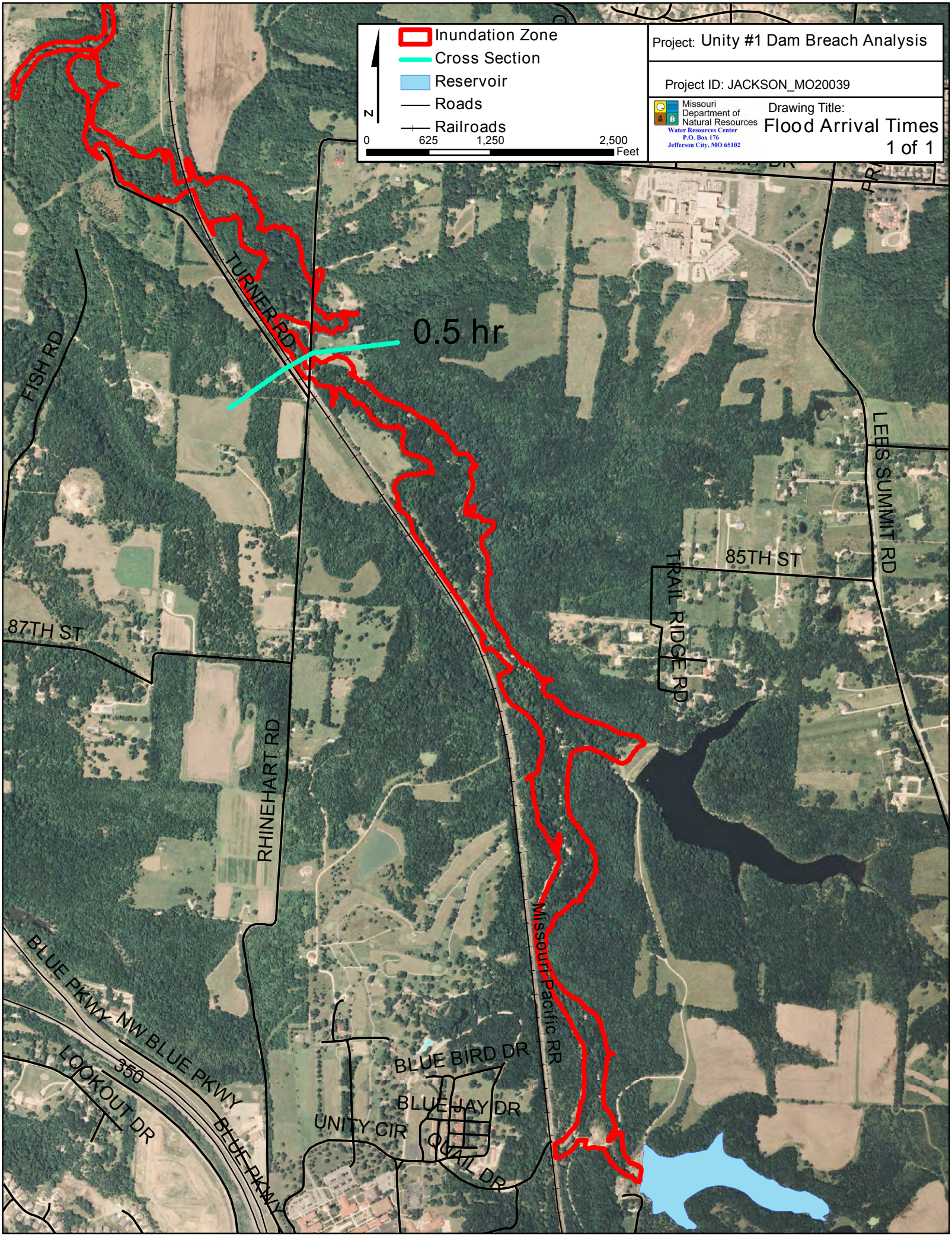
Date of Aerial Photo: August 22, 2007

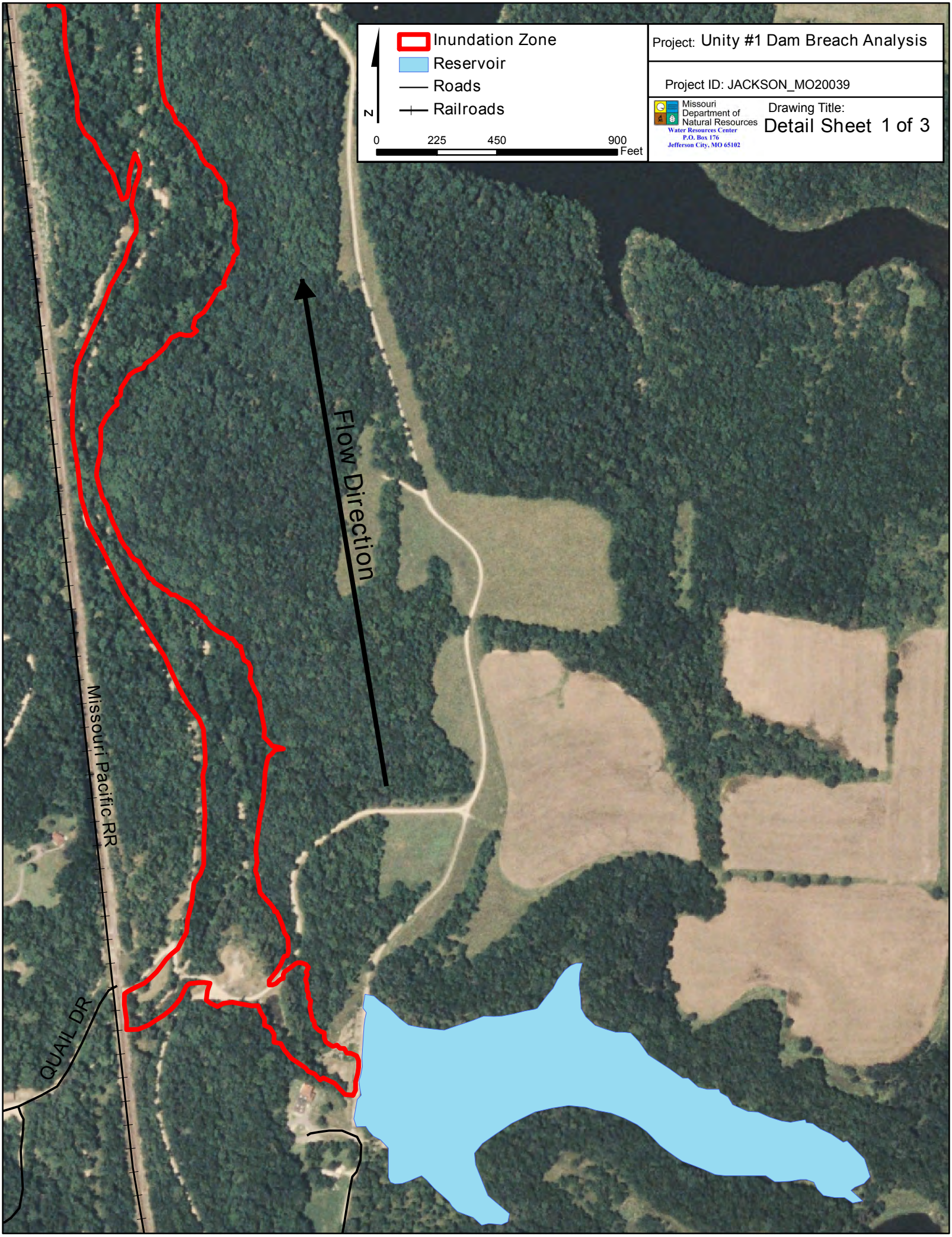
Project: Unity #1 Dam Breach Analysis

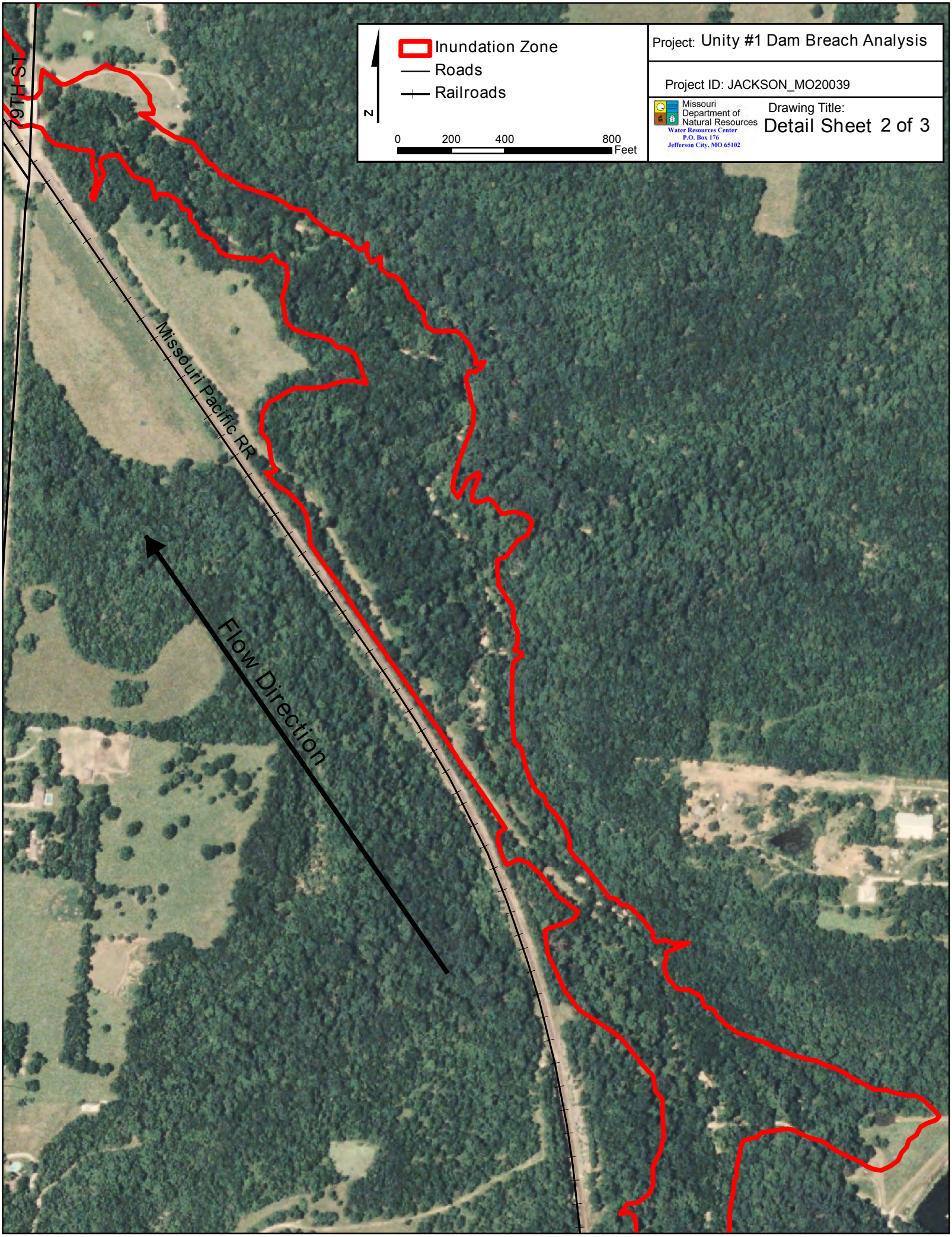
Drawing Title: Explanation Sheet 1 of 1

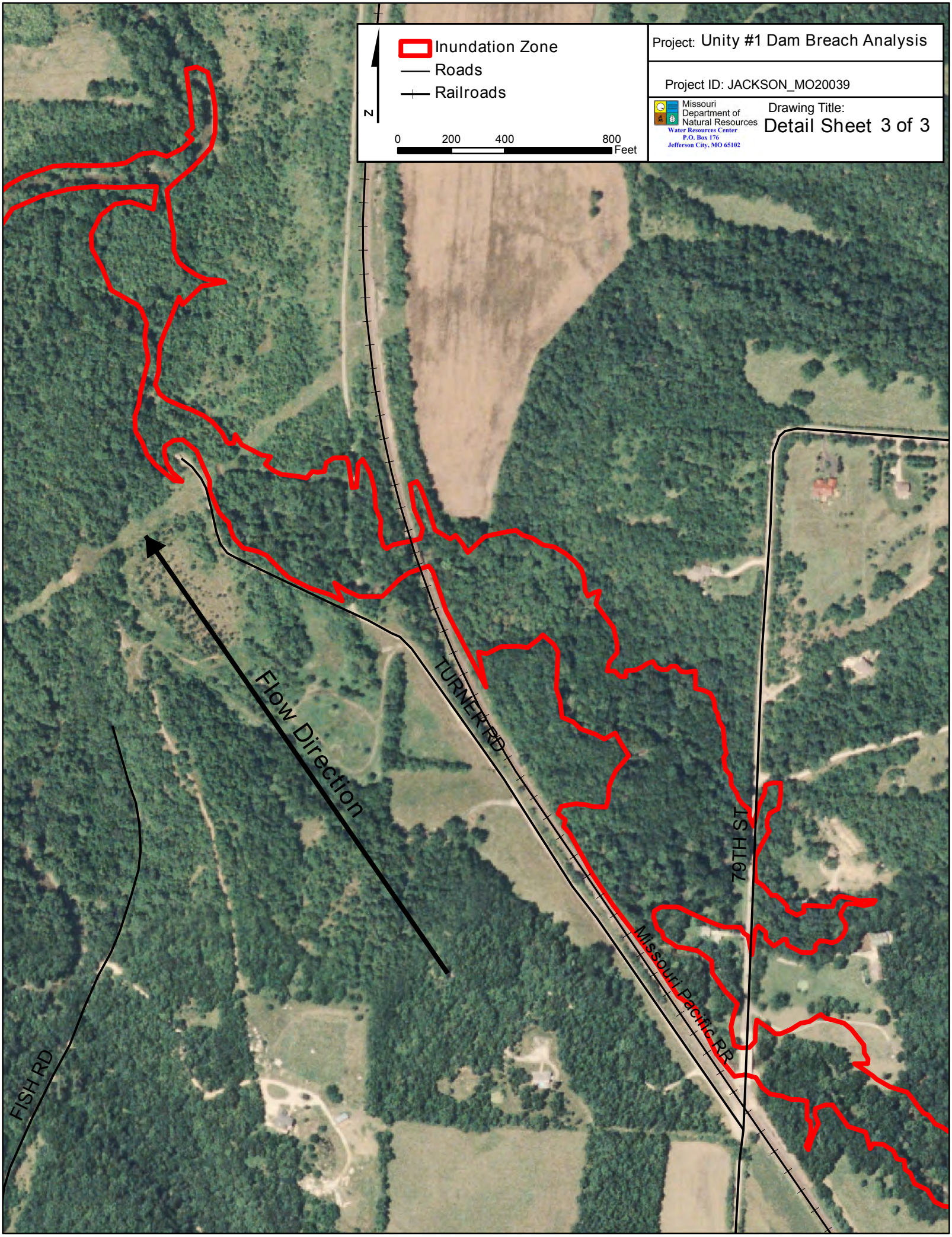
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

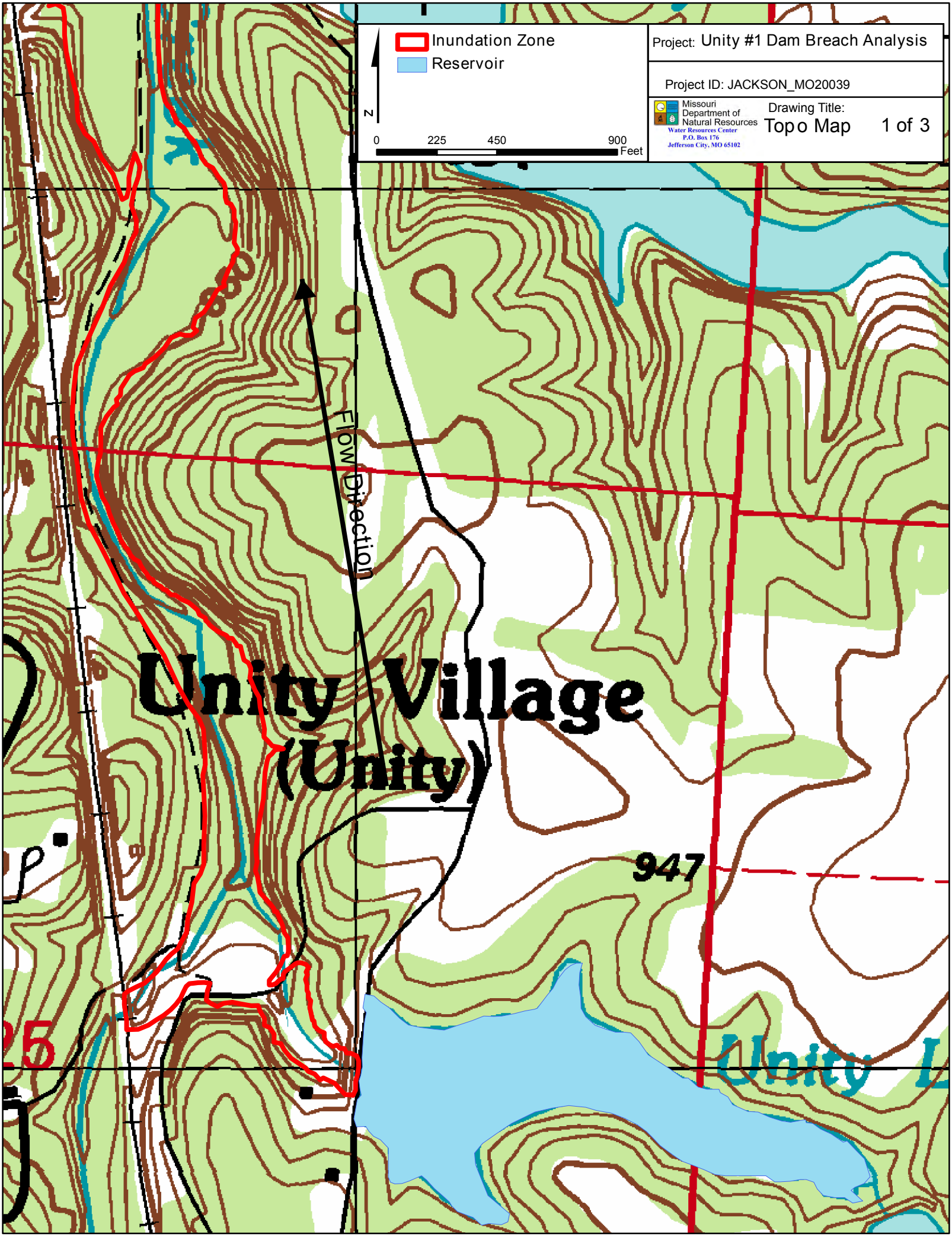
Project ID: JACKSON_MO20039

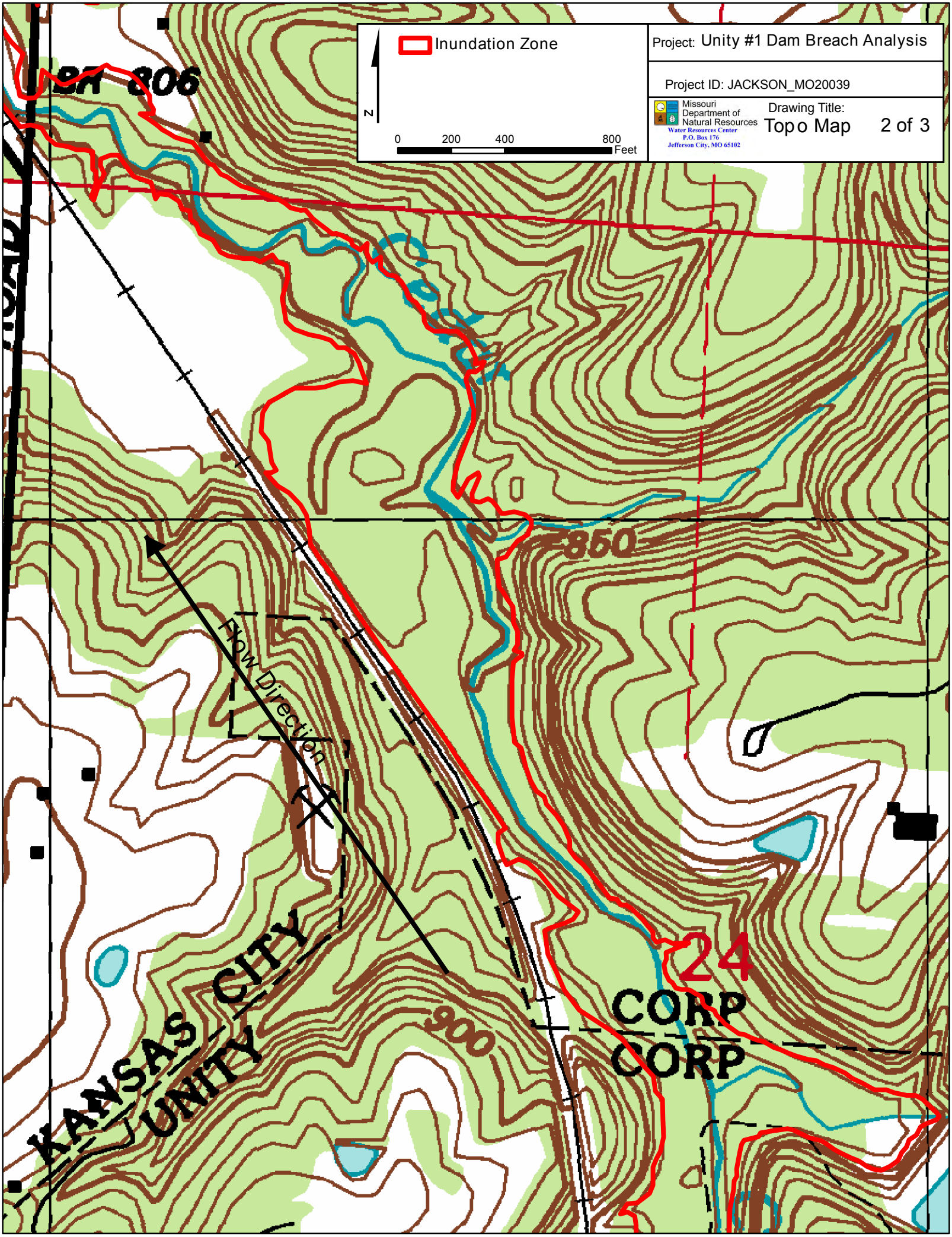

Inundation Zone
Cross Section
Reservoir
Roads
Railroads
N
0
625
1,250
2,500
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1
0.5 hr
TURNER RD
FISH RD
87TH ST
RHINEHART RD
85TH ST
TRAIL RIDGE RD
LEES SUMMIT RD
Missouri Pacific RR
BLUE PKWY
NW BLUE PKWY
350
LOOKOUT DR
BLUE BIRD DR
BLUE JAY DR
UNITY CIR
QUAIL DR

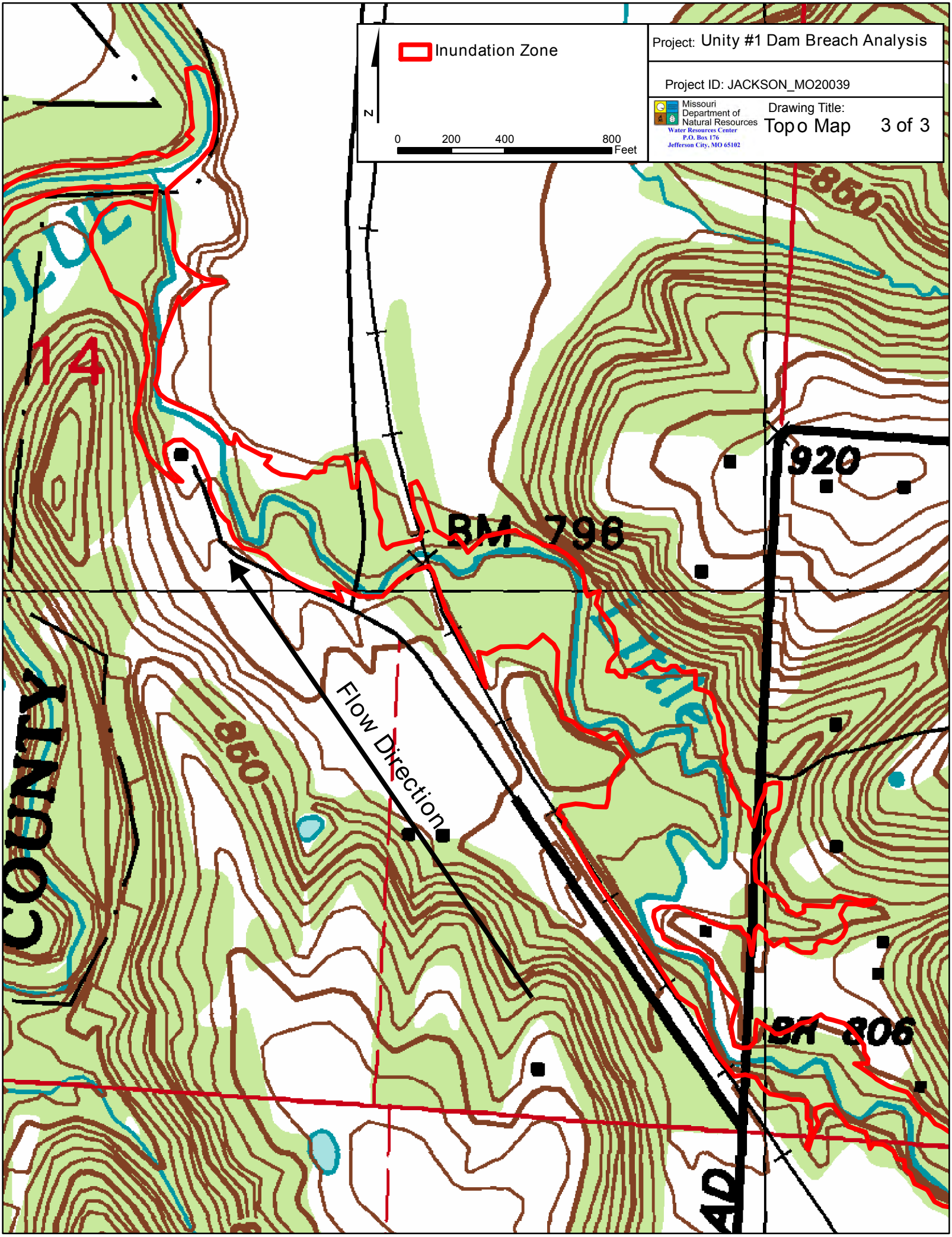

Inundation Zone
Reservoir
Roads
Railroads
N
0
225
450
900
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 3
Flow Direction
Missouri Pacific RR
QUAIL DR


Inundation Zone
Roads
Railroads
N
0
200
400
800
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 3
79TH ST
Missouri Pacific RR
Flow Direction


Inundation Zone
Roads
Railroads
N
0
200
400
800
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 3
Flow Direction
TURNER RD
79TH ST
Missouri Pacific RR
FISH RD


Inundation Zone
Reservoir
N
0
225
450
900
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 3
Flow Direction
Unity Village
(Unity)
947
Unity L

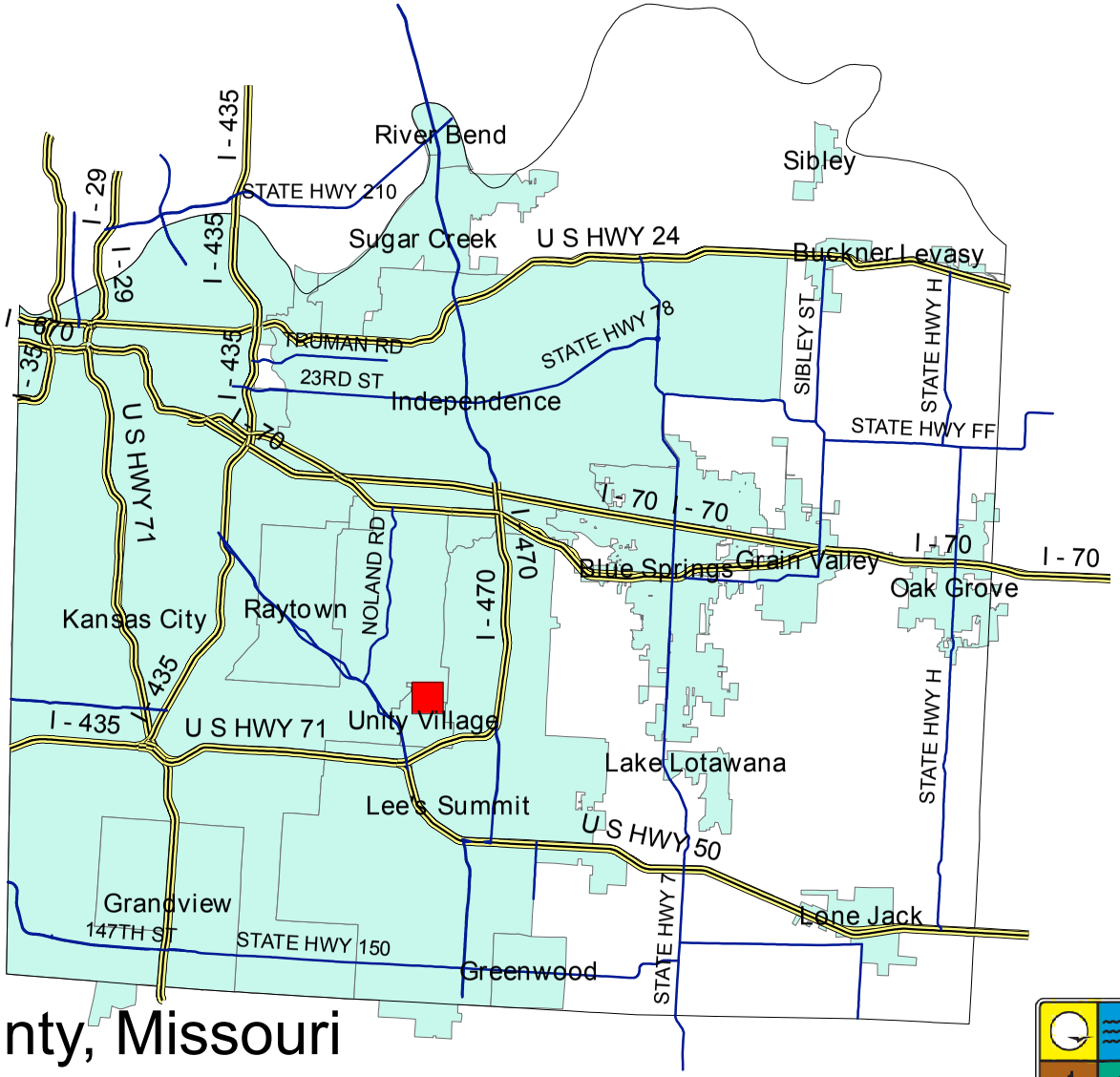

Inundation Zone
N
0
200
400
800
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 3
BR 806
Cedar
850
Flow Direction
24
CORP
CORP
900
KANSAS CITY
UNITY


Inundation Zone
N
0
200
400
800
Feet
Project: Unity #1 Dam Breach Analysis
Project ID: JACKSON_MO20039
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
3 of 3
850
920
BM 796
Flow Direction
850
BR 806
COUNTY
14

10/22/09

Unity #2 Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20134

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20134

County: JACKSON

Location: S24, T48 N, R32 W

Height of Dam: 52'

Storage Capacity (Normal Pool): 436 ac-ft

Tributary: Unnamed Trib. to Little Cedar Creek

Lake Area: 26 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 60.49’

Bottom elevation: 821’

Breach formation time: 0.283 hr

Pool Elevation at Failure: 881.49’

Pool Volume at Failure: 834 ac-ft

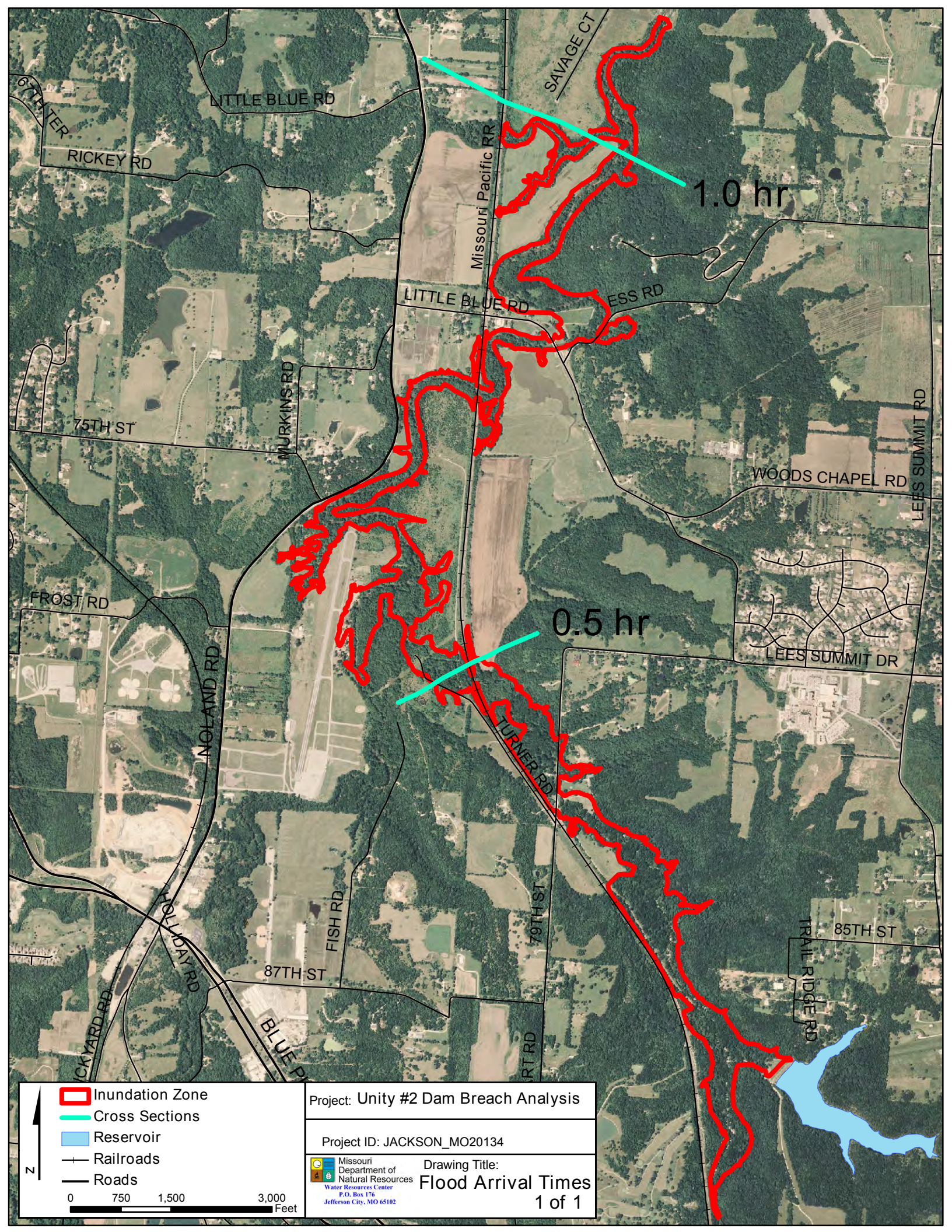
Date of Aerial Photo: August 22, 2007

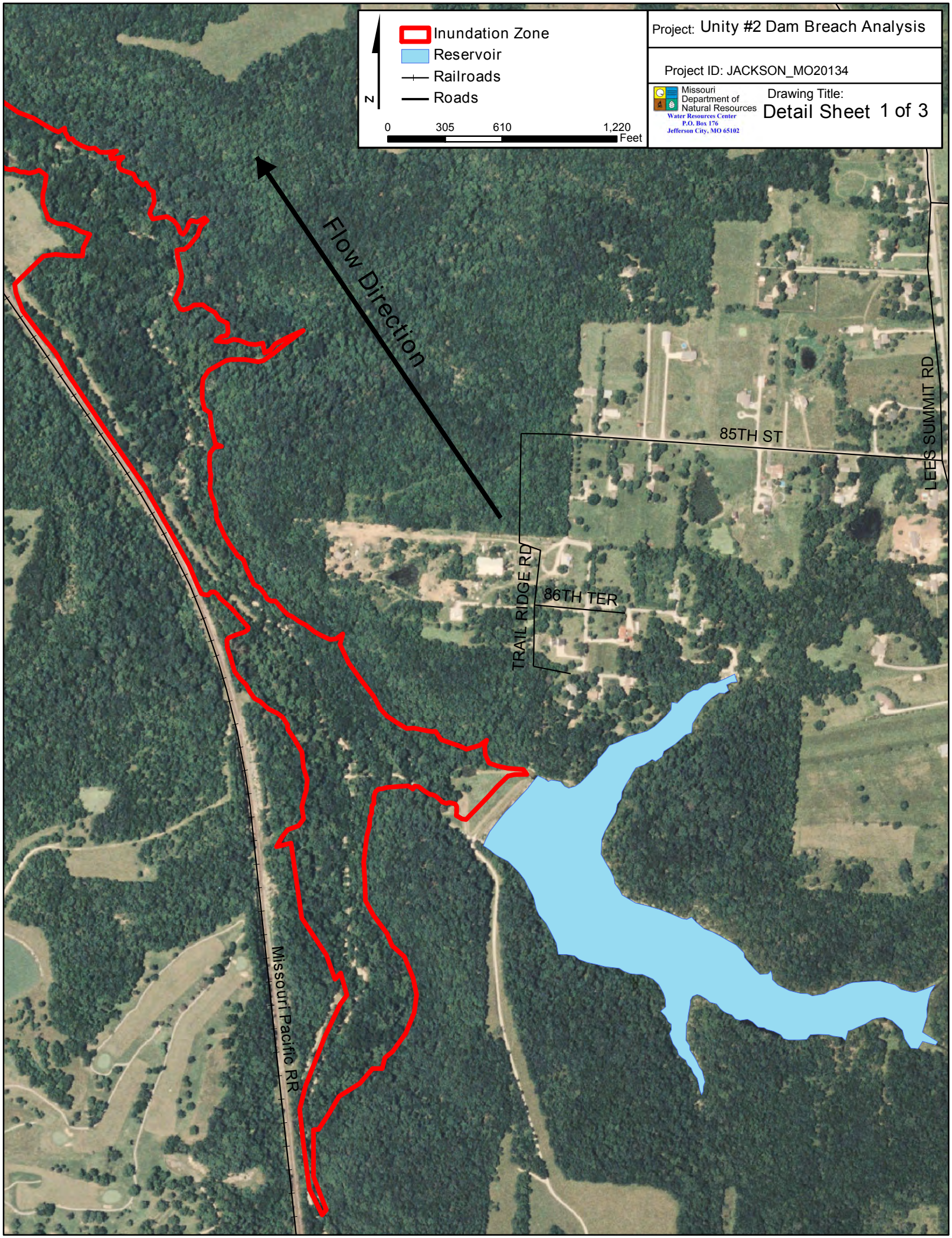
Project: Unity #2 Dam Breach Analysis

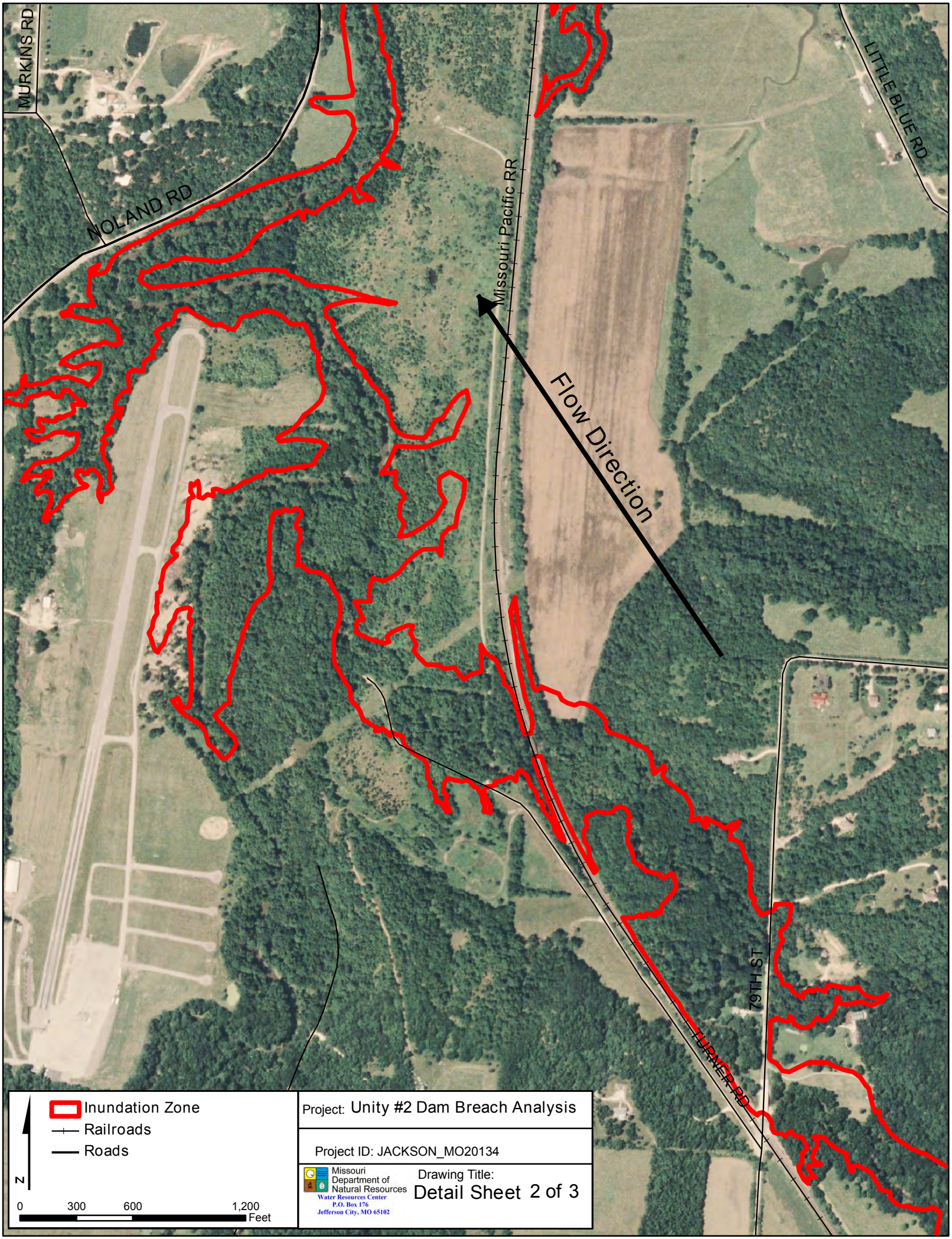
Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

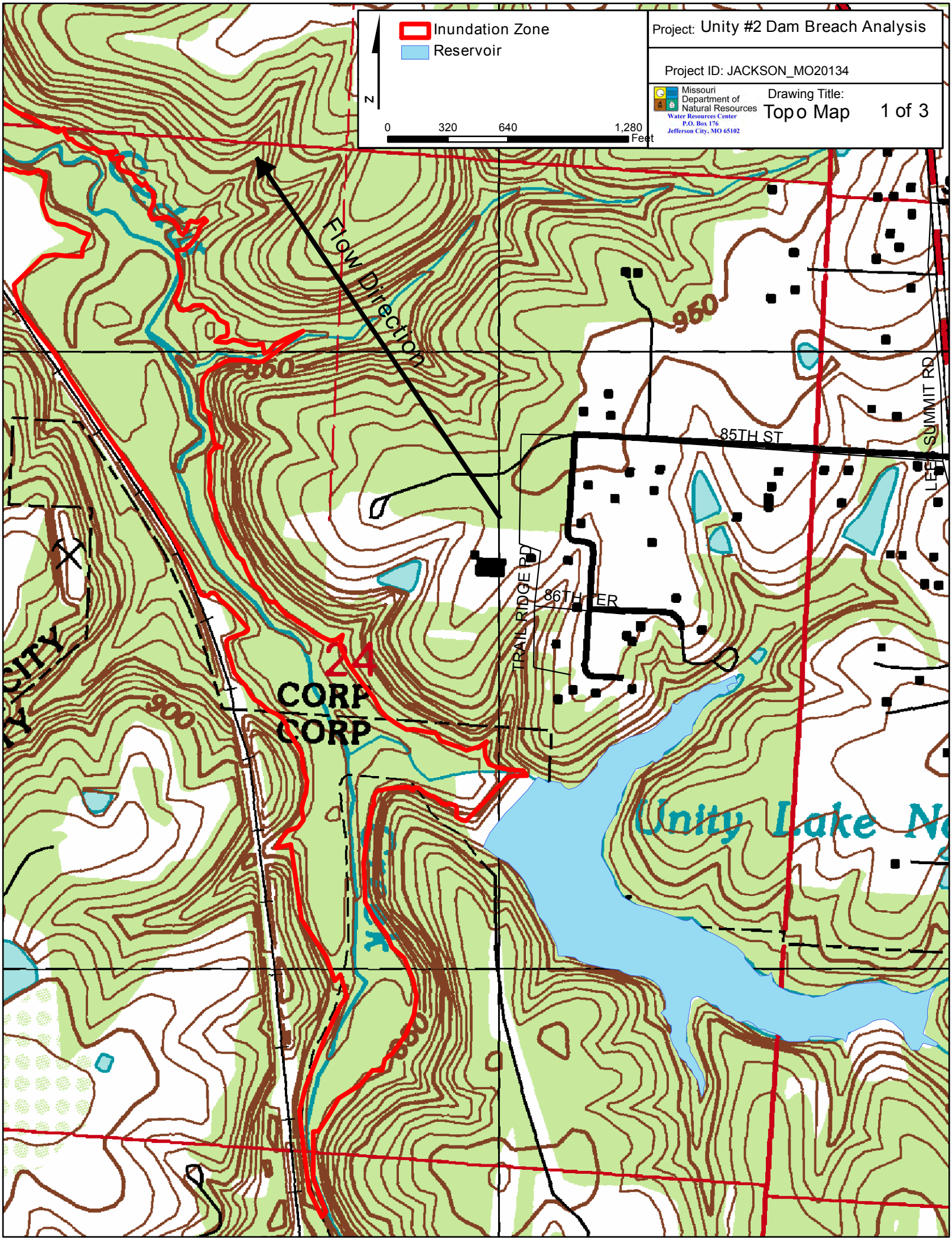
Project ID: JACKSON_MO20134

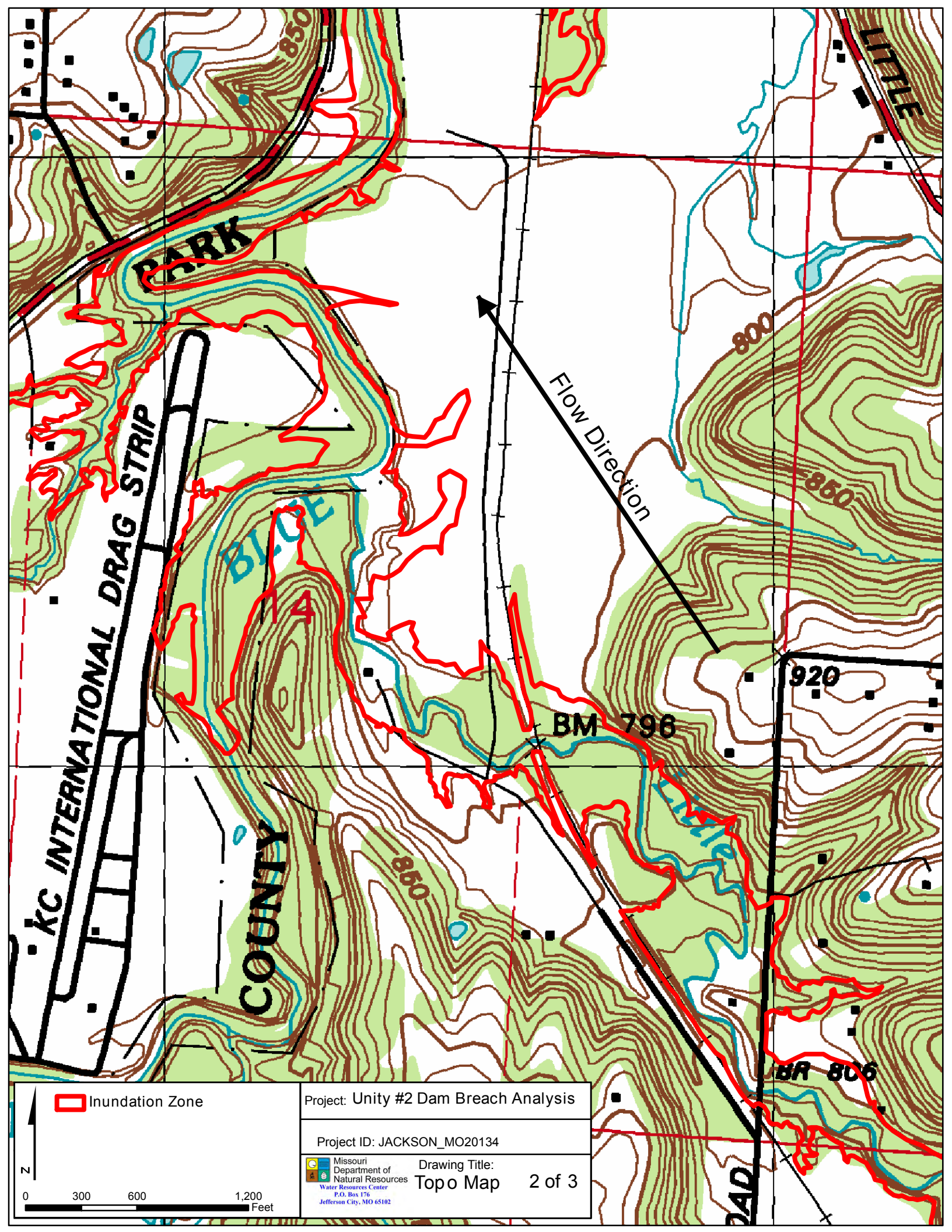

SAVAGE CT
LITTLE BLUE RD
RICKEY RD
Missouri Pacific RR
1.0 hr
LITTLE BLUE RD
ESS RD
MURKINS RD
75TH ST
WOODS CHAPEL RD
LEES SUMMIT RD
FROST RD
0.5 hr
LEES SUMMIT DR
NOLAND RD
TURNER RD
FISH RD
79TH ST
87TH ST
85TH ST
TRAIL RIDGE RD
Inundation Zone
Cross Sections
Reservoir
Railroads
Roads
N
0 750 1,500 3,000 Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1


Inundation Zone
Reservoir
Railroads
Roads
N
0
305
610
1,220
Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 3
Flow Direction
85TH ST
LEES SUMMIT RD
TRAIL RIDGE RD
86TH TER
Missouri Pacific RR


MURKINS RD
NOLAND RD
Missouri Pacific RR
LITTLE BLUE RD
Flow Direction
79TH ST
TURNER RD
Inundation Zone
Railroads
Roads
N
0
300
600
1,200
Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 2 of 3


Inundation Zone
Railroads
Roads
N
0
300
600
1,200
Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 3 of 3
LITTLE BLUE RD
RICKEY RD
NOLAND RD
MURKINS RD
LITTLE BLUE RD
Missouri Pacific RR
Flow Direction
ESS RD
ESS RD


Inundation Zone
Reservoir
N
0
320
640
1,280
Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 3
Flow Direction
950
900
850
85TH ST
LEE'S SUMMIT RD
TRAIL RIDGE RD
86TH TER
24
CORP
CORP
Unity Lake



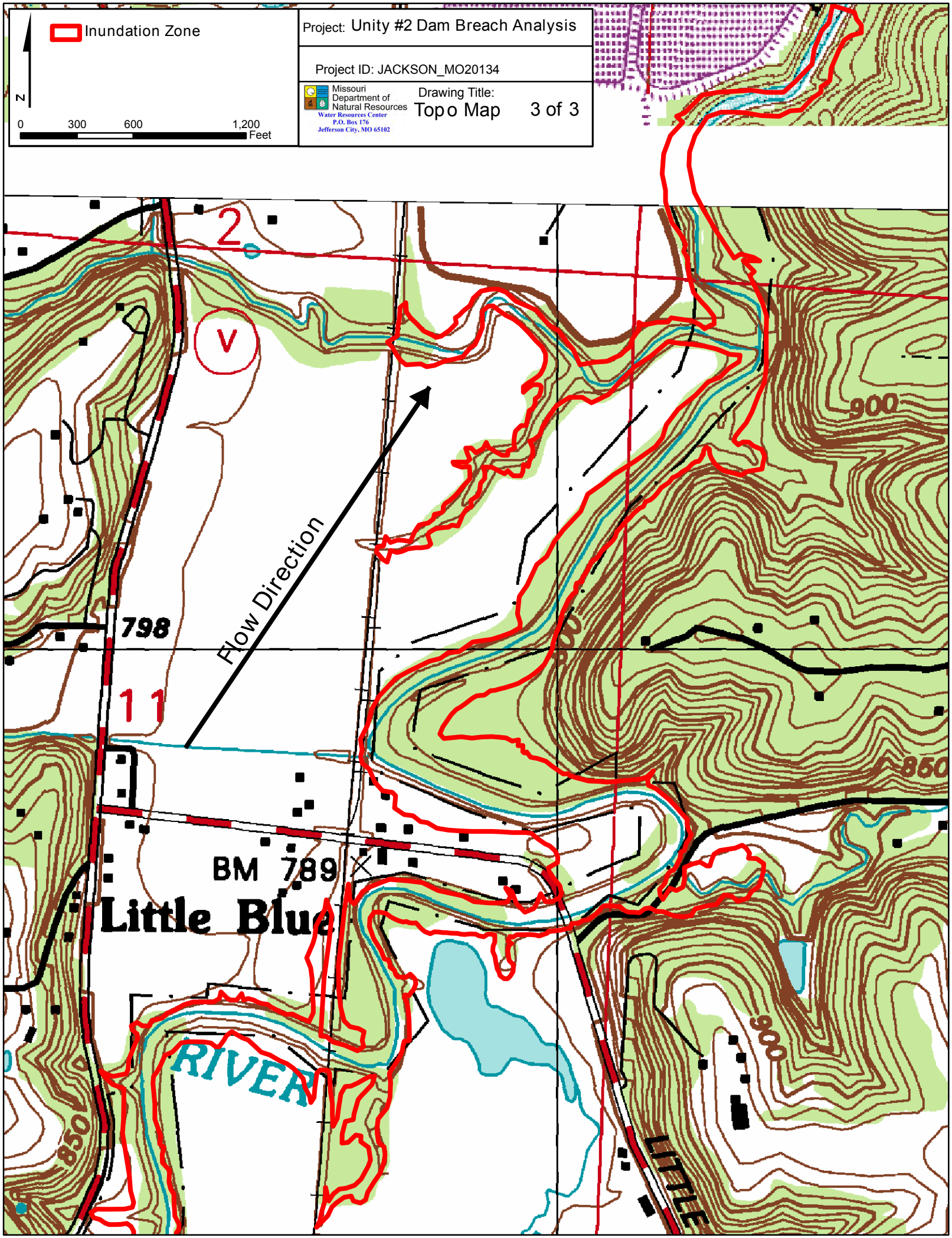
Project: Unity #2 Dam Breach Analysis

Project ID: JACKSON_MO20134

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Drawing Title: Topo Map

2 of 3


Inundation Zone
N
0
300
600
1,200
Feet
Project: Unity #2 Dam Breach Analysis
Project ID: JACKSON_MO20134
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
3 of 3
2
V
900
Flow Direction
798
11
850
BM 789
Little Blue
RIVER
900
850
LITTLE

11/18/09

View High Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20146

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20146

County: JACKSON

Location: S33, T48 N, R32 W

Height of Dam: 37'

Storage Capacity (Normal Pool): 98 ac-ft

Tributary: Unnamed trib. to Little Blue River

Lake Area: 10.4 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 4.51’

Bottom elevation: 828.5’

Breach formation time: 0.149 hr

Pool Elevation at Failure: 859.46’

Pool Volume at Failure: 127 ac-ft

Date of Aerial Photo: August 22, 2007

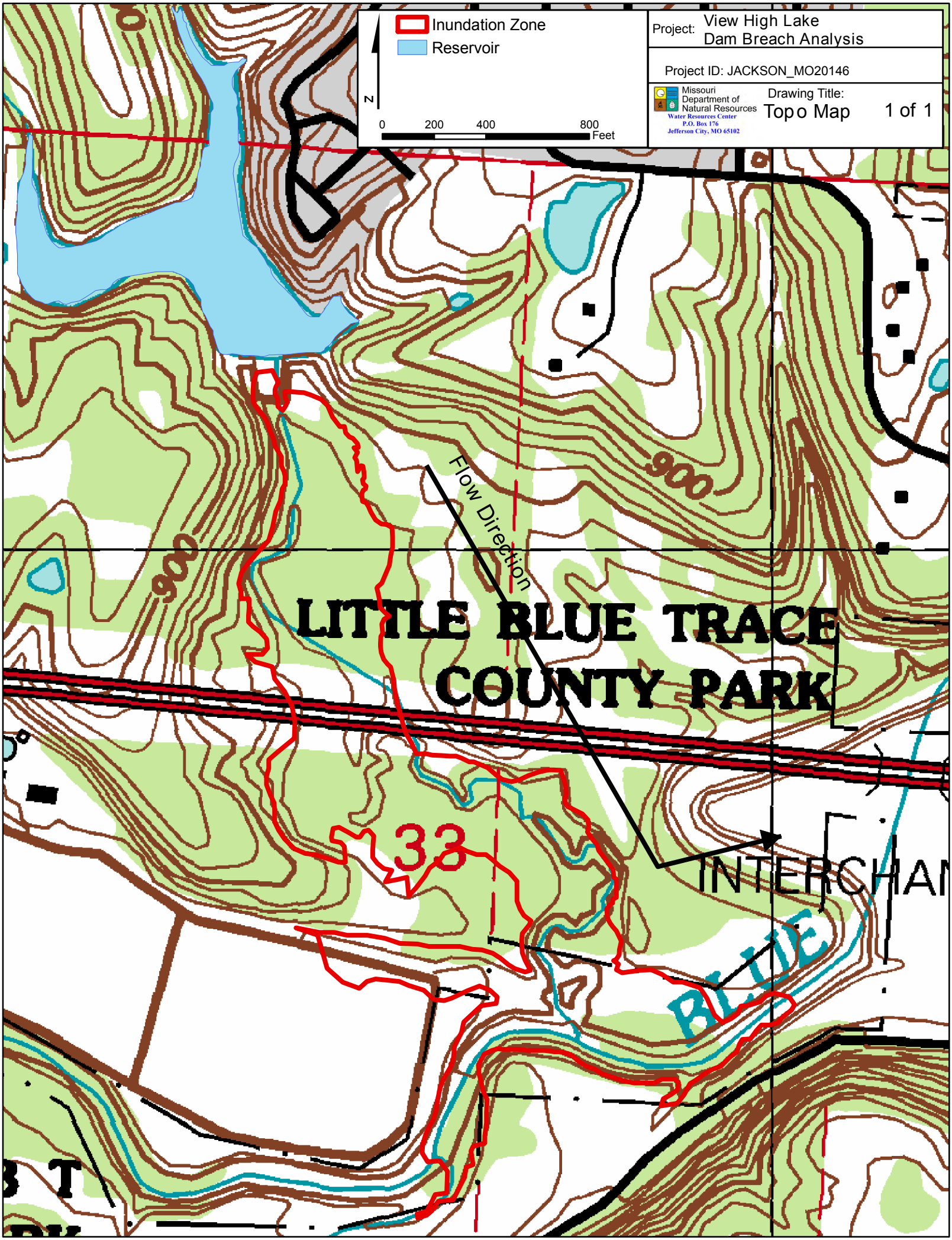
Project: View High Lake Dam Breach Analysis

Drawing Title: Explanation Sheet 1 of 1

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

Project ID: JACKSON_MO20146


Inundation Zone
Reservoir
Roads
N
0
200
400
800
Feet
Project: View High Lake
Dam Breach Analysis
Project ID: JACKSON_MO20146
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 1
WILLOW AVE
HARR
VIEW HIGH DR
Flow Direction
I - 470
U S HWY 71
MEERS RD


Inundation Zone
Reservoir
N
0 200 400 800
Feet
Project: View High Lake Dam Breach Analysis
Project ID: JACKSON_MO20146
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Topo Map
1 of 1
Flow Direction
LITTLE BLUE TRACE COUNTY PARK
900
900
33
INTERCHAN
BLUE

11/12/09

Whispering Hills Lake Dam

Breach Inundation Map



Jackson County, Missouri
JACKSON_MO20128

Note: Actual areas inundated will depend on the actual dam failure criteria and may differ from the areas shown. Due to limitations, methods, assumptions, and procedures used to develope the inundation area, the map should only be used for evacuation and emergency purposes.

Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65201

Explanation Sheet

Explanation of Maps

The following maps indicate the areas which are predicted to be inundated during the occurance of a sunny day breach of the dam. The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway.

Use of Maps

The following maps provide a baseline for evaluation of existing emergency action plans and environmental hazards downstream of the regulated structure.

Definition of Terms

Pool Elevation- Water level in the reservoir.

Dam Crest- The lowest elevation measured along the dam crest.

Spillway Crest- The lowest elevation measured along the crest of the spillway.

Arrival Time- Elapsed time between the breach initiation and the time that water levels first begin to rise at any given point.

Assumed Conditions of Flooding

The pool elevation at failure is assumed to be at the emergency spillway crest elevation or at the crest of the dam in the absence of an emergency spillway. The assumed overtopping erodes a section of the dam resulting in a dangerous and quick release of water. For the hydraulic analysis flow initiation is required and therefore a baseflow of water has been included in the analysis.

Dam Facts

ID: MO_20128

County: JACKSON

Location: S25, T48 N, R32 W

Height of Dam: 48'

Storage Capacity (Normal Pool): 182 ac-ft

Tributary: Unnamed Trib. to Little Cedar Creek

Lake Area: 16.37 acres

Breach Parameters (Froehlich, 1995)

Side slopes: 1.4:1

Bottom width: 25.97'

Bottom elevation: 892'

Breach formation time: 0.24 hr

Pool Elevation at Failure: 930.93'

Pool Volume at Failure: 303.5 ac-ft

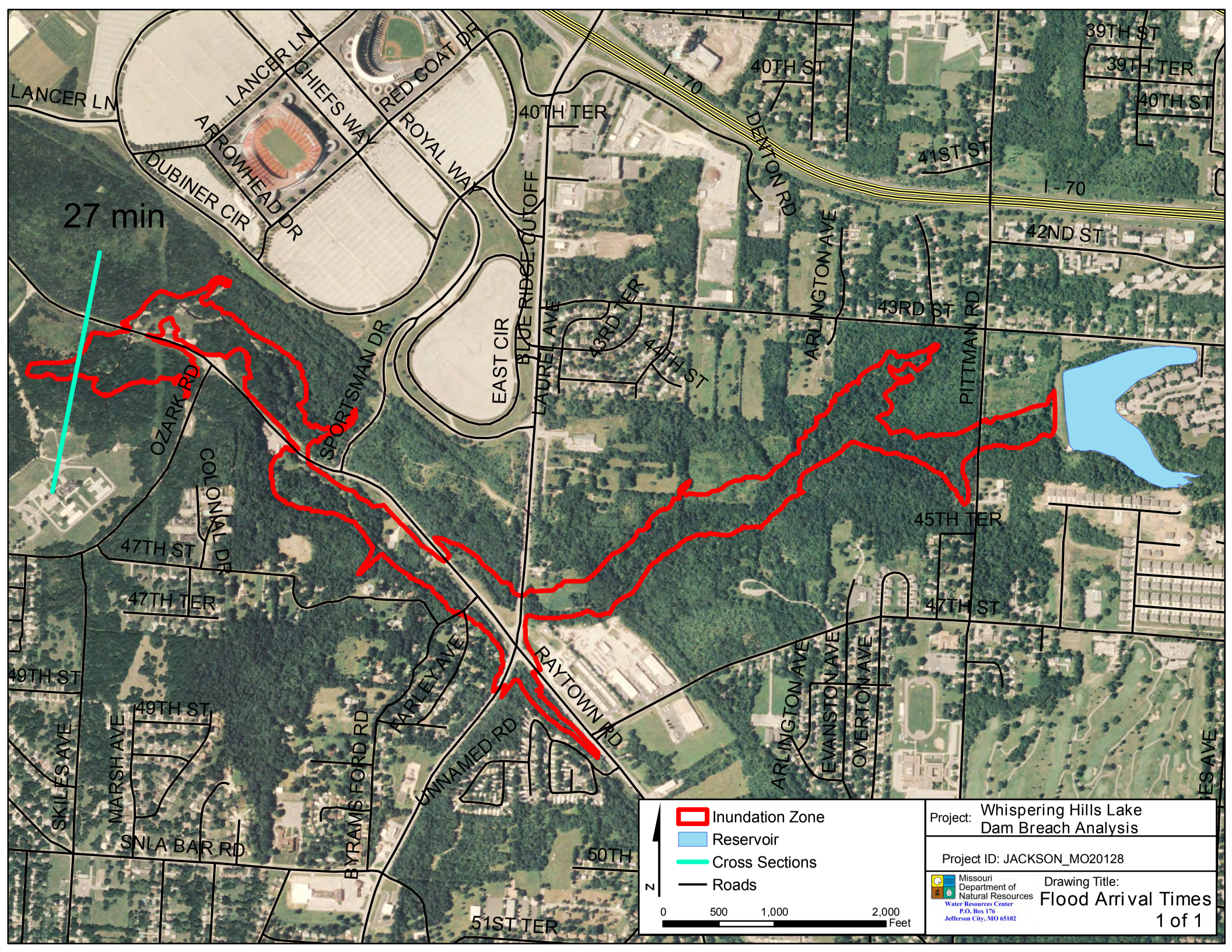
Date of Aerial Photo: August 22, 2007

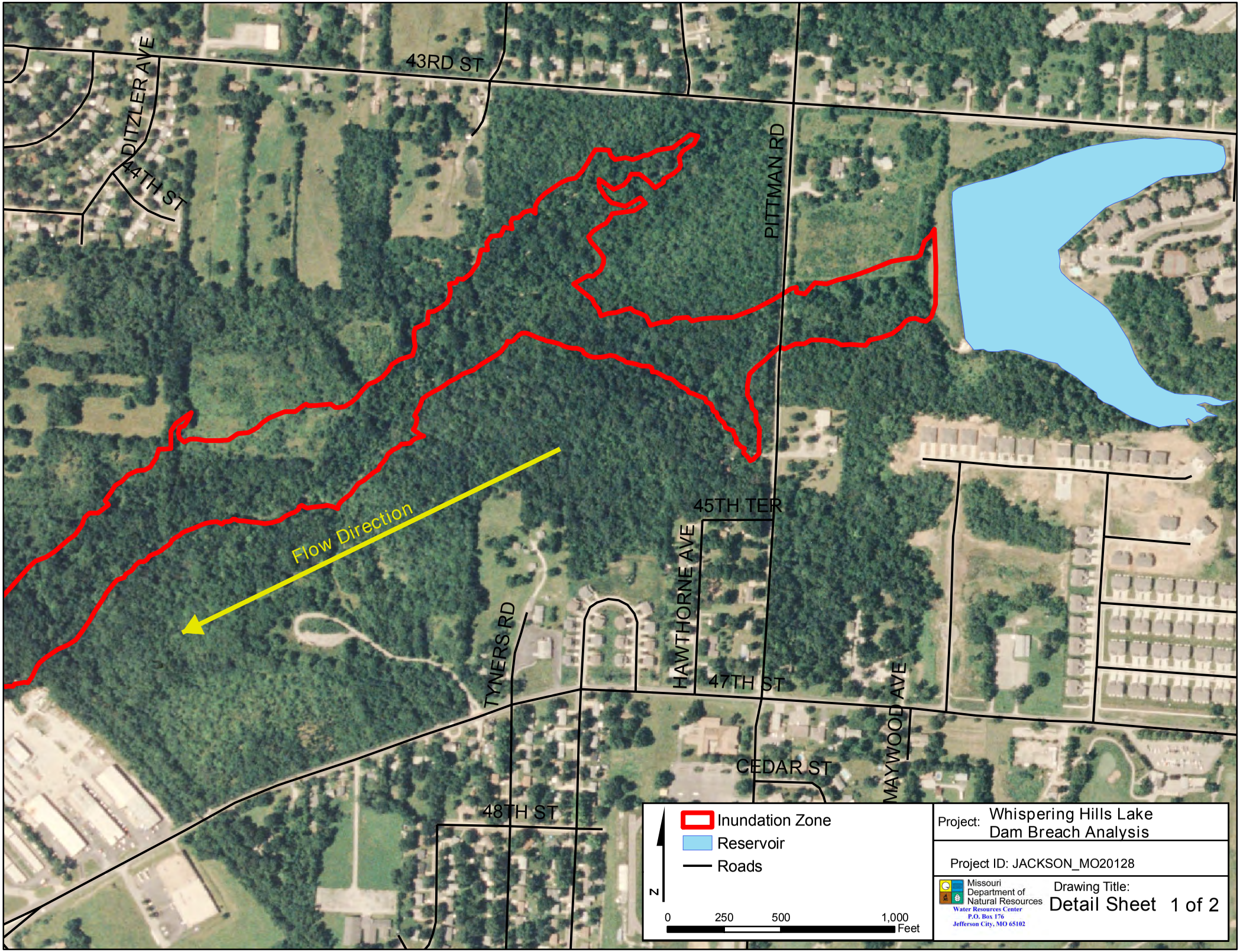
Project: Whispering Hills Lake Dam Breach Analysis

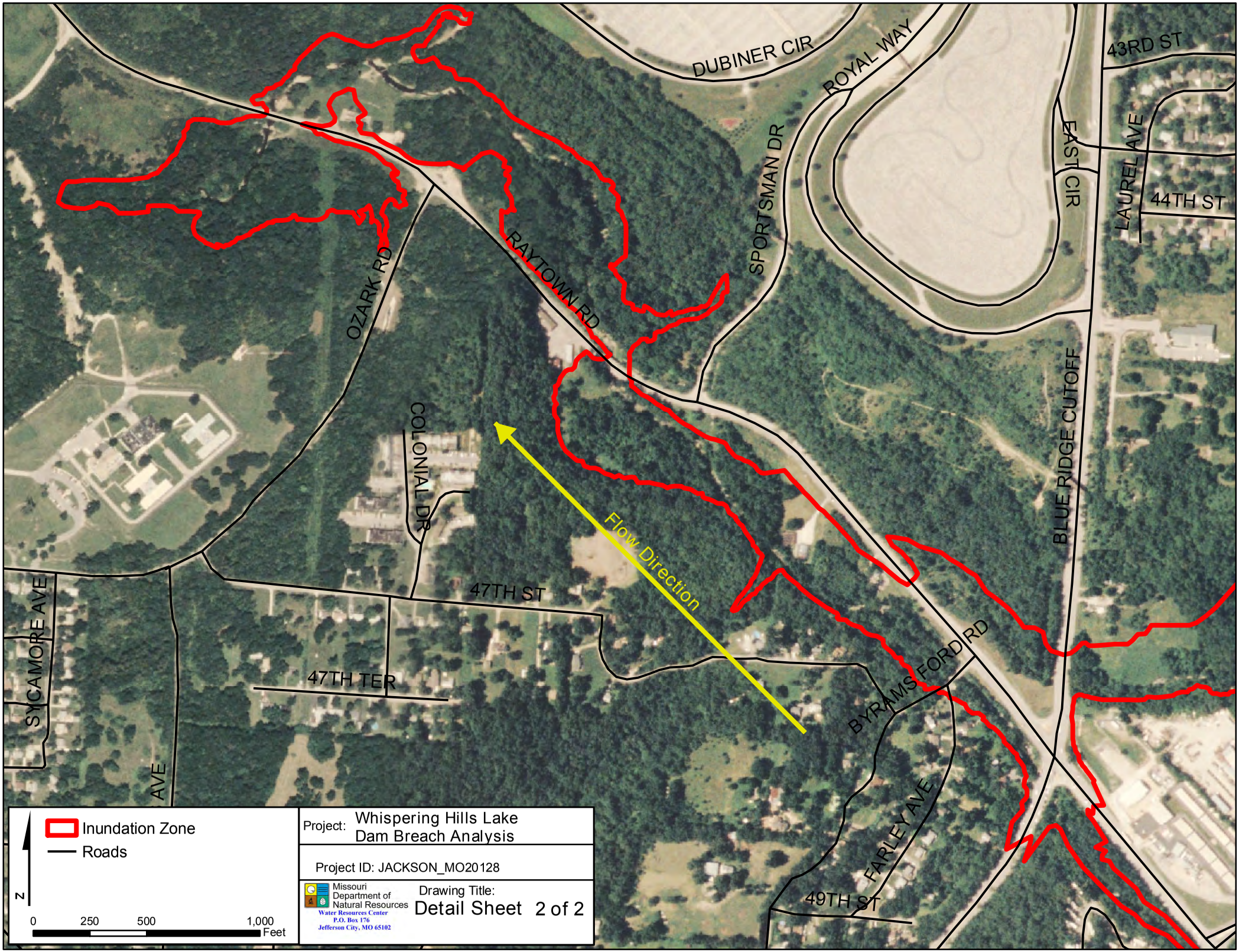
Drawing Title: Explanation Sheet 1 of 1

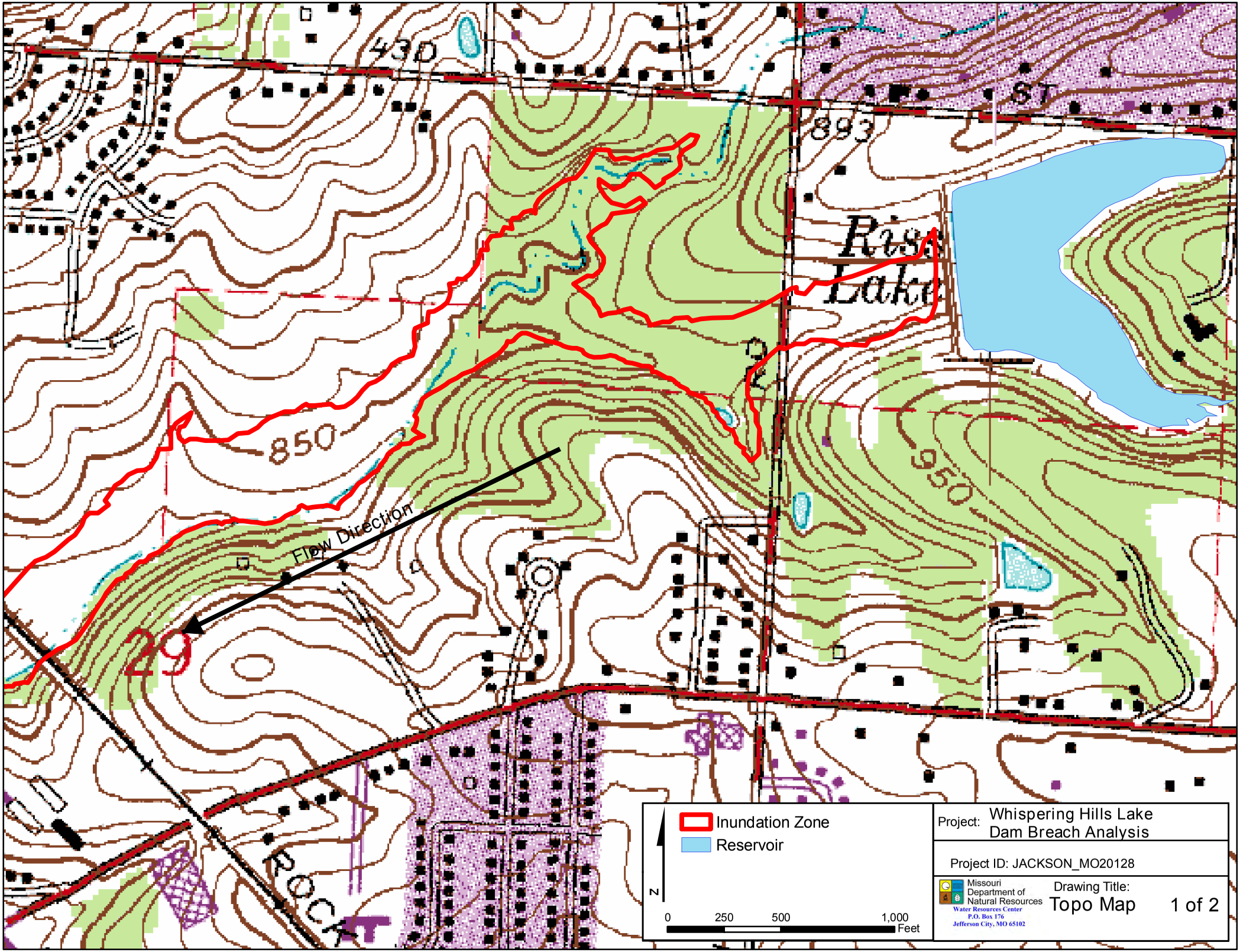
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102

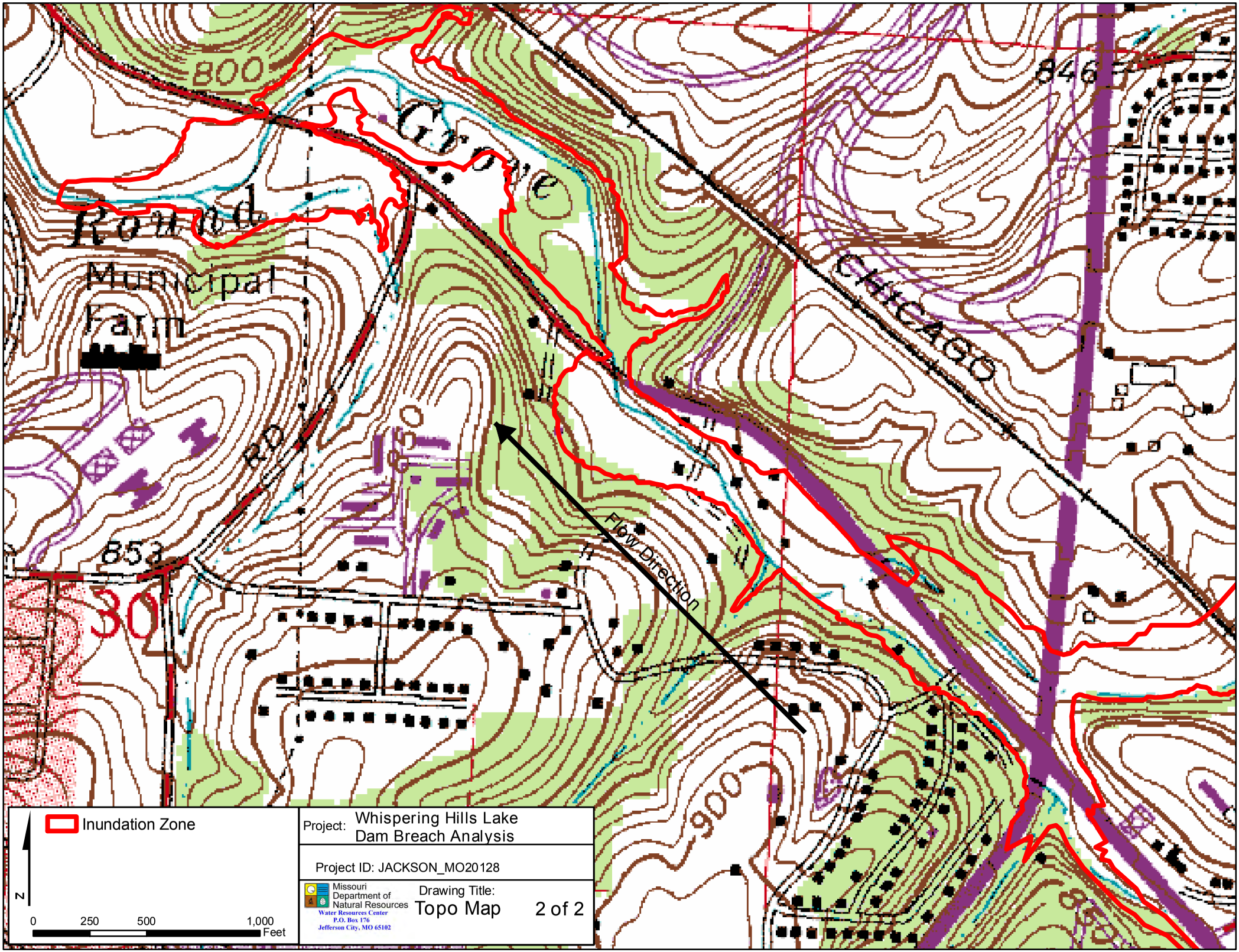
Project ID: JACKSON_MO20128


27 min
LANCER LN
LANCER LN
CHIEFS WAY
RED COAT DR
ROYAL WAY
ARROWHEAD DR
DUBINER CIR
40TH TER
I - 70
DEMTON RD
40TH ST
41ST ST
39TH ST
39TH TER
40TH ST
I - 70
42ND ST
43RD ST
ARLINGTON AVE
PITTMAN RD
BLUE RIDGE CUTOFF
EAST CIR
LAUREL AVE
43RD TER
44TH ST
SPORTSMAN DR
OZARK RD
COLONIAL DR
47TH ST
47TH TER
45TH TER
47TH ST
49TH ST
49TH ST
MARSH AVE
SKILES AVE
HARLEY AVE
BYRAMS FORD RD
UNNAMED RD
RAYTOWN RD
ARLINGTON AVE
EVANSTON AVE
OVERTON AVE
SNI A BAR RD
50TH
51ST TER
Inundation Zone
Reservoir
Cross Sections
Roads
N
0
500
1,000
2,000
Feet
Project: Whispering Hills Lake Dam Breach Analysis
Project ID: JACKSON_MO20128
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Flood Arrival Times
1 of 1


43RD ST
DITZLER AVE
44TH ST
PITTMAN RD
Flow Direction
45TH TER
HAWTHORNE AVE
TYNERS RD
47TH ST
MAYWOOD AVE
CEDAR ST
48TH ST
Inundation Zone
Reservoir
Roads
N
0
250
500
1,000
Feet
Project: Whispering Hills Lake Dam Breach Analysis
Project ID: JACKSON_MO20128
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Detail Sheet 1 of 2


DUBINER CIR
ROYAL WAY
43RD ST
SPORTSMAN DR
EAST CIR
LAUREL AVE
44TH ST
OZARK RD
RAYTOWN RD
COLONIAL DR
BLUE RIDGE CUTOFF
Flow Direction
47TH ST
47TH TER
SYCAMORE AVE
AVE
BYRAMS FORD RD
FARLEY AVE
49TH ST
Inundation Zone
Roads
N
0 250 500 1,000 Feet
Project: Whispering Hills Lake Dam Breach Analysis
Project ID: JACKSON_MO20128
Missouri Department of Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title: Detail Sheet 2 of 2


43D
ST
893
Riss
Lake
850
950
Flow Direction
29
ROCK
Inundation Zone
Reservoir
N
0
250
500
1,000
Feet
Project: Whispering Hills Lake
Dam Breach Analysis
Project ID: JACKSON_MO20128
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
1 of 2


800
Grove
Round
Municipal
Farm
846
Chicago
853
30
Flow Direction
900
Inundation Zone
N
0
250
500
1,000
Feet
Project: Whispering Hills Lake
Dam Breach Analysis
Project ID: JACKSON_MO20128
Missouri
Department of
Natural Resources
Water Resources Center
P.O. Box 176
Jefferson City, MO 65102
Drawing Title:
Topo Map
2 of 2

Appendix C:
Land Use Acreage Tables by Jurisdiction

(3 Pages)

	CASS COUNTY		CLAY COUNTY		JACKSON COUNTY		PLATTE COUNTY		PARKVILLE	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	2,047	10,789	6,483	4,261	9,993	13,070	1,135	2,508	70	92
Condo	0	0	5	0	91	0	0	0	0	0
Indust./Bus. Park	1,878	6,237	2,418	13,244	17,014	23,459	1,821	10,929	89	303
Mixed Use	0	315	0	5,936	11	13,455	0	3,592	0	591
Multi-Family	339	3,093	1,438	10,078	5,185	13,022	672	5,707	25	307
Office	36	1,172	764	876	2,306	3,684	441	308	45	21
Parks, Open Space	11,683	4,619	21,941	21,229	38,056	40,937	9,392	9,930	1,545	4,280
Public/Semipublic	3,087	2,700	7,022	4,026	10,354	7,583	13,452	11,190	169	131
ROW	9,333	5,074	18,677	7,251	44,814	13,405	16,133	3,480	1,293	755
RR ROW	0	0	2,429	255	741	0	0	0	0	0
Single Family	15,963	127,985	27,942	92,455	61,856	166,281	12,018	43,538	728	3,459
Single Family Low Density	23,372	279,118	11,527	99,746	21,609	92,374	5,298	180,870	80	0
Vacant/Ag	381,775	8,412	159,144	432	182,986	7,746	212,112	422	5,894	0
Grand Total	449,514	449,514	259,789	259,789	395,015	395,015	272,474	272,474	9,939	9,939

	BELTON		EXCELSIOR SPRINGS		BLUE SPRINGS		EDGERTON		PLATTE CITY	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	539	1,272	305	194	702	1,228	3	0	120	655
Condo	0	0	0	0	6	0	0	0	0	0
Indust./Bus. Park	196	356	149	286	382	735	1	0	5	11
Mixed Use	0	314	0	274	0	35	0	0	0	24
Multi-Family	95	324	57	83	389	542	0	0	49	134
Office	0	353	59	0	108	601	0	0	40	179
Parks, Open Space	540	488	147	1,004	1,473	1,004	10	0	120	109
Public/Semipublic	519	514	362	352	697	350	15	0	205	5
ROW	1,182	831	714	696	2,134	1,879	51	0	480	334
RR ROW	0	0	62	57	1	0	0	0	0	0
Single Family	2,326	4,740	1,256	2,099	4,330	7,783	123	828	372	753
Single Family Low Density	380	22	288	933	148	0	8	2	0	0
Vacant/Ag	3,435	0	2,581	3	3,787	0	619	0	879	64
Grand Total	9,212	9,212	5,979	5,979	14,158	14,158	830	830	2,269	2,269

	HARRISONVILLE		GLADSTONE		GRANDVIEW		FARLEY		PLATTE WOODS	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	347	1,100	279	119	470	445	6	0	5	0
Condo	0	0	1	0	0	0	0	0	0	0
Indust./Bus. Park	311	695	38	0	776	1,354	0	0	0	0
Mixed Use	0	0	0	618	0	613	0	0	0	0
Multi-Family	67	209	209	473	270	650	0	0	0	0
Office	25	0	89	0	46	236	0	0	2	0
Parks, Open Space	481	0	360	304	1,186	956	0	0	0	2
Public/Semipublic	468	155	244	0	277	6	2	0	17	0
ROW	798	744	888	868	1,175	1,133	35	0	49	0
RR ROW	0	0	0	0	2	0	0	0	0	0
Single Family	1,039	3,456	2,588	2,728	1,985	4,064	58	734	160	246
Single Family Low Density	148	0	88	0	184	2	41	0	6	0
Vacant/Ag	2,675	0	327	2	3,087	0	591	0	8	0
Grand Total	6,359	6,359	5,112	5,112	9,458	9,458	734	734	248	248

	LAKE WINNEBAGO		KEARNEY		INDEPENDENCE		FERRELVIEW		RIVERSIDE	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	7	0	222	615	1,607	2,222	1	0	95	258
Condo	0	0	0	0	7	0	0	0	0	0
Indust./Bus. Park	0	7	68	247	972	987	0	0	364	446
Mixed Use	0	0	0	319	2	2,037	0	0	0	186
Multi-Family	0	0	23	572	940	3,143	1	0	58	0
Office	0	0	64	61	351	185	0	0	13	52
Parks, Open Space	318	275	320	873	3,191	6,440	1	0	65	758
Public/Semipublic	13	0	793	311	1,826	1,112	10	0	133	101
ROW	115	84	656	567	6,167	249	15	71	852	223
RR ROW	0	0	32	28	4	0	0	0	0	0
Single Family	193	1,069	810	4,555	11,800	24,252	36	1	269	1,460
Single Family Low Density	28	0	58	150	1,800	5,860	0	0	50	0
Vacant/Ag	761	0	5,260	9	17,842	21	9	0	1,824	241
Grand Total	1,435	1,435	8,305	8,305	46,508	46,508	73	73	3,724	3,724

	PECULIAR		LIBERTY		LEE'S SUMMIT		HOUSTON LAKE		TRACY	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	161	597	1,083	752	1,147	2,534	0	0	6	0
Condo	0	0	0	0	46	0	0	0	0	0
Indust./Bus. Park	5	485	282	1,909	1,001	2,780	0	0	0	0
Mixed Use	0	0	0	561	0	4,142	0	0	0	0
Multi-Family	14	5	87	332	628	1,102	0	1	0	0
Office	0	0	134	0	391	220	0	0	0	0
Parks, Open Space	186	204	1,189	4,099	5,325	4,851	2	0	1	0
Public/Semipublic	278	302	1,111	720	1,727	1,706	1	0	11	0
ROW	333	57	1,781	986	5,166	2,618	28	0	63	0
RR ROW	0	0	355	15	9	0	0	0	0	0
Single Family	692	2,674	3,068	9,045	8,068	18,108	53	93	20	260
Single Family Low Density	143	366	484	35	1,343	0	0	0	8	0
Vacant/Ag	2,915	35	8,909	28	17,297	4,087	10	0	150	0
Grand Total	4,727	4,727	18,482	18,482	42,149	42,149	93	93	260	260

	PLEASANT HILL		MOSBY		OAK GROVE		LAKE WAUKOMIS		WEATHERBY LAKE	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	182	332	92	178	201	608			5	0
Condo	0	0	0	0	0	0	0	0	0	0
Indust./Bus. Park	2	196	0	219	71	96	0	0	0	0
Mixed Use	0	0	0	0	0	335	0	0	0	0
Multi-Family	38	17	0	0	86	142	0	0	0	0
Office	0	0	0	0	11	0	0	0	0	0
Parks, Open Space	339	78	0	0	87	0	18	0	27	0
Public/Semipublic	347	435	76	73	114	0	0	0	0	0
ROW	472	303	84	79	425	360	107	0	289	0
RR ROW	0	0	52	47	0	0	0	0	0	0
Single Family	1,143	3,743	38	119	764	1,772	94	254	387	854
Single Family Low Density	146	0	9	465	256	395	0	0	14	0
Vacant/Ag	2,442	5	870	42	1,694		34	0	132	0
Grand Total	5,111	5,111	1,222	1,222	3,708	3,708	254	254	854	854

	RAYMORE		NORTH KANSAS CITY		RAYTOWN		NORTHMOOR		WESTON	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	187	1,051	313	467	284	415	11	0	27	83
Condo	0	0	0	0	0	0	0	0	0	0
Indust./Bus. Park	53	0	783	1,591	135	118	18	0	5	0
Mixed Use	0	0	0	68	0	110	0	0	0	17
Multi-Family	75	345	72	152	203	72	0	0	9	107
Office	11	0	99	91	96	15	1	0	8	0
Parks, Open Space	1,228	1,368	57	5	310	198	0	1	1,100	1,246
Public/Semipublic	188	98	189	5	296	522	6	0	64	69
ROW	805	785	631	298	1,110	1,102	29	0	140	0
RR ROW	0	0	409	10	0	0	0	0	0	0
Single Family	2,147	7,530	137	209	3,493	3,833	42	150	230	596
Single Family Low Density	589	80	0	0	36	0	7	0	32	77
Vacant/Ag	5,975	0	243	39	422	0	38	0	580	0
Grand Total	11,258	11,258	2,933	2,933	6,385	6,385	151	151	2,195	2,195

	SMITHVILLE	
Land Use	**Existing**	**Planned**
Commercial	251	632
Condo	0	0
Indust./Bus. Park	43	105
Mixed Use	0	61
Multi-Family	18	345
Office	25	0
Parks, Open Space	198	3,527
Public/Semipublic	285	139
ROW	610	547
RR ROW	0	0
Single Family	956	4,565
Single Family Low Density	478	8
Vacant/Ag	7,076	11
Grand Total	9,941	9,941

	Kansas City, Cass		Kansas City, Clay		Kansas City, Jackson		Kansas City, Platte		Kansas City, Total	
Land Use	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**	**Existing**	**Planned**
Commercial	24	6	2,296	292	4,642	1,941	677	992	7,639	3,230
Condo	0	0	4	0	31	0	0	0	34	0
Indust./Bus. Park	0	18	683	7,497	5,928	11,703	901	6,660	7,512	25,878
Mixed Use	0	0	0	4,038	9	6,025	0	1,742	9	11,804
Multi-Family	0	0	943	6,826	2,431	6,861	497	4,663	3,871	18,350
Office	0	3	253	612	1,239	1,315	323	56	1,815	1,986
Parks, Open Space	106	110	3,713	7,894	12,303	21,454	1,690	2,388	17,812	31,847
Public/Semipublic	119	487	2,678	1,778	4,324	3,357	10,879	10,768	18,000	16,390
ROW	17	13	7,481	1,751	19,668	2,249	4,047	934	31,213	4,947
RR ROW	0	0	846	12	710	0	0	0	1,556	12
Single Family	1	36	10,299	26,335	21,643	46,091	3,848	16,695	35,791	89,157
Single Family Low Density	0	0	1,067	2	2,348	0	536	1	3,952	3
Vacant/Ag	406	0	26,785	12	25,720	0	21,500	0	74,411	12
Grand Total	673	673	57,049	57,049	100,996	100,996	44,898	44,898	203,616	203,616

Appendix C:
Population and Employment Forecasts Table by Jurisdiction

(1 Page)

		Population change				Employment change			
COUNTY		**2010-20**	**2020-30**	**2030-40**	**2010-40**	**2010-20**	**2020-30**	**2030-40**	**2010-40**
Cass	BELTON	1,046	981	743	2,770	1,198	975	397	2,571
Cass	HARRISONVILLE	853	829	750	2,433	262	399	336	997
Cass	KANSAS CITY	54	0	47	101	7	16	17	40
Cass	LAKE WINNEBAGO	358	326	162	845	0	-2	-1	-3
Cass	LEE'S SUMMIT	609	192	48	849	0	1	-1	0
Cass	PECULIAR	1,138	462	328	1,928	553	150	206	908
Cass	PLEASANT HILL	954	422	404	1,780	76	197	182	454
Cass	RAYMORE	2,778	2,759	1,334	6,871	517	460	511	1,488
Cass	Unincorporated	6,207	7,751	8,943	22,901	1,780	1,750	1,257	4,786
Clay	EXCELSIOR SPRINGS	881	801	949	2,631	146	414	181	741
Clay	GLADSTONE	1,669	1,780	2,188	5,637	430	581	1,291	2,302
Clay	KANSAS CITY	22,539	17,937	16,017	56,493	8,227	6,911	5,011	20,148
Clay	KEARNEY	3,084	2,722	3,779	9,586	384	409	152	944
Clay	LIBERTY	2,786	3,359	2,171	8,316	968	718	430	2,117
Clay	MOSBY	-6	3	47	43	0	96	65	161
Clay	NORTH KANSAS CITY	306	220	168	693	198	215	-337	76
Clay	SMITHVILLE	4,336	4,079	3,096	11,511	184	321	228	733
Clay	Unincorporated	3,366	3,303	3,333	10,002	588	321	694	1,603
Jackson	BLUE SPRINGS	3,622	2,363	2,006	7,990	1,654	227	416	2,297
Jackson	GRANDVIEW	2,172	1,821	-131	3,862	455	5,192	567	6,215
Jackson	INDEPENDENCE	2,000	4,967	5,213	12,180	417	1,060	1,155	2,632
Jackson	KANSAS CITY	-7,774	1,918	8,163	2,307	1,605	4,257	9,783	15,644
Jackson	LEE'S SUMMIT	10,213	8,558	9,568	28,339	7,812	4,096	3,353	15,261
Jackson	OAK GROVE	1,602	6	214	1,822	995	101	9	1,106
Jackson	RAYTOWN	-257	132	-115	-240	-267	-1	133	-136
Jackson	Unincorporated	950	368	615	1,933	480	153	209	842
Platte	EDGERTON	27	27	28	82	0	0	0	0
Platte	FARLEY	28	28	28	83	0	0	0	0
Platte	FERRELVIEW	-2	-24	0	-26	0	0	0	0
Platte	HOUSTON LAKE	21	3	10	33	-2	0	0	-2
Platte	KANSAS CITY	9,236	11,696	12,072	33,003	8,411	8,684	8,128	25,223
Platte	LAKE WAUKOMIS	-23	4	-15	-34	0	0	0	0
Platte	NORTHMOOR	0	42	45	87	-8	0	0	-8
Platte	PARKVILLE	1,992	2,026	1,997	6,016	1,183	1,398	1,626	4,206
Platte	PLATTE CITY	108	247	218	573	461	1,179	194	1,834
Platte	PLATTE WOODS	2	36	34	72	0	0	0	0
Platte	RIVERSIDE	410	304	157	870	5,297	2,231	-74	7,454
Platte	TRACY	4	104	38	147	-1	0	-1	-1
Platte	WEATHERBY LAKE	303	13	67	383	0	0	0	0
Platte	WESTON	270	130	176	576	-126	-15	5	-136
Platte	Unincorporated	2,991	2,583	3,292	8,865	113	544	871	1,528

Projections maintain 2010 municipal boundaries

Appendix C:
Vulnerable Populations Table by Jurisdiction

(15 Pages)

Counties and Cities	Cass	Clay	Jackson	Platte	Ray	Blue Springs	Dearborn	Edgerton	Excelsior Springs	Farley	Ferrelview	Harrisonville
Population by Age												
Total:	99,875	225,116	675,641	90,842	23,290	52,776	524	768	11,308	349	594	10,012
Under 5 years	6,428	15,861	47,392	5,640	1,401	3,300	14	50	682	21	39	646
% under 5 years	6.4%	7.0%	7.0%	6.2%	6.0%	6.3%	2.7%	6.5%	6.0%	6.0%	6.6%	6.5%
Under 18 years	26,061	57,557	164,469	22,164	5,726	14,100	142	204	2,854	120	123	2,654
% under 18 years	26.1%	25.6%	24.3%	24.4%	24.6%	26.7%	27.1%	26.6%	25.2%	34.4%	20.7%	26.5%
65 years and over	14,037	26,155	86,059	10,661	3,568	5,514	75	158	1,498	61	42	1,667
% 65 years and over	14.1%	11.6%	12.7%	11.7%	15.3%	10.4%	14.3%	20.6%	13.2%	17.5%	7.1%	16.7%
Civilian non-institutionalized population												
Total:	98,904	223,436	669,314	89,803	22,958	52,561	524	768	11,045	349	591	9,628
With a disability	11,683	24,869	85,492	8,858	3,380	4,771	86	139	1,615	51	58	1,408
% with a disability	11.8%	11.1%	12.8%	9.9%	14.7%	9.1%	16.4%	18.1%	14.6%	14.6%	9.8%	14.6%
Ability to Speak English - Universe: Population 5 years and over												
Total:	93,447	209,255	628,249	85,202	21,889	49,476	510	718	10,626	328	555	9,366
Speak only English	90,132	193,537	573,099	78,975	21,483	47,869	497	718	10,335	328	538	9,139
Speak other languages and:												
Speak English "very well"	2,390	10,257	33,483	3,734	270	1,040	13	0	83	0	17	219
Speak English "well"	954	4,403	17,179	1,795	129	395	4	0	97	0	3	69
Speak English "not well"	355	1,745	10,228	805	40	81	0	0	37	0	0	20
Speak English "not at all"	119	892	3,932	286	14	201	0	0	74	0	0	7
% speak English less than "very well"	1.5%	3.4%	5.0%	3.4%	0.8%	1.4%	0.8%	0.0%	2.0%	0.0%	0.5%	1.0%
Limited English-Speaking Households - Universe: Households												
Total:	37,307	86,934	271,545	36,781	8,735	19,196	208	269	4,131	109	289	3,934
Limited English speaking households	376	2,526	12,701	1,046	54	69	0	0	28	0	0	0
% limited English speaking households	1.0%	2.9%	4.7%	2.8%	0.6%	0.4%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%
Year structure built - Universe: Housing units												
Total:	40,108	93,817	312,305	39,359	9,957	19,969	252	310	4,684	117	369	4,330
50 years old or more	9,886	32,193	171,676	8,070	4,027	1,102	137	141	1,586	35	113	911
% 50 years old or more	24.6%	34.3%	55.0%	20.5%	40.4%	5.5%	54.4%	45.5%	33.9%	29.9%	30.6%	21.0%
Built in 1939 or earlier	2,706	5,227	58,473	1,687	1,704	321	120	75	739	27	19	457
% built in 1939 or earlier	6.7%	5.6%	18.7%	4.3%	17.1%	1.6%	47.6%	24.2%	15.8%	23.1%	5.1%	10.6%

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Cass	Clay	Jackson	Platte	Ray	Blue Springs	Dearborn	Edgerton	Excelsior Springs	Farley	Ferrelview	Harrisonville
Median household income in the past 12 months (in 2013 inflation-adjusted dollars) - Universe: Households												
Median household income	60,350	60,936	47,015	67,721	52,698	65,838	47,917	49,417	49,779	75,625	37,031	45,048
Poverty status in the past 12 months - Universe: Population for whom poverty status is determined												
Total:	98,507	222,258	664,695	89,948	22,834	52,206	524	768	10975	349	594	9,509
Persons with income below poverty level	8,775	20,049	115,437	6,683	2,656	4,339	58	49	1388	33	178	1,493
% persons below the poverty level	8.9%	9.0%	17.4%	7.4%	11.6%	8.3%	11.1%	6.4%	12.6%	9.5%	30.0%	15.7%
Educational Attainment - Universe: Population 25 and over												
Total:	66,032	149,210	449,500	61,338	15,829	34,257	333	505	7,193	224	407	6,450
Less than 9th grade	1,305	3,258	15,557	1,040	454	460	2	16	286	1	8	274
9th to 12th grade, no diploma	3,967	8,976	37,216	2,519	1,403	1,594	20	49	847	10	54	421
HS graduate (includes equivalency)	23,040	41,350	132,534	14,181	7,149	10,076	139	268	2,912	86	153	2,670
Some college, no degree	17,001	38,013	109,644	15,067	3,645	9,331	74	93	1,690	42	91	1,440
Associate's degree	5,366	11,983	30,279	4,494	977	2,475	38	32	614	15	39	431
Bachelor's degree	10,440	30,695	76,897	15,357	1,429	6,405	38	37	567	63	51	734
Graduate or professional degree	4,913	14,935	47,373	8,680	772	3,916	22	10	277	7	11	480
% with no HS diploma	8.0%	8.2%	11.7%	5.8%	11.7%	6.0%	6.6%	12.9%	15.8%	4.9%	15.2%	10.8%
% with a HS diploma or higher	92.0%	91.8%	88.3%	94.2%	88.3%	94.0%	93.4%	87.1%	84.2%	95.1%	84.8%	89.2%
% with a bachelor's degree or higher	23.3%	30.6%	27.6%	39.2%	13.9%	30.1%	18.0%	9.3%	11.7%	31.3%	15.2%	18.8%
Health insurance status and type by employment status by age - Universe: Civilian noninstitutionalized population 18 years and over												
Total, 18 years and over:	72,853	166,034	505,436	67,642	17,232	38,461	382	564	8,215	229	468	6,976
In labor force:	50,558	121,374	349,191	50,004	11,031	28,391	258	330	5,553	166	383	4,884
In labor force: - Employed:	46,954	113,532	317,213	47,151	10,112	26,589	240	298	5,221	159	333	4,521
In labor force: - Unemployed:	3,604	7,842	31,978	2,853	919	1,802	18	32	332	7	50	363
Unemployment rate:	7.1%	6.5%	9.2%	5.7%	8.3%	6.3%	7.0%	9.7%	6.0%	4.2%	13.1%	7.4%
Not in labor force:	22,295	44,660	156,245	17,638	6,201	10,070	124	234	2,662	63	85	2,092

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Cass	Clay	Jackson	Platte	Ray	Blue Springs	Dearborn	Edgerton	Excelsior Springs	Farley	Ferrelview	Harrisonville
18 to 64 years:	59,443	140,649	422,567	57,271	13,868	33,092	307	406	6,873	168	426	5,539
With health insurance coverage	50,087	120,887	327,409	51,038	12,081	28,509	270	342	5,198	142	277	4,212
No health insurance coverage	9,356	19,762	95,158	6,233	1,787	4,583	37	64	1,675	26	149	1,327
% uninsured, 18 to 64 years	15.7%	14.1%	22.5%	10.9%	12.9%	13.8%	12.1%	15.8%	24.4%	15.5%	35.0%	24.0%
Employed:	44,777	109,063	303,165	45,283	9,595	25,533	234	267	5,013	138	312	4,338
With health insurance coverage	38,857	96,764	247,689	40,992	8,591	22,441	204	239	3,877	117	211	3,318
No health insurance coverage	5,920	12,299	55,476	4,291	1,004	3,092	30	28	1,136	21	101	1,020
% uninsured, employed	13.2%	11.3%	18.3%	9.5%	10.5%	12.1%	12.8%	10.5%	22.7%	15.2%	32.4%	23.5%
Unemployed:	3,473	7,585	31,024	2,668	866	1,708	18	32	332	7	50	363
With health insurance coverage	1,915	4,234	14,764	1,683	573	1,085	13	16	163	2	15	232
No health insurance coverage	1,558	3,351	16,260	985	293	623	5	16	169	5	35	131
% uninsured, unemployed	44.9%	44.2%	52.4%	36.9%	33.8%	36.5%	27.8%	50.0%	50.9%	71.4%	70.0%	36.1%
Not in labor force:	11,193	24,001	88,378	9,320	3,407	5,851	55	107	1,528	23	64	838
With health insurance coverage	9,315	19,889	64,956	8,363	2,917	4,983	53	87	1,158	23	51	662
No health insurance coverage	1,878	4,112	23,422	957	490	868	2	20	370	0	13	176
% uninsured, not in labor force	16.8%	17.1%	26.5%	10.3%	14.4%	14.8%	3.6%	18.7%	24.2%	0.0%	20.3%	21.0%
Health insurance by age - Universe: Civilian noninstitutionalized population												
Total:	98,904	223,436	669,314	89,803	22,958	52,561	524	768	11,045	349	591	9,628
With health insurance coverage	42,655	97,359	265,516	40,422	10,545	47,186	478	692	9,096	323	442	8,026
Under 6 years	4,044	9,372	27,247	3,580	782	4,134	16	57	948	26	42	780
6 to 17 years	8,477	18,544	49,071	7,464	2,048	9,201	117	135	1,608	94	81	1,597
18 to 24 years	2,959	6,644	19,473	3,213	693	3,412	36	52	579	3	52	655
25 to 34 years	4,577	12,876	33,454	4,491	1,038	5,799	51	47	1,016	6	45	771
35 to 44 years	5,329	13,516	32,045	5,172	1,257	6,435	51	67	1,255	44	76	1,217
45 to 54 years	6,192	14,131	37,671	6,409	1,703	6,974	88	87	1,415	59	67	815
55 to 64 years	5,137	11,244	31,928	5,439	1,433	5,889	44	89	933	30	37	754
65 to 74 years	3,586	6,744	20,112	3,048	1,020	3,346	47	103	682	45	26	698
75 years and over	2,354	4,288	14,515	1,606	571	1,996	28	55	660	16	16	739
No health insurance coverage	5,709	11,979	57,965	3,699	904	5,375	46	76	1,949	26	149	1,602
Under 6 years	204	308	2,006	81	10	237	0	4	64	0	0	50
6 to 17 years	678	1,160	5,039	281	95	528	9	8	210	0	0	225
18 to 24 years	1,031	2,441	10,321	447	182	1,007	13	7	640	2	12	232
25 to 34 years	1,139	2,836	15,132	1,281	156	1,295	11	10	281	6	27	446

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Cass	Clay	Jackson	Platte	Ray	Blue Springs	Dearborn	Edgerton	Excelsior Springs	Farley	Ferrelview	Harrisonville
35 to 44 years	1,108	2,203	10,300	777	212	993	0	9	214	9	67	321
45 to 54 years	1,056	1,828	9,130	583	144	789	13	25	270	9	41	103
55 to 64 years	493	1,117	5,703	180	90	499	0	13	270	0	2	225
65 to 74 years	0	80	204	45	0	12	0	0	0	0	0	0
75 years and over	0	6	130	24	15	15	0	0	0	0	0	0
% total with no health insurance	5.8%	5.4%	8.7%	4.1%	3.9%	10.2%	8.8%	9.9%	17.6%	7.4%	25.2%	16.6%
% under 18 with no health insurance	6.6%	5.0%	8.5%	3.2%	3.6%	5.4%	6.3%	5.9%	9.7%	0.0%	0.0%	10.4%
% 18 to 64 with no health insurance	16.6%	15.1%	24.7%	11.7%	11.3%	13.8%	12.1%	15.8%	24.4%	15.5%	35.0%	24.0%
% 65 and over with no health insurance	0.0%	0.8%	1.0%	1.5%	0.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Population by race and ethcnic origin - Universe: Total population												
Total:	99,875	225,116	675,641	90,842	23,290	52,776	524	768	11,308	349	594	10,012
Not Hispanic or Latino:	95,821	211,421	618,844	86,087	22,832	50,764	494	768	11,017	349	557	9,600
White alone	89,051	187,971	427,020	76,045	22,052	45,009	459	768	10,110	349	487	9,377
% White Alone	89.2%	83.5%	63.2%	83.7%	94.7%	85.3%	87.6%	100.0%	89.4%	100.0%	82.0%	93.7%
Black or African American alone	3,522	11,340	159,332	5,408	255	3,148	5	0	471	0	41	112
% Black or African American Alone	3.5%	5.0%	23.6%	6.0%	1.1%	6.0%	1.0%	0.0%	4.2%	0.0%	6.9%	1.1%
Other races alone	3,248	12,110	32,492	4,634	525	2,607	30	0	436	0	29	111
Hispanic or Latino:	4,054	13,695	56,797	4,755	458	2,012	30	0	291	0	37	412
% Hispanic or Latino	4.1%	6.1%	8.4%	5.2%	2.0%	3.8%	5.7%	0.0%	2.6%	0.0%	6.2%	4.1%
Veteran status for the civilian population 18 years and over												
Total civilian population 18 years and over	73,654	167,357	510,947	68,109	17,564	38,657	382	564	8,454	229	468	7,345
Veteran	8,688	17,663	48,827	7,457	1,853	3,944	38	82	755	48	85	791
Nonveteran	64,966	149,694	462,120	60,652	15,711	34,713	344	482	7,699	181	383	6,554
% veterans	11.8%	10.6%	9.6%	10.9%	10.5%	10.2%	9.9%	14.5%	8.9%	21.0%	18.2%	10.8%
Housing units with no vehicle available - Universe: Occupied housing units												
Total housing units:	37,307	86,934	271,545	36,781	8,735	19,196	208	269	4,131	109	289	3,934
Owner occupied:	28,959	61,738	165,840	23,662	6,818	13,345	134	231	2,614	97	126	2,521
% owner-occupied	77.6%	71.0%	61.1%	64.3%	78.1%	69.5%	64.4%	85.9%	63.3%	89.0%	43.6%	64.1%
Renter occupied:	8,348	25,196	105,705	13,119	1,917	5,851	74	38	1,517	12	163	1,413
% renter-occupied	22.4%	29.0%	38.9%	35.7%	21.9%	30.5%	35.6%	14.1%	36.7%	11.0%	56.4%	35.9%
Total housing units with no vehicles available:	1,220	3,655	26,231	1,563	526	391	13	5	333	0	25	270

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Cass	Clay	Jackson	Platte	Ray	Blue Springs	Dearborn	Edgerton	Excelsior Springs	Farley	Ferrelview	Harrisonville
% without vehicles:	3.3%	4.2%	9.7%	4.2%	6.0%	2.0%	6.3%	1.9%	8.1%	0.0%	8.7%	6.9%
Owner occupied with no vehicle available	407	1,144	5,392	344	197	171	0	5	77	0	4	22
% owner-occupied without vehicles:	1.4%	1.9%	3.3%	1.5%	2.9%	1.3%	0.0%	2.2%	2.9%	0.0%	3.2%	0.9%
Renter occupied with no vehicle available	813	2,511	20,839	1,219	329	220	13	0	256	0	21	248
% renter-occupied without vehicles:	9.7%	10.0%	19.7%	9.3%	17.2%	3.8%	17.6%	0.0%	16.9%	0.0%	12.9%	17.6%

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Houston Lake	Independence	Kansas City	Kearney	Lake Waukomis	Lake Winnebago	Northmoor	Oak Grove	Parkville	Peculiar	Platte City
Population by Age											
Total:	273	116,881	462,378	8,637	1,009	1,393	408	7,745	5,682	4,687	4,729
Under 5 years	21	8,268	34,290	549	35	116	27	591	167	369	348
% under 5 years	7.7%	7.1%	7.4%	6.4%	3.5%	8.3%	6.6%	7.6%	2.9%	7.9%	7.4%
Under 18 years	47	26,863	110,878	2,679	116	365	81	2,457	1,458	1,332	1,264
% under 18 years	17.2%	23.0%	24.0%	31.0%	11.5%	26.2%	19.9%	31.7%	25.7%	28.4%	26.7%
65 years and over	51	19,110	52,984	685	214	230	29	845	661	435	415
% 65 years and over	18.7%	16.3%	11.5%	7.9%	21.2%	16.5%	7.1%	10.9%	11.6%	9.3%	8.8%
Civilian non-institutionalized population											
Total:	273	115,870	457,940	8,617	1,003	1,393	408	7,661	5,682	4,687	4,296
With a disability	27	18,587	57,092	652	94	63	58	885	394	512	510
% with a disability	9.9%	16.0%	12.5%	7.6%	9.4%	4.5%	14.2%	11.6%	6.9%	10.9%	11.9%
Ability to Speak English - Universe: Population 5 years and over											
Total:	252	108,613	428,088	8,088	974	1,277	381	7,154	5,515	4,318	4,381
Speak only English	246	101,384	376,692	7,888	957	1,244	377	6,968	5,156	4,201	4,261
Speak other languages and:											
Speak English "very well"	6	4,185	30,998	167	17	33	4	161	238	74	120
Speak English "well"	0	2,731	15,833	33	0	0	0	38	95	43	37
Speak English "not well"	0	1,588	9,075	0	0	6	0	0	26	0	0
Speak English "not at all"	0	317	3,453	16	0	0	0	0	0	0	0
% speak English less than "very well"	0.0%	4.3%	6.6%	0.6%	0.0%	0.5%	0.0%	0.5%	2.2%	1.0%	0.8%
Limited English-Speaking Households - Universe: Households											
Total:	109	48,108	192,648	3,134	465	492	166	2,641	2,069	1,743	2,031
Limited English speaking households	0	809	5,473	0	0	0	0	0	7	22	0
% limited English speaking households	0.0%	1.7%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	1.3%	0.0%
Year structure built - Universe: Housing units											
Total:	109	53,535	225,145	3,379	496	530	201	2,881	2,273	1,787	2,179
50 years old or more	61	20,063	99,512	225	160	3	94	225	240	128	246
% 50 years old or more	56.0%	37.5%	44.2%	6.7%	32.3%	0.6%	46.8%	7.8%	10.6%	7.2%	11.3%
Built in 1939 or earlier	16	6,586	50,024	173	9	0	39	114	108	33	40
% built in 1939 or earlier	14.7%	12.3%	22.2%	5.1%	1.8%	0.0%	19.4%	4.0%	4.8%	1.8%	1.8%

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Houston Lake	Independence	Kansas City	Kearney	Lake Waukomis	Lake Winnebago	Northmoor	Oak Grove	Parkville	Peculiar	Platte City
Median household income in the past 12 months (in 2013 inflation-adjusted dollars) - Universe: Households											
Median household income	52,125	44,261	45,275	75,243	69,375	101,250	54,500	50,018	107,917	57,176	61,192
								*Note: Oak Grove's median income is from 2012 ACS 5-Year Estimates, 2013 is not available.			
Poverty status in the past 12 months - Universe: Population for whom poverty status is determined											
Total:	273	115,268	454,587	8,613	1,009	1,393	406	7614	5,396	4,687	4,579
Persons with income below poverty level	21	20,022	86,683	408	39	28	49	840	519	562	708
% persons below the poverty level	7.7%	17.4%	19.1%	4.7%	3.9%	2.0%	12.1%	11.0%	9.6%	12.0%	15.5%
Educational Attainment - Universe: Population 25 and over											
Total:	203	79,893	307,314	5,316	797	944	290	4,570	3,507	2,955	3,059
Less than 9th grade	7	2,791	11,762	41	0	1	8	142	57	90	52
9th to 12th grade, no diploma	16	7,789	26,674	80	10	13	16	420	108	117	243
HS graduate (includes equivalency)	64	30,074	79,702	1,382	193	111	140	1,633	425	1,023	910
Some college, no degree	56	20,232	71,965	1,356	243	168	65	1,126	406	807	786
Associate's degree	18	5,061	21,076	509	57	67	27	522	206	263	202
Bachelor's degree	30	9,208	59,632	1,221	153	341	29	513	1,336	438	551
Graduate or professional degree	12	4,738	36,503	727	141	243	5	214	969	217	315
% with no HS diploma	11.3%	13.2%	12.5%	2.3%	1.3%	1.5%	8.3%	12.3%	4.7%	7.0%	9.6%
% with a HS diploma or higher	88.7%	86.8%	87.5%	97.7%	98.7%	98.5%	91.7%	87.7%	95.3%	93.0%	90.4%
% with a bachelor's degree or higher	20.7%	17.5%	31.3%	36.6%	36.9%	61.9%	11.7%	15.9%	65.7%	22.2%	28.3%
Health insurance status and type by employment status by age - Universe: Civilian noninstitutionalized population 18 years and over											
Total, 18 years and over:	226	89,091	347,504	5,938	887	1,028	327	5,204	4,224	3,355	3,032
In labor force:	147	57,597	244,912	4,696	641	697	261	3,703	3,043	2,493	2,279
In labor force: - Employed:	137	51,883	221,955	4,522	624	657	236	3,430	2,890	2,266	2,115
In labor force: - Unemployed:	10	5,714	22,957	174	17	40	25	273	153	227	164
Unemployment rate:	6.8%	9.9%	9.4%	3.7%	2.7%	5.7%	9.6%	7.4%	5.0%	9.1%	7.2%
Not in labor force:	79	31,494	102,592	1,242	246	331	66	1,501	1,181	862	753

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Houston Lake	Independence	Kansas City	Kearney	Lake Waukomis	Lake Winnebago	Northmoor	Oak Grove	Parkville	Peculiar	Platte City
18 to 64 years:	175	70,733	296,202	5,273	673	798	298	4,437	3,563	2,920	2,663
With health insurance coverage	132	54,017	229,168	4,852	648	744	246	3,661	3,330	2,429	2,241
No health insurance coverage	43	16,716	67,034	421	25	54	52	776	233	491	422
% uninsured, 18 to 64 years	24.6%	23.6%	22.6%	8.0%	3.7%	6.8%	17.4%	17.5%	6.5%	16.8%	15.8%
Employed:	121	49,378	212,619	4,414	586	605	224	3,367	2,717	2,241	2,053
With health insurance coverage	95	40,244	173,526	4,150	563	576	192	2,828	2,550	1,901	1,812
No health insurance coverage	26	9,134	39,093	264	23	29	32	539	167	340	241
% uninsured, employed	21.5%	18.5%	18.4%	6.0%	3.9%	4.8%	14.3%	16.0%	6.1%	15.2%	11.7%
Unemployed:	10	5,584	22,313	174	6	29	25	252	136	218	164
With health insurance coverage	3	2,734	10,442	157	6	22	14	81	88	135	76
No health insurance coverage	7	2,850	11,871	17	0	7	11	171	48	83	88
% uninsured, unemployed	70.0%	51.0%	53.2%	9.8%	0.0%	24.1%	44.0%	67.9%	35.3%	38.1%	53.7%
Not in labor force:	44	15,771	61,270	685	81	164	49	818	710	461	446
With health insurance coverage	34	11,039	45,200	545	79	146	40	752	692	393	353
No health insurance coverage	10	4,732	16,070	140	2	18	9	66	18	68	93
% uninsured, not in labor force	22.7%	30.0%	26.2%	20.4%	2.5%	11.0%	18.4%	8.1%	2.5%	14.8%	20.9%
Health insurance by age - Universe: Civilian noninstitutionalized population											
Total:	273	115,870	457,940	8,617	1,003	1,393	408	7,661	5,682	4,687	4,296
With health insurance coverage	228	96,897	381,103	8,147	978	1,339	356	6,657	5,426	4,182	3,811
Under 6 years	19	9,229	38,122	792	40	127	32	790	306	417	397
6 to 17 years	26	15,315	63,123	1,838	76	238	49	1,452	1,129	901	804
18 to 24 years	14	6,802	31,111	628	91	79	30	556	695	307	314
25 to 34 years	19	11,214	55,162	1,080	87	73	28	896	270	642	504
35 to 44 years	28	10,559	46,893	1,202	80	185	86	976	506	587	332
45 to 54 years	24	13,282	51,187	1,157	177	151	76	671	1,159	523	641
55 to 64 years	47	12,160	44,815	785	213	256	26	562	700	370	450
65 to 74 years	25	9,530	27,489	433	128	164	18	409	501	238	291
75 years and over	26	8,806	23,201	232	86	66	11	345	160	197	78
No health insurance coverage	45	18,973	76,837	470	25	54	52	1,004	256	505	485
Under 6 years	2	684	2,466	17	0	0	0	59	0	14	37
6 to 17 years	0	1,551	6,725	32	0	0	0	156	23	0	26
18 to 24 years	9	3,303	12,695	14	5	5	7	162	22	93	44
25 to 34 years	18	4,854	20,257	207	0	4	6	204	79	154	150

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Houston Lake	Independence	Kansas City	Kearney	Lake Waukomis	Lake Winnebago	Northmoor	Oak Grove	Parkville	Peculiar	Platte City
35 to 44 years	6	3,494	13,815	87	5	3	1	176	29	86	99
45 to 54 years	5	2,765	12,389	53	12	5	30	131	86	102	123
55 to 64 years	5	2,300	7,878	60	3	37	8	103	17	56	6
65 to 74 years	0	22	444	0	0	0	0	13	0	0	0
75 years and over	0	0	168	0	0	0	0	0	0	0	0
% total with no health insurance	16.5%	16.4%	16.8%	5.5%	2.5%	3.9%	12.7%	13.1%	4.5%	10.8%	11.3%
% under 18 with no health insurance	4.3%	8.3%	8.3%	1.8%	0.0%	0.0%	0.0%	8.8%	1.6%	1.1%	5.0%
% 18 to 64 with no health insurance	24.6%	23.6%	22.6%	8.0%	3.7%	6.8%	17.4%	17.5%	6.5%	16.8%	15.8%
% 65 and over with no health insurance	0.0%	0.1%	1.2%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%
Population by race and ethcnic origin - Universe: Total population											
Total:	273	116,881	462,378	8,637	1,009	1,393	408	7,745	5,682	4,687	4,729
Not Hispanic or Latino:	254	106,641	415,640	8,427	992	1,352	403	6,983	5,534	4,568	4,591
White alone	246	93,932	254,606	7,932	974	1,339	387	6,826	5,013	4,262	4,328
% White Alone	90.1%	80.4%	55.1%	91.8%	96.5%	96.1%	94.9%	88.1%	88.2%	90.9%	91.5%
Black or African American alone	3	8,097	134,165	13	0	7	11	72	229	88	159
% Black or African American Alone	1.1%	6.9%	29.0%	0.2%	0.0%	0.5%	2.7%	0.9%	4.0%	1.9%	3.4%
Other races alone	5	4,612	26,869	482	18	6	5	85	292	218	104
Hispanic or Latino:	19	10,240	46,738	210	17	41	5	762	148	119	138
% Hispanic or Latino	7.0%	8.8%	10.1%	2.4%	1.7%	2.9%	1.2%	9.8%	2.6%	2.5%	2.9%
Veteran status for the civilian population 18 years and over											
Total civilian population 18 years and over	226	89,994	351,144	5,958	887	1,028	327	5,288	4,224	3,355	3,182
Veteran	52	10,503	31,565	557	128	99	37	618	408	370	486
Nonveteran	174	79,491	319,579	5,401	759	929	290	4,670	3,816	2,985	2,696
% veterans	23.0%	11.7%	9.0%	9.3%	14.4%	9.6%	11.3%	11.7%	9.7%	11.0%	15.3%
Housing units with no vehicle available - Universe: Occupied housing units											
Total housing units:	109	48,108	192,648	3,134	465	492	166	2,641	2,069	1,743	2,031
Owner occupied:	94	31,144	108,507	2,285	438	472	118	1,695	1,625	1,259	782
% owner-occupied	86.2%	64.7%	56.3%	72.9%	94.2%	95.9%	71.1%	64.2%	78.5%	72.2%	38.5%
Renter occupied:	15	16,964	84,141	849	27	20	48	946	444	484	1,249
% renter-occupied	13.8%	35.3%	43.7%	27.1%	5.8%	4.1%	28.9%	35.8%	21.5%	27.8%	61.5%
Total housing units with no vehicles available:	1	3,312	21,662	49	21	5	2	104	27	62	30

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Houston Lake	Independence	Kansas City	Kearney	Lake Waukomis	Lake Winnebago	Northmoor	Oak Grove	Parkville	Peculiar	Platte City
% without vehicles:	0.9%	6.9%	11.2%	1.6%	4.5%	1.0%	1.2%	3.9%	1.3%	3.6%	1.5%
Owner occupied with no vehicle available	1	838	4,030	0	21	5	0	28	17	24	0
% owner-occupied without vehicles:	1.1%	2.7%	3.7%	0.0%	4.8%	1.1%	0.0%	1.7%	1.0%	1.9%	0.0%
Renter occupied with no vehicle available	0	2,474	17,632	49	0	0	2	76	10	38	30
% renter-occupied without vehicles:	0.0%	14.6%	21.0%	5.8%	0.0%	0.0%	4.2%	8.0%	2.3%	7.9%	2.4%

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Platte Woods	Raymore	Raytown	Richmond	Riverside	Tracy	Weatherby Lake	Weston
Population by Age								
Total:	403	19,330	29,513	5,746	2,981	181	1,845	1,713
Under 5 years	12	1,162	2,079	394	249	19	60	74
% under 5 years	3.0%	6.0%	7.0%	6.9%	8.4%	10.5%	3.3%	4.3%
Under 18 years	53	5,188	7,346	1,430	588	51	324	462
% under 18 years	13.2%	26.8%	24.9%	24.9%	19.7%	28.2%	17.6%	27.0%
65 years and over	96	2,743	4,725	1,032	486	25	447	269
% 65 years and over	23.8%	14.2%	16.0%	18.0%	16.3%	13.8%	24.2%	15.7%
Civilian non-institutionalized population								
Total:	403	19,097	29,097	5,551	2,799	181	1,844	1,698
With a disability	44	1,830	3,854	965	404	21	145	192
% with a disability	10.9%	9.6%	13.2%	17.4%	14.4%	11.6%	7.9%	11.3%
Ability to Speak English - Universe: Population 5 years and over								
Total:	391	18,168	27,434	5,352	2,732	162	1,785	1,639
Speak only English	385	17,532	26,153	5,285	2,207	159	1,712	1,585
Speak other languages and:								
Speak English "very well"	3	448	951	18	190	1	59	46
Speak English "well"	2	147	405	17	172	2	11	5
Speak English "not well"	1	114	126	32	122	0	7	5
Speak English "not at all"	0	12	48	0	41	0	0	0
% speak English less than "very well"	0.8%	1.5%	2.1%	0.9%	12.3%	1.2%	1.0%	0.6%
Limited English-Speaking Households - Universe: Households								
Total:	191	7,044	11,750	2,299	1,204	71	718	680
Limited English speaking households	1	39	69	28	120	0	2	3
% limited English speaking households	0.5%	0.6%	0.6%	1.2%	10.0%	0.0%	0.3%	0.4%
Year structure built - Universe: Housing units								
Total:	191	7,376	12,842	2,727	1,353	94	736	742
50 years old or more	112	260	5,344	937	275	30	77	267
% 50 years old or more	58.6%	3.5%	41.6%	34.4%	20.3%	31.9%	10.5%	36.0%
Built in 1939 or earlier	18	74	462	465	18	18	19	223
% built in 1939 or earlier	9.4%	1.0%	3.6%	17.1%	1.3%	19.1%	2.6%	30.1%

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Platte Woods	Raymore	Raytown	Richmond	Riverside	Tracy	Weatherby Lake	Weston
Median household income in the past 12 months (in 2013 inflation-adjusted dollars) - Universe: Households								
Median household income	67,917	72,042	48,528	38,338	39,573	63,750	104,583	57,391
Poverty status in the past 12 months - Universe: Population for whom poverty status is determined								
Total:	403	19,043	29,003	5,461	2,800	181	1,845	1,696
Persons with income below poverty level	21	646	3,375	1,139	631	14	54	135
% persons below the poverty level	5.2%	3.4%	11.6%	20.9%	22.5%	7.7%	2.9%	8.0%
Educational Attainment - Universe: Population 25 and over								
Total:	330	12,801	19,625	3,961	2,154	121	1,437	1,128
Less than 9th grade	4	107	458	172	135	8	10	41
9th to 12th grade, no diploma	3	418	1,457	424	152	5	31	53
HS graduate (includes equivalency)	44	3,684	6,366	1,888	684	51	219	338
Some college, no degree	108	3,558	5,212	807	538	38	341	332
Associate's degree	28	1,274	1,508	156	170	5	108	67
Bachelor's degree	78	2,576	3,092	368	338	9	407	207
Graduate or professional degree	65	1,184	1,532	146	137	5	321	90
% with no HS diploma	2.1%	4.1%	9.8%	15.0%	13.3%	10.7%	2.9%	8.3%
% with a HS diploma or higher	97.9%	95.9%	90.2%	85.0%	86.7%	89.3%	97.1%	91.7%
% with a bachelor's degree or higher	43.3%	29.4%	23.6%	13.0%	22.1%	11.6%	50.7%	26.3%
Health insurance status and type by employment status by age - Universe: Civilian noninstitutionalized population 18 years and over								
Total, 18 years and over:	350	13,909	21,757	4,121	2,211	130	1,520	1,236
In labor force:	211	9,723	14,711	2,567	1,672	106	1,037	852
In labor force: - Employed:	195	9,309	13,715	2,334	1,448	100	970	797
In labor force: - Unemployed:	16	414	996	233	224	6	67	55
Unemployment rate:	7.6%	4.3%	6.8%	9.1%	13.4%	5.7%	6.5%	6.5%
Not in labor force:	139	4,186	7,046	1,554	539	24	483	384

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Platte Woods	Raymore	Raytown	Richmond	Riverside	Tracy	Weatherby Lake	Weston
18 to 64 years:	254	11,392	17,364	3,258	1,852	105	1,073	967
With health insurance coverage	246	10,216	13,356	2,875	1,234	97	1,036	813
No health insurance coverage	8	1,176	4,008	383	618	8	37	154
% uninsured, 18 to 64 years	3.1%	10.3%	23.1%	11.8%	33.4%	7.6%	3.4%	15.9%
Employed:	174	9,020	13,169	2,182	1,325	95	845	741
With health insurance coverage	167	8,192	10,599	1,913	919	88	818	632
No health insurance coverage	7	828	2,570	269	406	7	27	109
% uninsured, employed	4.0%	9.2%	19.5%	12.3%	30.6%	7.4%	3.2%	14.7%
Unemployed:	13	414	970	215	216	4	48	53
With health insurance coverage	13	185	431	178	94	3	44	33
No health insurance coverage	0	229	539	37	122	1	4	20
% uninsured, unemployed	0.0%	55.3%	55.6%	17.2%	56.5%	25.0%	8.3%	37.7%
Not in labor force:	67	1,958	3,225	861	311	6	180	173
With health insurance coverage	66	1,839	2,326	784	221	6	174	148
No health insurance coverage	1	119	899	77	90	0	6	25
% uninsured, not in labor force	1.5%	6.1%	27.9%	8.9%	28.9%	0.0%	3.3%	14.5%

Health insurance by age - Universe: Civilian noninstitutionalized population

Total:	403	19,097	29,097	5,551	2,799	181	1,844	1,698
With health insurance coverage	395	17,588	24,052	5,115	2,065	173	1,807	1,514
Under 6 years	12	1,565	2,075	423	254	29	79	103
6 to 17 years	41	3,290	4,263	969	218	22	245	329
18 to 24 years	18	1,157	1,638	315	120	9	70	108
25 to 34 years	24	2,187	2,187	771	357	23	77	125
35 to 44 years	38	2,339	3,027	654	229	19	240	158
45 to 54 years	59	2,602	3,734	666	243	15	265	234
55 to 64 years	107	1,931	2,770	469	285	31	384	188
65 to 74 years	61	1,227	2,140	515	194	19	354	131
75 years and over	35	1,290	2,218	333	165	6	93	138
No health insurance coverage	8	1,509	5,045	436	734	8	37	184
Under 6 years	0	76	309	0	24	0	0	4
6 to 17 years	0	257	693	38	92	0	0	26
18 to 24 years	2	184	904	40	119	0	14	15
25 to 34 years	0	310	1,104	97	271	6	0	57

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Platte Woods	Raymore	Raytown	Richmond	Riverside	Tracy	Weatherby Lake	Weston
35 to 44 years	0	351	726	80	91	1	4	28
45 to 54 years	3	198	872	115	55	0	16	41
55 to 64 years	3	133	402	51	82	1	3	13
65 to 74 years	0	0	24	0	0	0	0	0
75 years and over	0	0	11	15	0	0	0	0
% total with no health insurance	2.0%	7.9%	17.3%	7.9%	26.2%	4.4%	2.0%	10.8%
% under 18 with no health insurance	0.0%	6.4%	13.7%	2.7%	19.7%	0.0%	0.0%	6.5%
% 18 to 64 with no health insurance	3.1%	10.3%	23.1%	11.8%	33.4%	7.6%	3.4%	15.9%
% 65 and over with no health insurance	0.0%	0.0%	0.8%	1.7%	0.0%	0.0%	0.0%	0.0%
Population by race and ethcnic origin - Universe: Total population								
Total:	403	19,330	29,513	5,746	2,981	181	1,845	1,713
Not Hispanic or Latino:	398	18,749	28,076	5,570	2,823	169	1,797	1,687
White alone	391	16,511	19,261	5,347	2,069	162	1,739	1,626
% White Alone	97.0%	85.4%	65.3%	93.1%	69.4%	89.5%	94.3%	94.9%
Black or African American alone	0	1,568	7,796	139	436	0	4	0
% Black or African American Alone	0.0%	8.1%	26.4%	2.4%	14.6%	0.0%	0.2%	0.0%
Other races alone	7	670	1,019	84	318	7	54	61
Hispanic or Latino:	5	581	1,437	176	158	12	48	26
% Hispanic or Latino	1.2%	3.0%	4.9%	3.1%	5.3%	6.6%	2.6%	1.5%
Veteran status for the civilian population 18 years and over								
Total civilian population 18 years and over	350	14,142	22,167	4,316	2,386	130	1,520	1,236
Veteran	55	1,711	2,175	440	210	18	186	166
Nonveteran	295	12,431	19,992	3,876	2,176	112	1,334	1,070
% veterans	15.7%	12.1%	9.8%	10.2%	8.8%	13.8%	12.2%	13.4%
Housing units with no vehicle available - Universe: Occupied housing units								
Total housing units:	191	7,044	11,750	2,299	1,204	71	718	680
Owner occupied:	172	5,791	8,076	1,365	351	56	673	418
% owner-occupied	90.1%	82.2%	68.7%	59.4%	29.2%	78.9%	93.7%	61.5%
Renter occupied:	19	1,253	3,674	934	853	15	45	262
% renter-occupied	9.9%	17.8%	31.3%	40.6%	70.8%	21.1%	6.3%	38.5%
Total housing units with no vehicles available:	8	109	815	348	142	0	0	45

Source: 2013 American Coummunity Survey, 5-year estimates

Counties and Cities	Platte Woods	Raymore	Raytown	Richmond	Riverside	Tracy	Weatherby Lake	Weston
% without vehicles:	4.2%	1.5%	6.9%	15.1%	11.8%	0.0%	0.0%	6.6%
Owner occupied with no vehicle available	7	13	297	77	0	0	0	15
% owner-occupied without vehicles:	4.1%	0.2%	3.7%	5.6%	0.0%	0.0%	0.0%	3.6%
Renter occupied with no vehicle available	1	96	518	271	142	0	0	30
% renter-occupied without vehicles:	5.3%	7.7%	14.1%	29.0%	16.6%	0.0%	0.0%	11.5%

Source: 2013 American Coummunity Survey, 5-year estimates

Appendix C:
Building Counts and Valuations Tables by Jurisdiction

(9 Pages)

CASS COUNTY

Cass County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	1,521	1,128	$74,663,030	$5,903,635	$269,062,755	$274,966,390	$349,629,420
Indust./Bus. Park	299	105	$7,133,210	$400,670	$47,328,300	$47,728,970	$54,862,180
Multi-Family	1,695	1,684	$18,221,350	$177,973,740	$885,120	$178,858,860	$197,080,210
Office	20	14	$1,175,100	$5,994,970	$4,457,970	$10,452,940	$11,628,040
Parks, Open Space	250	128	$10,109,390	$4,495,420	$6,688,200	$11,183,620	$21,293,010
Public/Semipublic	846	436	$132,910,520	$9,037,790	$11,724,730	$20,762,520	$153,673,040
ROW	323	34	$403,270	$837,210	$307,970	$1,145,180	$1,548,450
Single Family	34,283	25,545	$525,241,651	$2,873,895,407	$15,377,510	$2,889,272,917	$3,414,514,568
Single Family Low Density	6,777	3,413	$73,143,320	$430,455,724	$6,269,470	$436,725,194	$509,868,514
Vacant/Ag	12,450	5,035	$116,767,276	$423,847,059	$9,031,203	$432,878,262	$549,645,538
TOTAL	58,464	37,522	$959,768,117	$3,932,841,625	$371,133,228	$4,303,974,853	$5,263,742,970

Belton	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	409	285	$30,879,970	$2,070,448	$103,650,472	$105,720,920	$136,600,890
Indust./Bus. Park	143	35	$1,776,270	$56,150	$18,970,280	$19,026,430	$20,802,700
Multi-Family	442	386	$3,362,710	$48,194,150	$145,070	$48,339,220	$51,701,930
Parks, Open Space	57	13	$2,414,400	$191,390	$0	$191,390	$2,605,790
Public/Semipublic	199	82	$29,188,830	$133,180	$7,353,970	$7,487,150	$36,675,980
ROW	106	6	$174,010	$110,540	$22,390	$132,930	$306,940
Single Family	11,131	6,291	$92,046,510	$575,431,330	$5,303,470	$580,734,800	$672,781,310
Single Family Low Density	160	51	$1,907,610	$8,326,400	$3,005,120	$11,331,520	$13,239,130
Vacant/Ag	209	103	$1,732,090	$3,712,108	$0	$3,712,108	$5,444,198
TOTAL	12,856	7,252	$163,482,400	$638,225,696	$138,450,772	$776,676,468	$940,158,868

Harrisonville	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	308	247	$18,432,170	$1,123,329	$58,036,551	$59,159,880	$77,592,050
Indust./Bus. Park	66	30	$3,055,230	$81,750	$21,241,120	$21,322,870	$24,378,100
Multi-Family	310	260	$3,461,510	$25,129,140	$351,040	$25,480,180	$28,941,690
Office	13	10	$881,230	$2,283,400	$4,282,290	$6,565,690	$7,446,920
Parks, Open Space	41	11	$168,370	$0	$537,730	$537,730	$706,100
Public/Semipublic	128	75	$54,467,830	$112,040	$115,180	$227,220	$54,695,050
ROW	41	5	$55,210	$0	$188,070	$188,070	$243,280
Single Family	3,817	2,809	$49,449,080	$237,362,760	$1,421,480	$238,784,240	$288,233,320
Single Family Low Density	56	24	$675,330	$6,385,030	$455,340	$6,840,370	$7,515,700
Vacant/Ag	116	86	$2,331,910	$4,326,170	$1,544,110	$5,870,280	$8,202,190
TOTAL	4,896	3,557	$132,977,870	$276,803,619	$88,172,911	$364,976,530	$497,954,400

Lake Winnebago	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	1	2	$144,840	$0	$652,980	$652,980	$797,820
Parks, Open Space	1	3	$68,500	$0	$0	$0	$68,500
Public/Semipublic	4	6	$905,600	$0	$283,370	$283,370	$1,188,970
Single Family	491	508	$27,277,610	$118,693,130	$0	$118,693,130	$145,970,740
Single Family Low Density	4	2	$60,310	$221,100	$0	$221,100	$281,410
Vacant/Ag	17	14	$241,820	$40,020	$0	$40,020	$281,840
TOTAL	518	535	$28,698,680	$118,954,250	$936,350	$119,890,600	$148,589,280

Peculiar	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	92	66	$3,625,600	$134,240	$14,608,870	$14,743,110	$18,368,710
Indust./Bus. Park	9	4	$81,490	$0	$281,470	$281,470	$362,960
Multi-Family	54	58	$688,820	$4,054,110	$0	$4,054,110	$4,742,930
Parks, Open Space	9	3	$120,510	$0	$0	$0	$120,510
Public/Semipublic	40	21	$2,436,650	$0	$77,470	$77,470	$2,514,120
ROW	16	1	$10,630	$31,010	$0	$31,010	$41,640
Single Family	1,517	1,417	$30,230,370	$142,529,740	$2,288,590	$144,818,330	$175,048,700
Single Family Low Density	47	22	$591,290	$2,719,580	$0	$2,719,580	$3,310,870
Vacant/Ag	154	130	$3,215,350	$12,120,190	$0	$12,120,190	$15,335,540
TOTAL	1,938	1,722	$41,000,710	$161,588,870	$17,256,400	$178,845,270	$219,845,980

Pleasant Hill	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	160	156	$5,344,120	$450,870	$22,832,480	$23,283,350	$28,627,470
Multi-Family	159	165	$1,290,130	$14,195,340	$35,600	$14,230,940	$15,521,070
Parks, Open Space	18	16	$1,573,920	$219,680	$34,470	$254,150	$1,828,070
Public/Semipublic	97	58	$14,414,540	$1,536,980	$1,166,510	$2,703,490	$17,118,030
ROW	39	5	$21,360	$145,840	$17,680	$163,520	$184,880
Single Family	2,760	2,505	$48,028,190	$283,730,610	$136,370	$283,866,980	$331,895,170
Single Family Low Density	48	26	$681,690	$3,190,840	$0	$3,190,840	$3,872,530
Vacant/Ag	69	66	$890,980	$1,878,400	$44,690	$1,923,090	$2,814,070
TOTAL	3,350	2,997	$72,244,930	$305,348,560	$24,267,800	$329,616,360	$401,861,290

Raymore	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	216	98	$12,312,420	$107,870	$45,197,760	$45,305,630	$57,618,050
Indust./Bus. Park	38	21	$643,120	$199,550	$3,431,190	$3,630,740	$4,273,860
Multi-Family	505	482	$5,509,350	$58,752,390	$0	$58,752,390	$64,261,740
Office	7	4	$293,870	$3,711,570	$175,680	$3,887,250	$4,181,120
Parks, Open Space	52	25	$1,973,280	$2,323,890	$0	$2,323,890	$4,297,170
Public/Semipublic	76	35	$17,491,110	$6,765,630	$0	$6,765,630	$24,256,740
ROW	25	5	$59,850	$379,500	$0	$379,500	$439,350
Single Family	6,396	6,017	$157,052,960	$808,828,810	$4,024,320	$812,853,130	$969,906,090
Single Family Low Density	138	101	$3,081,170	$16,440,850	$1,799,910	$18,240,760	$21,321,930
Vacant/Ag	285	175	$3,375,560	$11,072,350	$494,520	$11,566,870	$14,942,430
TOTAL	7,738	6,963	$201,792,690	$908,582,410	$55,123,380	$963,705,790	$1,165,498,480

CLAY COUNTY

Clay County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	2,418	1,328	$410,441,740	$234,000	$1,335,402,800	$1,335,636,800	$1,746,078,540
Condo	38	365	$4,891,300	$28,112,300	$0	$28,112,300	$33,003,600
Indust./Bus. Park	1,214	728	$205,249,850	$0	$411,122,320	$411,122,320	$616,372,170
Multi-Family	2,965	2,711	$133,494,400	$689,779,100	$0	$689,779,100	$823,273,500
Office	614	614	$120,334,600	$0	$342,355,200	$342,355,200	$462,689,800
Parks, Open Space	1,031	934	$150,602,600	$49,327,800	$1,409,600	$50,737,400	$201,340,000
Public/Semipublic	1,498	693	$218,908,010	$182,000	$965,535,555	$965,717,555	$1,184,625,565
ROW	612	86	$8,561,000	$1,453,300	$898,700	$2,352,000	$10,913,000
RR ROW	156	103	$7,188,000	$0	$51,600	$51,600	$7,239,600
Single Family	85,264	65,648	$1,769,287,334	$7,825,793,000	$48,900	$7,825,841,900	$9,595,129,234
Single Family Low Density	3,548	1,714	$63,928,300	$285,140,300	$0	$285,140,300	$349,068,600
Vacant/Ag	8,281	4,444	$202,578,381	$297,328,304	$30,300	$297,358,604	$499,936,985
TOTAL	107,639	79,368	$3,295,465,515	$9,177,350,104	$3,056,854,975	$12,234,205,079	$15,529,670,594

Excelsior Springs (pt.)	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	147	137	$12,122,310	$0	$36,038,500	$36,038,500	$48,160,810
Indust./Bus. Park	84	39	$6,756,500	$0	$32,985,100	$32,985,100	$39,741,600
Multi-Family	71	41	$2,223,600	$13,362,400	$0	$13,362,400	$15,586,000
Office	42	35	$3,013,700	$0	$12,365,800	$12,365,800	$15,379,500
Parks, Open Space	12	8	$1,623,900	$0	$8,100	$8,100	$1,632,000
Public/Semipublic	129	67	$10,907,300	$0	$85,776,675	$85,776,675	$96,683,975
ROW	39	11	$364,900	$134,700	$92,800	$227,500	$592,400
RR ROW	4	6	$350,000	$0	$51,600	$51,600	$401,600
Single Family	3,252	3,175	$44,603,100	$271,612,200	$0	$271,612,200	$316,215,300
Single Family Low Density	82	44	$836,800	$6,300,600	$0	$6,300,600	$7,137,400
Vacant/Ag	171	111	$2,810,500	$4,294,500	$0	$4,294,500	$7,105,000
TOTAL	4,033	3,674	$85,612,610	$295,704,400	$167,318,575	$463,022,975	$548,635,585

Gladstone	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	165	138	$44,493,200	$85,600	$44,406,800	$44,492,400	$88,985,600
Condo	4	144	$1,440,000	$8,642,500	$0	$8,642,500	$10,082,500
Indust./Bus. Park	72	29	$8,170,800	$0	$7,872,100	$7,872,100	$16,042,900
Multi-Family	484	618	$25,200,600	$110,166,300	$0	$110,166,300	$135,366,900
Office	82	116	$18,849,300	$0	$32,196,600	$32,196,600	$51,045,900
Parks, Open Space	55	178	$13,903,300	$8,280,600	$402,000	$8,682,600	$22,585,900
Public/Semipublic	57	40	$17,874,600	$0	$39,108,600	$39,108,600	$56,983,200
ROW	7	7	$369,300	$82,100	$0	$82,100	$451,400
Single Family	8,573	8,232	$210,885,500	$881,539,100	$0	$881,539,100	$1,092,424,600
Single Family Low Density	21	13	$693,000	$3,269,600	$0	$3,269,600	$3,962,600
Vacant/Ag	32	60	$1,495,000	$2,380,200	$0	$2,380,200	$3,875,200
TOTAL	9,552	9,575	$343,374,600	$1,014,446,000	$123,986,100	$1,138,432,100	$1,481,806,700

Kearney	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	124	70	$10,935,100	$0	$22,565,700	$22,565,700	$33,500,800
Indust./Bus. Park	55	35	$4,717,100	$0	$11,432,700	$11,432,700	$16,149,800
Multi-Family	49	25	$1,521,800	$13,065,800	$0	$13,065,800	$14,587,600
Office	40	40	$5,021,800	$0	$23,405,800	$23,405,800	$28,427,600
Parks, Open Space	27	22	$5,469,700	$0	$0	$0	$5,469,700
Public/Semipublic	91	43	$13,145,300	$0	$80,810,800	$80,810,800	$93,956,100
ROW	8	2	$66,000	$0	$0	$0	$66,000
RR ROW	5	3	$92,200	$0	$0	$0	$92,200
Single Family	2,790	2,684	$75,052,000	$343,312,000	$0	$343,312,000	$418,364,000
Single Family Low Density	19	9	$268,600	$1,164,200	$0	$1,164,200	$1,432,800
Vacant/Ag	287	213	$7,982,400	$6,221,000	$0	$6,221,000	$14,203,400
TOTAL	3,495	3,146	$124,272,000	$363,763,000	$138,215,000	$501,978,000	$626,250,000

Liberty	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	328	195	$69,794,700	$0	$199,477,300	$199,477,300	$269,272,000
Indust./Bus. Park	106	72	$21,634,700	$0	$47,592,100	$47,592,100	$69,226,800
Multi-Family	258	210	$8,104,300	$51,767,700	$0	$51,767,700	$59,872,000
Office	145	152	$30,276,200	$0	$60,395,000	$60,395,000	$90,671,200
Parks, Open Space	166	131	$22,894,400	$9,959,600	$948,400	$10,908,000	$33,802,400
Public/Semipublic	238	106	$36,896,500	$0	$254,280,000	$254,280,000	$291,176,500
ROW	58	9	$476,500	$251,200	$614,000	$865,200	$1,341,700
RR ROW	33	14	$1,453,700	$0	$0	$0	$1,453,700
Single Family	10,322	8,650	$251,372,100	$1,095,846,500	$0	$1,095,846,500	$1,347,218,600
Single Family Low Density	235	78	$3,090,200	$12,102,000	$0	$12,102,000	$15,192,200
Vacant/Ag	506	276	$17,446,600	$11,159,300	$0	$11,159,300	$28,605,900
TOTAL	12,395	9,893	$463,439,900	$1,181,086,300	$563,306,800	$1,744,393,100	$2,207,833,000

Mosby	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	18	9	$971,700	$0	$1,108,000	$1,108,000	$2,079,700
Public/Semipublic	4	5	$134,400	$0	$276,500	$276,500	$410,900
ROW	3	1	$120,900	$0	$0	$0	$120,900
Single Family	100	77	$482,300	$2,468,100	$0	$2,468,100	$2,950,400
Vacant/Ag	29	17	$384,900	$726,600	$0	$726,600	$1,111,500
TOTAL	154	109	$2,094,200	$3,194,700	$1,384,500	$4,579,200	$6,673,400

North Kansas City	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	128	140	$29,860,900	$47,700	$605,837,400	$605,885,100	$635,746,000
Indust./Bus. Park	330	317	$101,574,900	$0	$154,462,100	$154,462,100	$256,037,000
Multi-Family	186	82	$8,157,700	$40,801,600	$0	$40,801,600	$48,959,300
Office	67	76	$14,476,100	$0	$45,404,300	$45,404,300	$59,880,400
Parks, Open Space	8	14	$2,110,500	$1,125,400	$0	$1,125,400	$3,235,900
Public/Semipublic	43	30	$13,858,400	$0	$35,039,900	$35,039,900	$48,898,300
ROW	23	15	$1,296,900	$682,600	$97,300	$779,900	$2,076,800
RR ROW	29	33	$1,707,800	$0	$0	$0	$1,707,800
Single Family	1,225	974	$31,873,300	$69,760,200	$48,900	$69,809,100	$101,682,400
Vacant/Ag	14	15	$2,274,400	$29,900	$0	$29,900	$2,304,300
TOTAL	2,053	1,696	$207,190,900	$112,447,400	$840,889,900	$953,337,300	$1,160,528,200

Smithville (pt.)	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	142	84	$10,588,200	$0	$23,951,700	$23,951,700	$34,539,900
Indust./Bus. Park	37	22	$2,268,000	$0	$7,266,600	$7,266,600	$9,534,600
Multi-Family	59	130	$2,609,100	$13,268,500	$0	$13,268,500	$15,877,600
Office	29	30	$2,168,000	$0	$9,438,800	$9,438,800	$11,606,800
Parks, Open Space	33	56	$2,587,600	$3,315,700	$0	$3,315,700	$5,903,300
Public/Semipublic	69	21	$7,955,700	$0	$39,918,800	$39,918,800	$47,874,500
ROW	8	1	$14,300	$0	$72,400	$72,400	$86,700
Single Family	2,848	2,668	$66,996,800	$341,970,100	$0	$341,970,100	$408,966,900
Single Family Low Density	137	72	$2,610,100	$12,489,000	$0	$12,489,000	$15,099,100
Vacant/Ag	320	207	$6,818,200	$13,641,000	$0	$13,641,000	$20,459,200
TOTAL	3,682	3,291	$104,616,000	$384,684,300	$80,648,300	$465,332,600	$569,948,600

JACKSON COUNTY

Jackson County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	8,162	6,185	$1,064,533,592	$15,744,044	$1,853,856,506	$1,869,600,550	$2,934,134,142
Condo	557	5,729	$71,712,193	$694,664,910	$8,605,114	$703,270,024	$774,982,217
Indust./Bus. Park	6,450	3,111	$394,861,291	$3,356,634	$1,384,350,351	$1,387,706,985	$1,782,568,276
Mixed Use	7	4	$10,118,312	$135,589	$17,288,368	$17,423,957	$27,542,269
Multi-Family	17,056	15,153	$2,795,975,378	$19,414,047,379	$1,109,430	$19,415,156,809	$22,211,132,187
Office	2,366	2,868	$632,766,611	$72,387,259	$2,725,104,295	$2,797,491,554	$3,430,258,165
Parks, Open Space	1,991	4,142	$2,221,743,572	$13,519,460,514	$173,632,717	$13,693,093,231	$15,914,836,803
Public/Semipublic	3,814	1,996	$521,963,254	$11,446,212	$2,694,228,342	$2,705,674,554	$3,227,637,808
ROW	2,960	1,584	$95,953,770	$60,097,209	$80,980,886	$141,078,095	$237,031,865
RR ROW	77	46	$3,986,948	$0	$1,354,744	$1,354,744	$5,341,692
Single Family	270,597	206,949	$4,170,844,323	$18,932,807,481	$1,216,490	$18,934,023,971	$23,104,868,294
Single Family Low Density	7,394	3,180	$106,456,499	$936,413	$0	$936,413	$107,392,912
Vacant/Ag	14,516	17,061	$345,477,770	$1,299,625,597	$29,768,586	$1,329,394,183	$1,674,871,953
TOTAL	335,947	268,008	$12,436,393,513	$54,024,709,241	$8,971,495,829	$62,996,205,070	$75,432,598,583

Blue Springs	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	433	375	$96,495,545	$320,056	$152,417,268	$152,737,324	$249,232,869
Condo	67	321	$2,674,027	$18,437,060	$0	$18,437,060	$21,111,087
Indust./Bus. Park	238	171	$17,969,510	$0	$40,551,419	$40,551,419	$58,520,929
Multi-Family	1,351	1,570	$288,365,005	$614,728,340	$0	$614,728,340	$903,093,345
Office	137	159	$12,762,956	$0	$48,250,800	$48,250,800	$61,013,756
Parks, Open Space	137	245	$234,600,411	$281,811,355	$0	$281,811,355	$516,411,766
Public/Semipublic	180	93	$36,290,573	$0	$235,944,626	$235,944,626	$272,235,199
ROW	54	29	$2,288,963	$436,782	$0	$436,782	$2,725,745
Single Family	17,830	15,665	$349,739,254	$1,916,549,368	$568	$1,916,549,936	$2,266,289,190
Single Family Low Density	66	23	$1,350,828	$0	$0	$0	$1,350,828
Vacant/Ag	560	859	$22,891,407	$46,276,142	$334,037	$46,610,179	$69,501,586
TOTAL	21,053	19,510	$1,065,428,479	$2,878,559,103	$477,498,718	$3,356,057,821	$4,421,486,300

Grandview	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	272	209	$26,194,868	$0	$47,175,703	$47,175,703	$73,370,571
Indust./Bus. Park	314	209	$20,344,093	$0	$91,810,032	$91,810,032	$112,154,125
Multi-Family	628	415	$12,121,835	$70,824,336	$0	$70,824,336	$82,946,171
Office	71	58	$4,078,100	$0	$9,404,349	$9,404,349	$13,482,449
Parks, Open Space	36	18	$5,511,180	$0	$0	$0	$5,511,180
Public/Semipublic	95	50	$8,055,405	$0	$49,223,385	$49,223,385	$57,278,790
ROW	25	15	$246,616	$205,865	$0	$205,865	$452,481
RR ROW	2	2	$20,807	$0	$13,529	$13,529	$34,336
Single Family	7,250	7,179	$104,427,239	$520,115,641	$0	$520,115,641	$624,542,880
Single Family Low Density	76	30	$1,251,063	$0	$0	$0	$1,251,063
Vacant/Ag	280	326	$3,746,237	$10,866,705	$0	$10,866,705	$14,612,942
TOTAL	9,049	8,511	$185,997,443	$602,012,547	$197,626,998	$799,639,545	$985,636,988

Independence (pt.)	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	1,556	1,144	$223,729,787	$730,033	$409,734,140	$410,464,173	$634,193,960
Condo	56	473	$3,080,537	$32,529,538	$0	$32,529,538	$35,610,075
Indust./Bus. Park	979	242	$31,842,268	$3,008,989	$103,397,469	$106,406,458	$138,248,726
Mixed Use	3	1	$436,385	$135,589	$0	$135,589	$571,974
Multi-Family	3,243	2,527	$341,039,664	$2,156,118,695	$13,978	$2,156,132,673	$2,497,172,337
Office	373	352	$42,293,338	$4,363,952	$139,821,219	$144,185,171	$186,478,509
Parks, Open Space	187	174	$115,024,121	$605,475,815	$0	$605,475,815	$720,499,936
Public/Semipublic	568	290	$65,447,843	$436,158	$444,397,930	$444,834,088	$510,281,931
ROW	473	75	$1,198,102	$1,209,482	$947,229	$2,156,711	$3,354,813
Single Family	58,050	38,078	$611,223,049	$2,998,227,925	$180,749	$2,998,408,674	$3,609,631,723
Single Family Low Density	778	280	$10,041,539	$0	$0	$0	$10,041,539
Vacant/Ag	1,734	1,963	$26,445,552	$83,266,041	$385,258	$83,651,299	$110,096,851
TOTAL	68,000	45,599	$1,471,802,185	$5,885,502,217	$1,098,877,972	$6,984,380,189	$8,456,182,374

Lee's Summit (pt.)	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	500	453	$138,996,868	$491,135	$266,034,680	$266,525,815	$405,522,683
Condo	228	977	$10,626,510	$77,925,406	$0	$77,925,406	$88,551,916
Indust./Bus. Park	428	302	$37,087,440	$0	$141,487,411	$141,487,411	$178,574,851
Multi-Family	1,542	1,165	$95,578,713	$598,113,188	$0	$598,113,188	$693,691,901
Office	276	284	$56,193,389	$0	$189,477,543	$189,477,543	$245,670,932
Parks, Open Space	117	258	$74,711,483	$245,689,252	$234,049	$245,923,301	$320,634,784
Public/Semipublic	265	137	$98,154,374	$0	$387,886,176	$387,886,176	$486,040,550
ROW	26	34	$543,916	$1,172,401	$283,290	$1,455,691	$1,999,607
RR ROW	2	2	$301,595	$0	$0	$0	$301,595
Single Family	26,660	27,081	$803,084,143	$4,247,189,084	$0	$4,247,189,084	$5,050,273,227
Single Family Low Density	423	217	$6,758,655	$936,413	$0	$936,413	$7,695,068
Vacant/Ag	796	1,180	$27,296,537	$83,428,380	$920,894	$84,349,274	$111,645,811

TOTAL	31,263	32,090	$1,349,333,623	$5,254,945,259	$986,324,043	$6,241,269,302	$7,590,602,925

Oak Grove (pt.)	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	110	95	$9,260,630	$0	$24,087,010	$24,087,010	$33,347,640
Indust./Bus. Park	78	48	$2,152,174	$0	$7,588,529	$7,588,529	$9,740,703
Multi-Family	290	243	$5,162,852	$28,755,180	$0	$28,755,180	$33,918,032
Office	16	16	$692,921	$0	$2,176,391	$2,176,391	$2,869,312
Parks, Open Space	14	9	$847,109	$0	$0	$0	$847,109
Public/Semipublic	41	21	$2,560,976	$0	$27,368,304	$27,368,304	$29,929,280
ROW	21	6	$70,876	$66,340	$101,216	$167,556	$238,432
Single Family	2,084	1,992	$37,194,417	$168,628,972	$0	$168,628,972	$205,823,389
Single Family Low Density	79	36	$1,263,702	$0	$0	$0	$1,263,702
Vacant/Ag	70	69	$1,719,132	$5,507,179	$0	$5,507,179	$7,226,311
TOTAL	2,803	2,535	$60,924,789	$202,957,671	$61,321,450	$264,279,121	$325,203,910

Raytown	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	309	264	$28,505,089	$0	$50,994,418	$50,994,418	$79,499,507
Condo	1	30	$55,004	$1,547,973	$0	$1,547,973	$1,602,977
Indust./Bus. Park	114	79	$6,797,593	$0	$17,087,704	$17,087,704	$23,885,297
Multi-Family	505	424	$12,514,419	$65,995,483	$0	$65,995,483	$78,509,902
Office	113	114	$9,043,747	$0	$36,388,274	$36,388,274	$45,432,021
Parks, Open Space	25	21	$3,247,061	$0	$144,553	$144,553	$3,391,614
Public/Semipublic	95	61	$15,229,360	$0	$77,824,495	$77,824,495	$93,053,855
ROW	10	16	$710,268	$0	$0	$0	$710,268
Single Family	11,719	10,753	$176,960,460	$757,050,710	$0	$757,050,710	$934,011,170
Single Family Low Density	9	5	$191,712	$0	$0	$0	$191,712
Vacant/Ag	96	166	$2,564,822	$5,301,796	$276,532	$5,578,328	$8,143,150
TOTAL	12,996	11,933	$255,819,535	$829,895,962	$182,715,976	$1,012,611,938	$1,268,431,473

PLATTE COUNTY

Platte County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	714	596	$218,990,144	$209,590	$599,961,586	$600,171,176	$819,161,320
Indust./Bus. Park	575	300	$47,901,190	$31,400	$298,797,290	$298,828,690	$346,729,880
Multi-Family	1,379	994	$57,536,695	$455,837,064	$0	$455,837,064	$513,373,759
Office	237	147	$42,274,077	$0	$277,492,272	$277,492,272	$319,766,349
Parks, Open Space	363	420	$32,220,451	$14,883,637	$295,930	$15,179,567	$47,400,018
Public/Semipublic	877	336	$129,564,700	$0	$714,317,378	$714,317,378	$843,882,078
ROW	319	56	$876,950	$1,441,097	$254,775	$1,695,872	$2,572,822
Single Family	29,739	25,399	$797,098,606	$3,928,964,947	$160,500	$3,929,125,447	$4,726,224,053
Single Family Low Density	1,776	872	$23,225,694	$149,331,178	$0	$149,331,178	$172,556,872
Vacant/Ag	6,703	3,462	$135,737,177	$261,774,696	$0	$261,774,696	$397,511,873
TOTAL	42,682	32,582	$1,485,425,684	$4,812,473,609	$1,891,279,731	$6,703,753,340	$8,189,179,024

Edgerton	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	18	21	$85,300	$0	$704,190	$704,190	$789,490
Indust./Bus. Park	2	2	$10,225	$0	$111,575	$111,575	$121,800
Office	2	1	$3,100	$0	$24,700	$24,700	$27,800
Parks, Open Space	4	4	$88,200	$0	$0	$0	$88,200
Public/Semipublic	9	7	$95,900	$0	$4,710,500	$4,710,500	$4,806,400
ROW	22	1	$1,000	$0	$9,000	$9,000	$10,000
Single Family	255	212	$2,311,500	$16,661,966	$0	$16,661,966	$18,973,466
Single Family Low Density	2	1	$23,132	$134,773	$0	$134,773	$157,905
Vacant/Ag	20	15	$333,512	$717,443	$0	$717,443	$1,050,955
TOTAL	334	264	$2,951,869	$17,514,182	$5,559,965	$23,074,147	$26,026,016

Farley	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	6	6	$73,100	$0	$405,153	$405,153	$478,253
Indust./Bus. Park	1	1	$5,700	$0	$7,000	$7,000	$12,700
Public/Semipublic	5	1	$8,400	$0	$11,600	$11,600	$20,000
ROW	6	4	$46,750	$0	$840,396	$840,396	$887,146
Single Family	119	96	$1,073,338	$6,423,567	$0	$6,423,567	$7,496,905
Single Family Low Density	9	6	$132,983	$919,254	$0	$919,254	$1,052,237
Vacant/Ag	41	30	$333,279	$1,591,220	$0	$1,591,220	$1,924,499
TOTAL	187	144	$1,673,550	$8,934,041	$1,264,149	$10,198,190	$11,871,740

Ferrelview	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	6	3	$118,440	$0	$290,364	$290,364	$408,804
Indust./Bus. Park	2	1	$8,874	$0	$3,366	$3,366	$12,240
Multi-Family	4	1	$30,000	$770,000	$0	$770,000	$800,000
Parks, Open Space	4	1	$30,000	$0	$0	$0	$30,000
Public/Semipublic	6	3	$368,800	$0	$1,810,184	$1,810,184	$2,178,984
Single Family	264	61	$1,257,786	$4,344,238	$0	$4,344,238	$5,602,024
Vacant/Ag	5	1	$15,000	$0	$0	$0	$15,000
TOTAL	291	71	$1,828,900	$5,114,238	$2,103,914	$7,218,152	$9,047,052

Houston Lake	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Public/Semipublic	1	1	$18,000	$0	$0	$0	$18,000
ROW	3	1	$14,000	$59,000	$0	$59,000	$73,000
Single Family	187	132	$2,499,050	$11,110,271	$0	$11,110,271	$13,609,321
Vacant/Ag	11	10	$133,500	$80,600	$0	$80,600	$214,100
TOTAL	202	144	$2,664,550	$11,249,871	$0	$11,249,871	$13,914,421

Lake Waukomis	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Parks, Open Space	5	3	$85,500	$0	$0	$0	$85,500
ROW	4	6	$182,500	$518,703	$0	$518,703	$701,203
Single Family	448	441	$15,816,500	$44,383,114	$0	$44,383,114	$60,199,614
Vacant/Ag	4	10	$345,900	$29,600	$0	$29,600	$375,500
TOTAL	461	460	$16,430,400	$44,931,417	$0	$44,931,417	$61,361,817

Northmoor	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	10	5	$601,798	$0	$1,071,176	$1,071,176	$1,672,974
Indust./Bus. Park	31	13	$925,860	$0	$4,953,140	$4,953,140	$5,879,000
Office	1	1	$23,500	$0	$226,500	$226,500	$250,000
Public/Semipublic	7	5	$426,300	$0	$939,500	$939,500	$1,365,800
Single Family	143	118	$1,167,670	$10,981,032	$0	$10,981,032	$12,148,702
Single Family Low Density	3	1	$20,000	$233,306	$0	$233,306	$253,306
Vacant/Ag	29	8	$170,772	$153,900	$0	$153,900	$324,672
TOTAL	224	151	$3,335,900	$11,368,238	$7,190,316	$18,558,554	$21,894,454

Parkville	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	75	76	$10,360,867	$0	$26,978,736	$26,978,736	$37,339,603
Indust./Bus. Park	51	42	$2,862,133	$0	$12,622,477	$12,622,477	$15,484,610
Multi-Family	88	90	$2,834,130	$11,182,782	$0	$11,182,782	$14,016,912
Office	19	16	$1,345,450	$0	$4,560,634	$4,560,634	$5,906,084

Parks, Open Space	34	17	$2,131,852	$0	$0	$0	$2,131,852
Public/Semipublic	54	36	$6,627,260	$0	$125,145,936	$125,145,936	$131,773,196
ROW	15	4	$3,400	$0	$0	$0	$3,400
Single Family	1,689	1,667	$109,673,350	$492,986,979	$54,800	$493,041,779	$602,715,129
Single Family Low Density	22	11	$328,377	$1,959,758	$0	$1,959,758	$2,288,135
Vacant/Ag	152	191	$14,146,674	$1,906,739	$0	$1,906,739	$16,053,413
TOTAL	2,199	2,150	$150,313,493	$508,036,258	$169,362,583	$677,398,841	$827,712,334

Platte City	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	111	109	$21,324,502	$0	$41,713,589	$41,713,589	$63,038,091
Indust./Bus. Park	9	3	$374,100	$0	$659,350	$659,350	$1,033,450
Multi-Family	117	68	$3,171,450	$25,581,578	$0	$25,581,578	$28,753,028
Office	27	30	$4,404,728	$0	$13,494,109	$13,494,109	$17,898,837
Parks, Open Space	10	25	$768,739	$1,113,958	$295,930	$1,409,888	$2,178,627
Public/Semipublic	50	36	$8,872,405	$0	$116,385,083	$116,385,083	$125,257,488
ROW	13	2	$22,250	$0	$49,475	$49,475	$71,725
Single Family	1,220	1,226	$27,337,234	$152,487,540	$54,700	$152,542,240	$179,879,474
Vacant/Ag	16	10	$440,845	$930,723	$0	$930,723	$1,371,568
TOTAL	1,573	1,509	$66,716,253	$180,113,799	$172,652,236	$352,766,035	$419,482,288

Platte Woods	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	9	8	$627,185	$0	$1,295,065	$1,295,065	$1,922,250
Office	3	3	$169,900	$0	$969,100	$969,100	$1,139,000
Public/Semipublic	15	7	$963,800	$0	$6,623,182	$6,623,182	$7,586,982
Single Family	258	173	$6,011,000	$28,134,004	$0	$28,134,004	$34,145,004
Single Family Low Density	2	1	$49,000	$287,543	$0	$287,543	$336,543
Vacant/Ag	3	2	$33,500	$0	$0	$0	$33,500
TOTAL	290	194	$7,854,385	$28,421,547	$8,887,347	$37,308,894	$45,163,279

Riverside	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	42	38	$6,560,017	$0	$113,785,609	$113,785,609	$120,345,626
Indust./Bus. Park	89	73	$13,203,888	$0	$61,629,544	$61,629,544	$74,833,432
Multi-Family	91	28	$2,994,650	$19,409,892	$0	$19,409,892	$22,404,542
Office	14	11	$509,200	$0	$1,676,300	$1,676,300	$2,185,500
Parks, Open Space	6	4	$255,190	$0	$0	$0	$255,190
Public/Semipublic	22	26	$4,314,259	$0	$47,384,400	$47,384,400	$51,698,659
Single Family	519	481	$9,247,166	$51,975,591	$0	$51,975,591	$61,222,757
Single Family Low Density	9	7	$770,500	$1,746,069	$0	$1,746,069	$2,516,569
Vacant/Ag	52	73	$6,481,079	$1,764,525	$0	$1,764,525	$8,245,604
TOTAL	844	741	$44,335,949	$74,896,077	$224,475,853	$299,371,930	$343,707,879

Tracy	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	4	6	$191,808	$0	$690,300	$690,300	$882,108
Indust./Bus. Park	1	1	$5,000	$0	$123,907	$123,907	$128,907
Office	1	1	$5,000	$0	$62,954	$62,954	$67,954
Parks, Open Space	1	1	$2,000	$0	$0	$0	$2,000
Public/Semipublic	23	5	$177,200	$0	$1,560,626	$1,560,626	$1,737,826
ROW	7	1	$5,000	$80,541	$0	$80,541	$85,541
Single Family	88	76	$974,700	$6,077,056	$0	$6,077,056	$7,051,756
Single Family Low Density	4	1	$32,218	$449,339	$0	$449,339	$481,557
Vacant/Ag	2	7	$53,284	$119,045	$0	$119,045	$172,329
TOTAL	131	99	$1,446,210	$6,725,981	$2,437,787	$9,163,768	$10,609,978

Weatherby Lake	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	3	2	$194,400	$0	$785,410	$785,410	$979,810
Public/Semipublic	1	1	$40,000	$0	$0	$0	$40,000
ROW	1	1	$10,100	$0	$2,125,000	$2,125,000	$2,135,100
Single Family	760	738	$38,124,000	$139,606,198	$0	$139,606,198	$177,730,198
Single Family Low Density	3	2	$120,723	$240,407	$0	$240,407	$361,130
Vacant/Ag	6	20	$585,050	$0	$0	$0	$585,050
TOTAL	774	764	$39,074,273	$139,846,605	$2,910,410	$142,757,015	$181,831,288

Weston	**Building Count**	**Parcel Count**	**Land Value**	**Residential Structures**	**Commercial Structures**	**Building Value**	**Property Value**
Commercial	34	58	$1,004,740	$204,590	$3,547,152	$3,751,742	$4,756,482
Indust./Bus. Park	7	9	$176,017	$31,400	$894,036	$925,436	$1,101,453
Multi-Family	17	6	$212,720	$1,973,202	$0	$1,973,202	$2,185,922
Office	6	9	$257,600	$0	$1,174,940	$1,174,940	$1,432,540
Parks, Open Space	15	8	$461,442	$0	$0	$0	$461,442
Public/Semipublic	27	16	$1,470,450	$0	$9,943,281	$9,943,281	$11,413,731
ROW	15	4	$18,200	$0	$196,300	$196,300	$214,500
Single Family	646	600	$8,561,200	$63,797,000	$51,000	$63,848,000	$72,409,200
Single Family Low Density	12	7	$115,792	$816,407	$0	$816,407	$932,199
Vacant/Ag	19	25	$341,807	$346,011	$0	$346,011	$687,818
TOTAL	798	742	$12,619,968	$67,168,610	$15,806,709	$82,975,319	$95,595,287

KANSAS CITY, MISSOURI

Kansas City MO ALL	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	5,921	3,996	$924,044,298	$14,261,820	$1,688,236,488	$1,702,498,308	$2,626,542,606
Condo	237	4,149	$58,727,415	$583,694,733	$8,605,114	$592,299,847	$651,027,262
Indust./Bus. Park	4,430	2,034	$341,212,541	$347,645	$1,213,857,842	$1,214,205,487	$1,555,418,028
Mixed Use	3	3	$9,681,927	$0	$17,288,368	$17,288,368	$26,970,295
Multi-Family	11,097	10,315	$2,149,507,847	$16,621,490,729	$1,095,452	$16,622,586,181	$18,772,094,028
Office	1,669	2,054	$580,419,999	$68,023,307	$2,693,390,943	$2,761,414,250	$3,341,834,249
Parks, Open Space	1,935	4,155	$1,814,366,306	$12,426,666,371	$173,305,215	$12,599,971,586	$14,414,337,892
Public/Semipublic	3,613	1,635	$492,613,330	$11,192,054	$2,086,743,239	$2,097,935,293	$2,590,548,623
ROW	2,886	1,447	$96,177,041	$57,663,099	$79,521,875	$137,184,974	$233,362,015
RR ROW	149	70	$5,899,017	$0	$1,341,215	$1,341,215	$7,240,232
Single Family	194,528	139,151	$2,978,445,533	$12,792,854,940	$1,032,602	$12,793,887,542	$15,772,333,075
Single Family Low Density	2,225	651	$21,817,598	$42,026,621	$0	$42,026,621	$63,844,219
Vacant/Ag	9,900	12,468	$325,360,320	$852,834,896	$27,805,940	$880,640,836	$1,206,001,156
TOTAL	238,593	182,128	$9,798,273,172	$43,471,056,215	$7,992,224,293	$51,463,280,508	$61,261,553,680

KC Cass County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Public/Semipublic	42	7	$2,078,490	$0	$0	$0	$2,078,490
Vacant/Ag	9	1	$347,490	$0	$0	$0	$347,490
TOTAL	51	8	$2,425,980	$0	$0	$0	$2,425,980

KC Clay County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	1,024	396	$213,857,710	$59,000	$376,577,000	$376,636,000	$590,493,710
Condo	34	221	$3,451,300	$19,469,800	$0	$19,469,800	$22,921,100
Indust./Bus. Park	400	131	$51,222,700	$0	$108,978,100	$108,978,100	$160,200,800
Multi-Family	1,792	1,538	$83,968,200	$436,252,700	$0	$436,252,700	$520,220,900
Office	171	131	$43,335,200	$0	$150,409,400	$150,409,400	$193,744,600
Parks, Open Space	427	463	$36,003,200	$26,412,600	$51,100	$26,463,700	$62,466,900
Public/Semipublic	725	295	$106,312,200	$182,000	$393,235,280	$393,417,280	$499,729,480
ROW	270	28	$5,069,000	$223,800	$0	$223,800	$5,292,800
RR ROW	46	24	$1,879,600	$0	$0	$0	$1,879,600
Single Family	48,903	34,045	$944,895,434	$4,139,078,000	$0	$4,139,078,000	$5,083,973,434
Single Family Low Density	587	173	$5,377,900	$27,917,600	$0	$27,917,600	$33,295,500
Vacant/Ag	2,338	1,616	$89,208,880	$25,727,203	$30,300	$25,757,503	$114,966,383
TOTAL	56,717	39,061	$1,584,581,324	$4,675,322,703	$1,029,281,180	$5,704,603,883	$7,289,185,207

KC Jackson County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	4,547	3,367	$532,224,941	$14,202,820	$905,888,147	$920,090,967	$1,452,315,908
Condo	206	3,928	$55,276,115	$564,224,933	$8,605,114	$572,830,047	$628,106,162
Indust./Bus. Park	3,748	1,785	$258,782,060	$347,645	$889,429,205	$889,776,850	$1,148,558,910
Mixed Use	4	3	$9,681,927	$0	$17,288,368	$17,288,368	$26,970,295
Multi-Family	8,335	8,182	$2,021,953,752	$15,808,756,856	$1,095,452	$15,809,852,308	$17,831,806,060
Office	1,332	1,849	$501,570,105	$68,023,307	$2,287,953,349	$2,355,976,656	$2,857,546,761
Parks, Open Space	1,246	3,358	$1,753,778,447	$12,386,484,092	$173,254,115	$12,559,738,207	$14,313,516,654
Public/Semipublic	2,357	1,215	$281,281,981	$11,010,054	$1,345,730,123	$1,356,740,177	$1,638,022,158
ROW	2,243	1,386	$90,610,800	$56,726,370	$79,521,875	$136,248,245	$226,859,045
RR ROW	73	43	$4,015,297	$0	$1,341,215	$1,341,215	$5,356,512
Single Family	130,859	92,992	$1,675,216,031	$6,873,237,813	$1,032,602	$6,874,270,415	$8,549,486,446
Single Family Low Density	1,327	373	$13,429,216	$0	$0	$0	$13,429,216
Vacant/Ag	5,922	9,951	$192,060,937	$794,504,103	$27,775,640	$822,279,743	$1,014,340,680
TOTAL	162,199	128,432	$7,389,881,609	$36,577,517,993	$5,738,915,205	$42,316,433,198	$49,706,314,807

KC Platte County	Building Count	Parcel Count	Land Value	Residential Structures	Commercial Structures	Building Value	Property Value
Commercial	346	225	$176,746,619	$0	$404,580,977	$404,580,977	$581,327,596
Indust./Bus. Park	273	109	$28,426,041	$0	$208,129,582	$208,129,582	$236,555,623
Multi-Family	964	594	$43,470,895	$373,686,173	$0	$373,686,173	$417,157,068
Office	160	72	$35,510,999	$0	$254,975,635	$254,975,635	$290,486,634
Parks, Open Space	260	336	$24,746,860	$13,769,679	$0	$13,769,679	$38,516,539
Public/Semipublic	496	119	$101,454,354	$0	$338,114,051	$338,114,051	$439,568,405
ROW	180	30	$578,600	$386,902	$0	$386,902	$965,502
Single Family	14,858	12,077	$356,768,518	$1,775,489,784	$0	$1,775,489,784	$2,132,258,302
Single Family Low Density	310	105	$3,010,482	$14,109,021	$0	$14,109,021	$17,119,503
Vacant/Ag	1,651	883	$42,902,801	$31,329,537	$0	$31,329,537	$74,232,338
TOTAL	19,498	14,550	$813,616,169	$2,208,771,096	$1,205,800,245	$3,414,571,341	$4,228,187,510

This page intentionally left blank.

Appendix D: Acronyms

I. Local

LEPC	Local Emergency Planning Committee (Mid-America)
MARC	Mid-America Regional Council
MARCER	Mid-America Regional Council Emergency Rescue Committee
MEIS	Metropolitan Emergency Information System
MEMC	Metropolitan Emergency Managers Committee
MERS	Metropolitan Emergency Information System
MMRS	Metropolitan Medical Response System
MOHAKCA	Metropolitan Official Health Agencies of the Kansas City Area
MRC	Medical Reserve Corps
RAPIO	Regional Association of Public Information Officers
RHSCC	Regional Homeland Security Coordinating Committee
WRP3	Water Resources Policy, Planning and Practices

II. State and Regional

CSR	Code of State Regulations
CUSEC	Central United States Earthquake Coalition
DESE	Department of Elementary and Secondary Education
DFS	Division of Fire Safety
DPS	Department of Public Safety
DHSS	Department of Health and Senior Services
MACOG	Missouri Association of Councils of Government
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MODOT	Missouri Department of Transportation
MOFWIS	Missouri Fish and Wildlife Information System
MSSC	Missouri Seismic Safety Commission
RPC	Regional Planning Commission
RSMo	Revised Statutes of Missouri
SAVE	Structural Assessment and Visual Evaluation Coalition
SEMA	State Emergency Management Agency

III. Federal and National

ARC	American Red Cross
AASHTO	American Association of State Highway and Transportation Officials
ASFPM	Association of State Floodplain Managers
ATC	Applied Technology Council
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BSSC	Building Seismic Safety Council

CDBG	Community Development Block Grant
CERI	Center for Earthquake Research and Information
CFR	Code of Federal Regulations
CRS	Community Rating System
DHS	Department of Homeland Security
DOD	Department of Defense
DOI	Department of the Interior
DOT	Department of Transportation
EDA	Economic Development Administration
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ER	Emergency Relief
EWP	Emergency Watershed Protection (NRCS program)
FAS	Federal Aid System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance (FEMA program)
GIS	Geographic Information System
GNS	Institute of Geological and Nuclear Sciences (international)
GSA	General Services Administration
HAZMAT	Hazardous materials
HAZUS	Hazards U.S.
HHS	Health and Human Services, U.S. Department of
HMGP	Hazard Mitigation Grant Program
HMST	Hazard Mitigation Survey Team
HUD	Housing and Urban Development, U.S. Department of
IA	Individual Assistance
IBHS	Institute for Business and Home Safety
ICC	Increased Cost of Compliance
ICS	Incident Command System
IMS	Incident Management System
IHMT	Interagency Hazard Mitigation Team
NCDC	National Climate Data Center
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHMP	Natural Hazard Mitigation Plan
NIBS	National Institute of Building Sciences
NIFC	National Interagency Fire Center
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OMB	Office of Management and Budget
PA	Public Assistance
PDM	Pre-Disaster Mitigation Program
PHMSA	Pipeline and Hazardous Materials Safety Administration
SBA	Small Business Administration

SHMO	State Hazard Mitigation Officer
UGB	Urban Growth Boundary
URM	Unreinforced Masonry
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USFA	United States Fire Administration
USFS	United States Forest Service
USGS	United States Geological Survey

Appendix E: Glossary

Floodplain	A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially (Missouri Cooperative Soil Survey).
Hazard	Natural, technological or civil threats to people, property and the environment (Drabek and Hoetmer, 132).
Hazard identification	The process of identifying hazards that threaten a given area (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide*).
Major land resource areas	Major land resource areas (MLRAs) are geographically associated land resource units (LRUs). Identification of these large areas is important in statewide agricultural planning and has value in interstate, regional and national planning (NRCS, online data).
Mitigation	Sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects. It describes the ongoing efforts at the federal, state, local and individual levels to lessen the impact of disasters upon families, homes, communities and economy (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide*).
Risk	The probability that a hazard will occur during a particular time period (Drabek and Hoetmer, 132). It is the estimated impact that a hazard [may] have on people, services, facilities and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide*, 37).
Risk assessment	The process of measuring the potential loss of life, personal injury, economic injury and property damage resulting from hazards (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide*, 37).
Threatened	The classification provided to an animal or plant likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Upland	Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams (Missouri Cooperative Soil Survey, online data).
Vulnerability	Susceptibility to injury or damage from hazards (Drabek and Hoetmer, 132).

Vulnerability assessment The extent of injury and damages that may result from a hazard event of a given intensity in a given area (SEMA, *Regional Planning Commission Hazard Mitigation Planning Guide*).

Watershed The land area that drains water to a particular stream, river or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large watersheds, like the Missouri River basin, contain numerous smaller watersheds (USGS Water Resources of Georgia, online data).

Water table The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone (Missouri Cooperative Soil Survey, online data).

Weathering All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material (Missouri Cooperative Soil Survey, online data).

Appendix F: Endnotes

[i] FEMA. Worksheets 4.1- 4.3 Capability Assessment Worksheet, Safe Growth Audit, National Flood Insurance Program Worksheet. Local Mitigation Planning Handbook, March, 2013.
[ii] FEMA Local Planning Guide
[iii] USGS, Geological Survey Professional Paper 1183, Online, http://pubs.usgs.gov/pp/p1183/pp1183.html
[iv] FEMA *Local Mitigation Planning Handbook,* 6-B, March 2013
[v] NOAA, online data
[vi] Ibid.
[vii] SEMA State Hazard Analysis, Annex 1, Online, http://sema.dps.mo.gov/docs/programs/Planning-Disaster-Recovery/HazardAnalysis/2013-State-Hazard-Analysis/Annex_A_Tornadoes_and_Severe_Thunderstorms.pdf
[viii] Ibid.
[ix] Ibid.
[x] Ibid.
[xi] NOAA
[xii] NOAA
[xiii] Ibid.
[xiv] WDAF TV 4 Web site, online data
[xv] Ibid.
[xvi] Brooks and Doswell, NOAA NSSL Web site, online document
[xvii] Ibid.
[xviii] NOAA NCDC Web site
[xix] NWS Kansas City/Pleasant Hill Web site, online data
[xx] Ibid.
[xxi] Ibid.
[xxii] Ibid.
[xxiii] Ibid.
[xxiv] Midwest Regional Climate Center Web site, online data
[xxv] Ibid.
[xxvi] Kansas City Call Web site, online data
[xxvii] NOAA NCDC Web Site, https://www.ncdc.noaa.gov/stormevents
[xxviii] Weather Underground, *Tornadoes: Fact Vs. Myth*, online data
[xxix] NOAA NCDC Web Site, https://www.ncdc.noaa.gov/stormevents
[xxx] SEMA State Hazard Analysis, Annex 1, Online
[xxxi] Ibid.
[xxxii] NOAA National Severe Storms Laboratory Web site, http://www.nssl.noaa.gov/projects/hazard/index.html
[xxxiii] NOAA Storm Protection Center Web site, http://www.spc.noaa.gov/faq/tornado/
[xxxiv] Northern Illinois University, "NIU Researchers Say Nighttime Tornadoes are Worst Nightmare," Press Release, November 5, 2008, available at www.niu.edu/news
[xxxv] NOAA Web Site, http://www.nssl.noaa.gov/education/svrwx101/thunderstorms/
[xxxvi] Ibid.
[xxxvii] FEMA Web Site, http://m.fema.gov/thunderstorms-lightning/text
[xxxviii] Missouri State Hazard Analysis, Annex A
[xxxix] Ibid.
[xl] NOAA Web Site
[xli] NOAA NCDC Web Site, https://www.ncdc.noaa.gov/stormevents
[xlii] NOAA Web Site, http://www.erh.noaa.gov/lwx/swep/Spotting.html
[xliii] NOAA NCDC Web site, https://www.ncdc.noaa.gov/stormevents/
[xliv] NWS Web site, *Winter Storms, The Deceptive Killers, 2008,* http://www.nws.noaa.gov/om/winter/resources/Winter_Storms2008.pdf
[xlv] Ibid.
[xlvi] USA Today Web site, Winter Weather Glossary, http://usatoday30.usatoday.com/weather/wwterms.htm

[xlvii] Ibid.
[xlviii] NOAA NCDC, online data
[xlix] NWS Kansas City/Pleasant Hill Web site, online data, http://www.weather.gov/eax/,
[l] Missouri 2013 State Hazard Analysis, Annex C,
http://sema.dps.mo.gov/newspubs/publications/hazard_analysis.php
[li] NWS Web site, *Winter Storms 2008*
[lii] Ibid.
[liii] FEMA Web site, *Floods and Flash Floods Fact Sheet*
[liv] SEMA State Hazard Analysis, Annex B
[lv] USA Today, online data
[lvi] SEMA State Hazard Analysis, Annex B
[lvii] FEMA Web site, *Floods and Flash Floods Fact Sheet*, online document
[lviii] USACE Walla Walla District, online data
[lix] SEMA State Hazard Analysis, Annex B
[lx] BCN Web site, online data
[lxi] PBS, online data
[lxii] FEMA Web site, *Floods and Flash Floods Fact Sheet*, online document
[lxiii] Ibid.
[lxiv] PBS, online data
[lxv] Pima County Flood Control District Web site, online data
[lxvi] SEMA State Hazard Analysis, Annex B
[lxvii] NWS Missoula Web site, online data
[lxviii] Missouri State Hazard Mitigation Plan,
http://sema.dps.mo.gov/docs/programs/LRMF/mitigation/MO_Hazard_Mitigation_Plan_2013.pdf
[lxix] Missouri State Hazard Mitigation Plan,
http://sema.dps.mo.gov/docs/programs/LRMF/mitigation/MO_Hazard_Mitigation_Plan_2013.pdf
[lxx] FEMA Web site, "So You Live Behind a Levee," http://content.asce.org/ASCELeveeGuide.html
[lxxi] National Committee on Levee Safety, Recommendations for a National Levee Safety Program,
http://www.leveesafety.org/lv_links.cfm
[lxxii] USACE Web site, National Levee Database, http://nld.usace.army.mil/egis/f?p=471:1:
[lxxiii] Missouri State Hazard Mitigation Plan
[lxxiv] Missouri State Hazard Mitigation Plan
[lxxv] Ibid.
[lxxvi] CBS News Report, Failing Levees Spur Major Missouri Floods, http://www.cbsnews.com/news/failing-levees-spur-major-missouri-floods/
[lxxvii] Missouri State Hazard Mitigation Plan
[lxxviii] Ibid.
[lxxix] Ibid.
[lxxx] Ibid.
[lxxxi] SEMA State Hazard Analysis, Annex G, http://sema.dps.mo.gov/newspubs/publications/hazard_analysis.php
[lxxxii] American Association of Dam Safety Officials; http://www.damsafety.org/news/?p=c0fdade4-ab98-4679-be22-e3d7f14e124f
[lxxxiii] SEMA State Hazard Analysis, Annex G
[lxxxiv] Ibid.
[lxxxv] Ibid.
[lxxxvi] Ibid.
[lxxxvii] Missouri Office of Dam Safety/USACE National Inventory of Dams Web site, http://nid.usace.army.mil
[lxxxviii] Glenn Lloyd, Missouri Dam Safety Program, Phone Interview, May 21, 2015
[lxxxix] USACE Omaha District Web site,
http://www.nwo.usace.army.mil/Missions/DamandLakeProjects/MissouriRiverDams.aspx
[xc] Glenn Lloyd, Phone Interview.

[xci] National Drought Mitigation Center, U.S. Drought Monitor Website, http://droughtmonitor.unl.edu/
[xcii] *Ibid*
[xciii] Missouri Department of Natural Resources (MDNR) Missouri Drought Plan, 2002, page 7
[xciv] Drought of 2012 Final Report, MDNR Online, http://dnr.mo.gov/pubs/docs/TheDroughtOf2012.pdf
[xcv] *Ibid*
[xcvi] *Ibid,* pages 12 -13
[xcvii] *Ibid*
[xcviii] *Ibid*
[xcix] National Drought Mitigation Center
[c] *Ibid*
[ci] *Ibid*
[cii] *Ibid*
[ciii] National Drought Mitigation Center Website
[civ] Department of Homeland Security, Office of Cyber Infrastructure and Analysis, "Drought Impacts to Critical Infrastructure," April 23, 2015
[cv] National Weather Service, Website, http://www.nws.noaa.gov/os/heat/ww.shtml
[cvi] High Plains Regional Climate Center, Website, http://www.hprcc.unl.edu/
[cvii] *Ibid*
[cviii] National Weather Service, Website, http://www.nws.noaa.gov/os/heat/
[cix] *Ibid*
[cx] Nationmaster Website, www.nationmaster.com
[cxi] *Ibid*
[cxii] National Weather Service, Website
[cxiii] National Parks Service, U.S Department of the Interior, Website, http://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/fire-spread.cfm
[cxiv] Missouri Department of Conservation, "Living with Wildfire", Online http://mdc.mo.gov/sites/default/files/resources/2010/05/5249_3081.pdf
[cxv] *Ibid*
[cxvi] Missouri Department of Conservation, Fire Reporting Wildfire Data Search, Online, http://mdc4.mdc.mo.gov/applications/FireReporting/Report.aspx
[cxvii] *Ibid*
[cxviii] Missouri *State Hazard Analysis, Annex I,* Online, http://sema.dps.mo.gov/docs/programs/Planning-Disaster-Recovery/HazardAnalysis/2013-State-Hazard-Analysis/Annex_I_Fires.pdf
[cxix] U.S. Geological Survey, National Earthquake Information Center, Website http://earthquake.usgs.gov/contactus/golden/neic.php
[cxx] *Ibid*
[cxxi] *Ibid*
[cxxii] Missouri State Hazard Mitigation Plan, Chapter 3.3.4, http://sema.dps.mo.gov/docs/programs/LRMF/mitigation/MO_Hazard_Mitigation_Plan_2013.pdf
[cxxiii] *Ibid*
[cxxiv] *Ibid*
[cxxv] *Ibid*
[cxxvi] *Ibid*
[cxxvii] U.S. Geological Survey, National Earthquake Information Center, Website
[cxxviii] *Ibid*
[cxxix] USGS News Release, January 13, 2003
[cxxx] *Ibid*
[cxxxi] Missouri State Hazard Mitigation Plan, Chapter 3.5.4
[cxxxii] *Ibid*
[cxxxiii] *Ibid*
[cxxxiv] http://www.who.int/topics/infectious_disease/en/

[cxxxv] http://needtoknow.nas.edu/id/threats/global-killers, May 6, 2015
[cxxxvi] http://www.who.int/mediacenter/factsheets/fs310/en/, May 6, 2015
[cxxxvii] http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm, May 6, 2015
[cxxxviii] Nichols, H (2014, September 30). "What are the top 10 leading causes of death in the US?" Medical News Today. Retrieved from http://www.medicalnewstoday.com/articles/282929.php.
[cxxxix] Molinari NAM, Ortega-Sanchez IR, Messonnier, ML, Thompson WW, Wortley PM, Weintraub E, Bridges CB (2007, June 28). "The annual impact of seasonal influenza in the US: measuring disease burden and costs." Vaccine, Vol 25, Issue 27. Pg 5086-5096
[cxl] 2012 Annual Report from Missouri's Bureau of Communicable Disease Control and Prevention
[cxli] http://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/pdf/15yr.pdf
[cxlii] 2012 Annual Report from Missouri's Bureau of Communicable Disease Control and Prevention
[cxliii] www.pitt.edu/~super4/39011-40001/39721.ppt.
[cxliv] http//www.cdc.gov/ncidod/diseases/eid/disease_sites.htm. May 6, 2015
[cxlv] Rachel Holloway, Sonja A Rasmussen, MD; Stephanie Zaza, MD; Nancy J. Cox, PhD; Daniel B Jernigan, MD. Updated Preparedness and Response Framework for Influenza Pandemics. MMWR 2014;63(6): 1-9.
[cxlvi] Centers for Disease Control and Prevention Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States – Early, Targeted, Layered Use of Nonpharmaceutical Interventions. February 2007.
[cxlvii] Salk Institute (reference from www.healthline.com/heatlh/worst-disease-oubreaks-history).
[cxlviii] J Bongard, R Savage, R Dern, H Bostrum, J Kazmierczak, S Keifer, H Anderson, JDavis. Cryptosoridium Infections Associated with Swimming Pools – Dane County, Wisconsin, 1993. MMWR; 42(31); 561-563.
[cxlix] http://www.cdph.ca.gov/HealthInfo/discond/Pages/Pertussis.aspx, 9/23/2014.
[cl] http://www.who.int/gho/hiv/en/
http://www.cdc.gov/flu/pandemic-resources/tools/risk-assessment.htm
http://www.mayoclinic.org/diseases-conditions/hiv-aids/basics/symptoms/con-20013732
http://www.kctv5.com/story/25738130/13-cases-of-measles-now-confirmed-in-kansas-city-area
http://www.nbafoodadvocateblog.com.php54-1.dfw1-2.websitetestlink.com/2010/05/04/shigella-outbreak-hits-kansas-city-missouri/
[cli] 2010 Annual Report from Missouri's Bureau of Communicable Disease Control and Prevention
[clii] *Ibid*
[cliii] *Ibid*
[cliv] 2011 Annual Report from Missouri's Bureau of Communicable Disease Control and Prevention
[clv] 2012 Annual Report from Missouri's Bureau of Communicable Disease Control and Prevention.
[clvi] *Ibid*
[clvii] *Ibid*
[clviii] Gail Vasterling, Missouri Department of Health & Senior Services. "Health Advisory: Record Number of Reported Measles Cases in the U.S. in 2014", June 6, 2014
[clix] Jeffrey K Taubenberger, MD, PhD, David M Morens, MD. "Influenza: The Once and Future Pandemic" Public Health Reports. 2010 Supplement 3, Volume 125. p. 16-25.
[clx] Meltzer MI, Cox NJ, Fukuda K. The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention. Emerging Infectious Diseases 1999; 5: 659-669.
[clxi] Ibid.
[clxii] van den Wijngaard CC, van Asten L, Koopmans MPG, van Pelt W, Nagelkerke NJD, Wielders CCH, et al. (2012) Comparing Pandemic to Seasonal Influenza Mortality: Moderate Impact Overall but High Mortality in Young Children. PLoS ONE 7(2): e31197. doi:10.1371/journal.pone.0031197
[clxiii] Emerging Infectious Diseases: Threats to Human Health and Global Stability, David M. Morens 7/4/2013 publication
[clxiv] USDA Agricultural Research Service Animal Health Program
[clxv] FOA Natural Resource Management and Environment Department of FAO Climate Related Transboundary Pest and Diseases (GF-TADs) Rome:FAQ P59 (208a)
[clxvi] Transboundary Animal Diseases Andres Cartin-Rojas P1472012 INTECH article (P147)

[clxvii] (USDA, FAS). Coffey et al. (2005)
[clxviii] Transboundary Animal Diseases Andres Cartin-Rojas P1472012 INTECH article (p145)
[clxix] Farmland Information Center Summary of Missouri 2012 Census of Agriculture
[clxx] National Agricultural Statistics Service (Missouri Field Office 2010 Data)
[clxxi] National Agricultural Statistics Service (Tabular Data Table)
[clxxii] Modeling the Economic Impact of Feral Swine-Transmitted Foot-and-Mouth disease: A Case Study from Missouri
[clxxiii] Recent Animal Disease Outbreaks and their Impact on Human Populations – Jeff B. Bender University of Minnesota (P139)
[clxxiv] Modeling the Economic Impact of Feral Swine-Transmitted Foot-and- Mouth Disease: A Case Study from Missouri - 2010
[clxxv] The impact of foot and mouth disease – OiE Jonathan Rushton with Contributors - 2012
[clxxvi] Missouri Department of Health and Senior Services December 2014 laboratory Exams
[clxxvii] Article Mad-cow ban cost U.S. $11 billion in beef exports By Christopher Doering Reuters News Service Article Oct 7th 2008
[clxxviii] The State-by-State Economic Impacts of Mad Cow Disease on the United States 2006 Ji Young CREATE Research Archive
[clxxix] Porcine Epidemic Diarrhea Virus Migrates To U.S., Threatens Pork Prices - By STEVEN K. PAULSON Huff Post 7/12/13
[clxxx] FAO Focus On Article Emergence of porcine epidemic diarrhea in North America Vol 9 July 2014
[clxxxi] FAO Focus On Article Emergence of porcine epidemic diarrhea in North America Vol 9 July 2014
[clxxxii] Public Veterinary Medicine: Public Health Rabies surveillance in the US during 2010 JAVMA, Vol 239, No. 6, September 15, 2011
[clxxxiii] United States Department of Agriculture Animal and Plant Health Inspection Service Press Release March 26th 2015
[clxxxiv] Farms, Land in Farms, Value of Land and Buildings, and Land Use: 2012 and 2007 - USDA, National Agricultural Statistics Service
[clxxxv] From 2012 Census of Agriculture - County Data USDA, National Agricultural Statistics Service
[clxxxvi] Industrial Livestock Production and Global Health Risk J. Otte Pro-Poor Livestock Initiative Research Report (P-10)
[clxxxvii]CDC Multistate Outbreak of Human Salmonella Typhimurium Infections Linked to Live Poultry in Backyard Flocks (Final Update)
[clxxxviii] USDA Census of Agriculture 2012 Census Volume 1, Chapter 2: County Level Data
[clxxxix] Recent Animal Disease Outbreaks and their Impact on Human Populations – Jeff B. Bender University of Minnesota (P140)
[cxc] Source ASPCA Website (https://www.aspca.org/about-us/faq/pet-statistics)
[cxci] KCCI News 5.3 million chickens in Iowa to be destroyed April 20th 2015 (http://www.kcci.com/news/53-million-chickens-in-iowa-to-be-destroyed/32471672)
[cxcii] The Foot-and-Mouth Disease Epidemic of 2001 in the UK: Implications for the USA and the "War on Terror" Paul Gibbs
[cxciii] Probability of introducing foot and mouth disease into the United States via live animal importation G.Y. Miller Rev. sci. tech. Off. int. Epiz 2012, 31 (3), 777-787
[cxciv] FLU.Gov website (http://www.flu.gov/about_the_flu/h5n1/) About the flu webpage
[cxcv] National Center for Emerging and Zoonotic Infectious Diseases. (2012, May 17) Centers for Disease Control and Prevention.
[cxcvi] Potential revenue impacts of an outbreak of Foot and Mouth disease in the United States (Food Animal Economics) P.L. Paarlberg
[cxcvii] Missouri State 2013 Hazard Mitigation Plan (Page 3.245)
[cxcviii] MARC 2010 Regional Hazard Mitigation Plan (Page 3.235)
[cxcix] Kansas City: The Crossroads of Connectivity (http://www.logisticsparkkc.com/wp-content/uploads/2013/03/BNSF.LPKCKansasCity8.5x11.FINAL_.pdf)

[cc] MARC 2010 Regional Hazard Mitigation Plan (Page 3.235)
[cci] Amtrak News Release October 27, 2014 (http://www.amtrak.com/ccurl/238/481/Amtrak-FY2014-Ridership-and-Revenue-ATK-14-096%20.pdf)
[ccii] Transportation Technical Report Kansas City Downtown Streetcar Project (9/20/2012) Page 33
[cciii] KCATA Website (http://www.kcata.org/rider_guide)
[cciv] "Motorcoach Industry Facts," American Bus Association www.buses.org/industry.
[ccv] The Traveler's Tradeoff Comparing Intercity Bus, Plane, & Train Fares across the United States 4/15/2014 DePaul University
[ccvi] The Motor Coach Metamorphosis 2012 Year-in-Review of Intercity Bus Service in the United States Chaddick Institute for Metropolitan Development January 6, 2013 J. P. Schwieterman
[ccvii] 2013 Motorcoach Census American Bus Association (http://www.buses.org/files/Foundation/Census2013data.pdf)
[ccviii] American School Bus Council (http://www.schoolbusfacts.com/)
[ccix] 2013 Missouri State Highway Patrol School Bus Inspection Program (http://www.mshp.dps.missouri.gov/MSHPWeb/PatrolDivisions/MVI/documents/2013%20MAPT%20Presentation.pdf)
[ccx] StreetsBLOG Network (http://streetsblog.net/2012/04/20/cities-with-the-most-highway-miles-a-whos-who-of-decay/)
[ccxi] PortKC Website (http://www.portkc.com/index.php/commerce-transportation/port-of-kansas-city-2/missouri-river-system/)
[ccxii] Aviation Safety Network (http://news.aviation-safety.net/2015/01/01/despite-high-profile-accidents-2014-was-the-safest-year-ever-according-to-asn-data/)
[ccxiii] Ibid
[ccxiv] Airlines for America (http://airlines.org/data/safety-record-of-u-s-air-carriers/)
[ccxv] Federal Rail Road Administration Office and Safety Analysis (http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx)
[ccxvi] 10 Things Amtrak Won't Tell You MW Market Watch 10/09/2011 K. Bellstrom
[ccxvii] Bureau of Transportation Statistics Table 2-42 Railroad Passenger Safety Data (http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_02_42.html)
[ccxviii] Train wreck Database (http://www.trainwreckdb.com/?year=2014&month=0&data=railroadDetail&railroad=Kansas+City+Southern+Railway+Company)
[ccxix] The Landmark Newspaper (http://www.plattecountylandmark.com/Article11499.htm)
[ccxx] BNSF Rail Car Explodes After Train Derailment in Sugar Creek MO (http://www.gordon-elias.com/blog/974/bnsf-rail-car-explodes-after-train-derailment-in-sugar-creek-mo/)
[ccxxi] "Type of Motor Carrier and Driver History in Fatal Bus Crashes," 2010 study University of Michigan Transpiration Research Inst.
[ccxxii] National Safety Council Lifetime odds of death for selected causes, United States 2011
[ccxxiii] Missouri State Hazard Analysis Annex 2013 (Page L-3) (http://sema.dps.mo.gov/docs/programs/Planning-Disaster-Recovery/HazardAnalysis/2013-State-Hazard-Analysis/Annex_L_Mass_Transportation_Accidents.pdf)
[ccxxiv] National Transportation Safety Board: Report on curbside motor coach safety (http://journalistsresource.org/studies/environment/transportation/ntsb-curbside-bus-safety)
[ccxxv] New Haven Register At A Glance: Deadliest bus accidents in U.S. History (http://www.nhregister.com/general-news/20110312/at-a-glance-deadliest-bus-accidents-in-us-history)
[ccxxvi] Bus crashes in the United States: What does the research say? Journalist's Resource (http://journalistsresource.org/studies/environment/transportation/bus-crashes-united-states-what-does-research-say#)
[ccxxvii] Missouri statistical Analysis Center 2011 Missouri Traffic Safety Compendium
[ccxxviii] Ibid
[ccxxix] Ibid

[cxxx] The Cincinnati Enquirer 10 years ago, 27 people died in a fiery crash K.Samples (http://www.enquirer.com/editions/1998/05/10/kybusa110.html)
[cxxxi] Department of Public Safety Missouri State Highway Patrol Missouri Traffic Crashes 2013 Report
[cxxxii] Journalist's Resource 10/2014 Transportation safety over time: Cars, planes, trains, walking, cycling (http://journalistsresource.org/studies/environment/transportation/comparing-fatality-risks-united-states-transportation-across-modes-time)
[cxxxiii] Department of Public Safety Missouri State Highway Patrol Missouri (http://www.mshp.dps.missouri.gov/MSHPWeb/SAC/pdf/MISSOURI_TRAFFIC_CRASHES.pdf)
[cxxxiv] Missouri Stars Reporting (http://www.mshp.dps.missouri.gov/TR15Reports/850ReportMenu.htm)
[cxxxv] U.S. DOT Traffic Safety Facts 2012 Data (http://www-nrd.nhtsa.dot.gov/Pubs/811868.pdf)
[cxxxvi] Insurance Institute for Highway Safety Large Truck Trends (http://www.iihs.org/iihs/topics/t/large-trucks/fatalityfacts/large-trucks/2013)
[cxxxvii] McCartt, A.T.; Hellinga L.A.; and Solomon, M.G. 2008. Work schedules of long-distance truck drivers before and after 2004 hours-of-service rule change. Traffic Injury Prevention 9:201-10.
[cxxxviii] PM Article Is Bigger Better? 'Monster Trains vs Freight Trains" Feb 10th 2010 (http://www.popularmechanics.com/technology/infrastructure/a5314/4345689/)
[cxxxix] Missouri State Hazard Mitigation Plan 2013 (p 3.523)
[cxl] Insurance Institute for Highway Safety (WWW.iihs.org) Highway Safety: What Does the Future Hold? North Carolina Highway Safety Symposium Winston-Salem, NC ● February 6, 2012
[cxli] The Economic and Social Impact of Motor Vehicle Crashes, 2012 DOT HS 812013 (May 2014) Report
[cxlii] NSC Estimating the Cost of Unintentional Injuries (2012) (http://www.nsc.org/NSCDocuments_Corporate/Estimating-the-Costs-of-Unintentional-Injuries-2014.pdf)
[cxliii] Ibid
[cxliv] Ibid
[cxlv] The Right-to-Know Network (http://www.rtknet.org)
[cxlvi] The Kansas City 2010 Regional Hazard Mitigation Plan
[cxlvii] MARC 2014 LEPC Hazardous Materials Plan
[cxlviii] FEMA Transportation Report 1997
[cxlix] The Right To Know Network RTKNET.org (http://www.rtknet.org/db/erns/erns.php?reptype=f&database=erns&reporting_year=2013&detail=-1&sortp=i&datype=T&loc_state=MO)
[ccl] Kansas City The Cross Roads of Connectivity BNSF Railway 5/2013
[ccli] U.S. Department of Transportation, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, 2007 Commodity Flow Survey, Hazardous Materials (Washington, DC: July 2010), table 1a, available at www.bts.gov/publications/commodity_flow_survey/ as of September 20, 2013.
[cclii] U.S. Department of Transportation, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, 2007 Commodity Flow Survey, Hazardous Materials (Washington, DC: July 2010), table 2a, available at www.bts.gov/publications/commodity_flow_survey/ as of September 30, 2013.
[ccliii] Freight Facts and Figures 2013 U.S. DOT
[ccliv] MODOT Railroad General Information (http://www.modot.org/othertransportation/rail/index.htm)
[cclv] McClatchy DC C. Tate 1/20/14 More oil spilled from trains in 2013 than in previous 4 decades, federal data show (http://www.mcclatchydc.com/2014/01/20/215143/more-oil-spilled-from-trains-in.html)
[cclvi] Missouri Spill Report MERC
[cclvii] The Kansas City Star Business Journal, S. Rosen, Port of Kansas City terminal is reopening to barge traffic (http://www.kansascity.com/news/business/article2123859.html)
[cclviii] PortKC Website (http://www.portkc.com/index.php/commerce-transportation/port-of-kansas-city-2/missouri-river-system/)
[cclix] AGWEB Article 4/4/14 R. Scherer (http://www.agweb.com/article/barge-traffic-returns-to-missouri-river-NAA-news-wire/)
[cclx] Missouri Spill Report MERC
[cclxi] FlyKCI.com (http://www.flykci.com/aviationdepartment/cargo/index.htm)

[cclxii] Ibid
[cclxiii] EPA's EnviroMapper Online Database
[cclxiv] NAERG 2013 Edition
[cclxv] Environmental Defense Fund EPA's New Chemicals Program: TSCA dealt EPA a very poor hand R. Denison 4/16/2009
[cclxvi] State of Missouri 2013 Hazard Mitigation Plan (page 3.519)
[cclxvii] Truckinginfo Diesel Spill Threats (http://www.truckinginfo.com/article/story/2007/08/diesel-spill-threats.aspx)
[cclxviii] Statistical Estimates of Total Reported Hazardous Material Incidents Costs 9/2005 USDOT (http://WWW.phmsa.dot.gov/pv_obj_cache/pv_obj_id_51BF4691C569E50EB367FD7ACBB1CD9C943E1200/filename/HM_Incident_Costs_9_22_2005.pdf)
[cclxix] Are HNS spills more dangerous than oil spills white paper Dr. K. Purnell May 2009
[cclxx] FBI – A study of active shooter incidents in the United States (Page 5)
[cclxxi] Bid (Page 17)
[cclxxii] Police Executing Research Forum The police Response to Active Shooter Incidents 2014 (Page 30)
[cclxxiii] Police Executing Research Forum The police Response to Active Shooter Incidents 2014 (Page 30)
[cclxxiv] Ibid (Page 31)
[cclxxv] USA Today Behind the Bloodshed (http://usatoday30.usatoday.com/news/nation/mass-killings/index.html#triggers)
[cclxxvi] In this instance, "workable" is intended to convey a profile with the discerning ability to proactively identify individuals planning to engage in a shooting. In the case of school shootings, the FBI has stated that an effective profile or checklist that can predict who will become an assailant does not exist. See Mary Ellen O'Toole, The School Shooter: A Threat Assessment Perspective, (Federal Bureau of Investigation, 2000) p. 1. See also Federal Bureau of Investigation, Workplace Violence, pp. 21, 25, 26; Mullen, "The Autogenic," p. 322; Robert A. Fein et al., Threat Assessment in Schools: A Guide to Managing Threatening Situations and to Creating Safe School Climates, (Secret Service, Department of Education, May 2002) p. 17.
[cclxxvii] Police Executing Research Forum The police Response to Active Shooter Incidents 2014 (Page 7)
[cclxxviii] USA Today Behind the Bloodshed (http://usatoday30.usatoday.com/news/nation/mass-killings/index.html#triggers)
[cclxxix] FBI – A study of active shooter incidents in the United States (Page 20)
[cclxxx] PTSD Research Quarterly V18 #3 Summer 2007 (http://www.ptsd.va.gov/professional/newsletters/research-quarterly/V18N3.pdf)
[cclxxxi] USA Today Aurora movie theater reopens 6 months after mass shooting (http://www.usatoday.com/story/news/nation/2013/01/16/aurora-theater-mass-shooting-reopens/1839313/
[cclxxxii] Livescience Mass Shooting: How Entire Community Experiences Trauma R. Rettner 12/17/2012 (http://www.livescience.com/25615-community-traumatic-stress.html)
[cclxxxiii] USA Today Behind the Bloodshed (http://usatoday30.usatoday.com/news/nation/mass-killings/index.html#triggers)
[cclxxxiv] Ibid
[cclxxxv] FBI – A study of active shooter incidents in the United States (Page8)
[cclxxxvi] USA Today Behind the Bloodshed (http://usatoday30.usatoday.com/news/nation/mass-killings/index.html#triggers)
[cclxxxvii] FBI – A study of active shooter incidents in the United States (Page 9)
[cclxxxviii] Ibid
[cclxxxix] Breaking Down The Cost Of A Bullet Wound Chicago Tribune 1999 (http://articles.chicagotribune.com/1999-08-08/news/9908080093_1_gunshot-wounds-average-cost-study)
[ccxc] FBI – A study of active shooter incidents in the United States (Page 9)
[ccxci] Daily News 12/15/12 Mass shootings are not growing in frequency, experts say (http://www.nydailynews.com/new-york/no-rise-mass-killings-impact-huge-article-1.1221062)
[ccxcii] National Lightning Safety institute 5/15/15 (http://www.lightningsafety.com/nlsi_pls/probability.html)
[ccxciii] The PsychLaw Journal Dr. M. Wachtel 2012 (http://www.psychlawjournal.com/2012/12/school-shootings-what-are-odds.html)

[ccxciv] Missouri State Hazard Analysis, Annex M, Online http://sema.dps.mo.gov/docs/programs/Planning-Disaster-Recovery/HazardAnalysis/2013-State-Hazard-Analysis/Annex_M_Civil_Disorder.pdf
[ccxcv] *Ibid*
[ccxcvi] *Ibid*
[ccxcvii] Kansas City Area Education Research Consortium, "Youth Flash Mobs in Kansas City: Causes, Consequences and Recommendations", Online http://www.kcaerc.org/wp-content/uploads/2012/01/KCAREC_KC_Flash_Mobs_Final_Report.pdf
[ccxcviii] KCUR Online Post, http://kcur.org/post/plan-being-drawn-quell-twitter-tweaked-mobs
[ccxcix] KCAER Consortium
[ccc] "Ferguson Unrest", Wikipedia, online http://en.wikipedia.org/wiki/Ferguson_unrest
[ccci] "Police make several arrests at Ferguson protest March", Kansas City Star, Online article, November 25, 2015, http://www.kansascity.com/news/local/article4149234.html#storylink=cpy
[cccii] "Understanding Riots", David D. Haddock and Daniel D. Polsby, *Cato Journal, Vol. 14, No. 1 (Spring/Summer) 1994*
[ccciii] Missouri State Hazard Analysis
[ccciv] KCAER Consortium
[cccv] *Ibid*
[cccvi] 2013 Federal Reserve Payments Study
[cccvii] C/net Fridge caught sending spam emails in botnet attack M. Starr, 1/19/14 (http://www.cnet.com/news/fridge-caught-sending-spam-emails-in-botnet-attack/)
[cccviii] INFOSEC Institute Cyberterrorism Defined (http://resources.infosecinstitute.com/cyberterrorism-distinct-from-cybercrime/)
[cccix] Response to Cyber Terrorism (2008) IOS (ISBN 978-1-58603-836-6 Press Page 119
[cccx] Symantec Internet Security Threat Report 2014 (page 45)
[cccxi] Ibid (Page 47)
[cccxii] Cybercrime/cyberwars/cyberterrorism/Hacktivism Part 1 Stanley 12/13/2010 (http://www.bloorresearch.com/analysis/cybercrime-cyberwars- cyberterrorism-and-hacktivism-part-/)
[cccxiii] Hacktivism: An Analysis of the Motive to Disseminate Confidential Information Thesis (Warren V. Held, B.A.) December 2012
[cccxiv] Denial of Service Attacks: https://www.incapsula.com/ddos/ddos-attacks/denial-of-service.html
[cccxv] Proofpoint 1/16/14 Proofpoint Uncovers Internet of Things (IoT) Cyberattack (http://investors.proofpoint.com/releasedetail.cfm?ReleaseID=819799)
[cccxvi] Quote Michael Osterman, principal analyst at Osterman Research (http://investors.proofpoint.com/releasedetail.cfm?ReleaseID=819799)
[cccxvii] Symantec Internet Security Threat Report 2914 (Page 4)
[cccxviii] A Short History of Computer Viruses and Attacks Brian Krebs, Washington Post 2003-02-14 and Timeline of computer viruses and Worms (http://en.wikipedia.org/wiki/Timeline_of_computer_viruses_and_worms)
[cccxix] Computer Knowledge 2/28/13 DaBoss (http://www.cknow.com/cms/vtutor/number-of-viruses.html)
[cccxx] Kaspersky Lab 12/10/13 Number of the year: Kaspersky Lab is detecting 315,000 new malicious files every day (http://www.kaspersky.com/about/news/virus/2013/number-of-the-year)
[cccxxi] Ibid
[cccxxii] Kansas City Star (4/12/13) (http://www.kansascity.com/news/local/article317633/Guilty-plea-in-central-Missouri-college-computer-hacking.html#storylink=cpy)
[cccxxiii] CNN Money Internet Routing Glitch Kicks Millions Offline 11/7/11 (http://money.cnn.com/2011/11/07/technology/juniper_internet_outage/)
[cccxxiv] SC Magazine (9/19/14) Adam Greenburg (Another breach involving Onsite Health Diagnostics, Kansas City hospital impacted)
[cccxxv] Southeast Missourian (7/10/14) Associated Press (Kansas City-area school district warns 10,000 of data breach) http://www.semissourian.com/story/2099295.html
[cccxxvi] CNN Money Time Warner Cable comes back from nationwide Internet outage 8/11/14

(http://money.cnn.com/2014/08/27/media/time-warner-cable-outage/)

[cccxxvii] The Cass County Democrat Missourian 911 service interrupted throughout Cass County (8/21/14 (http://www.demo-mo.com/search_results?q=fiber+line+cut)

[cccxxviii] http://insurance.mo.gov/consumers/anthem/

[cccxxix] St. louis Business Journal 5/27/14 (Anthony Munns) (http://www.bizjournals.com/stlouis/blog/2014/05/missouri-ranks-no-5-in-u-s-for-cybersecurity.html?page=all)

[cccxxx] Hacked: Why no company is safe in the age of cyber warfare - St. Louis Business Journal (Oct 10, 2014) (http://thehackernews.com/2014/01/100000-refrigerators-and-other-home.html)

[cccxxxi] Government Technology article by David Hunn 9/13/2014 (http://www.govtech.com/local/How-computer-hackers-changed-the-Ferguson-protests.html)

[cccxxxii] eWeek article Cyber-Attack Campaign Targets Energy Firms, Industrial Control Systems 07/02/14 Robert Lemos Author

[cccxxxiii] Data Breach Industry Forecast 2015 (http://www.experian.com/assets/data-breach/white-papers/2015-industry-forecast-experian.pdf?_ga=1.172114915.1943093614.1418003182)

[cccxxxiv] Nicole Perlroth, Outmaneuvered at Their Own Game, Antivirus Makers Struggle to Adapt, New York Times, December 2012, http://www.nytimes.com/2013/01/01/technology/antivirus-makers-work-onsoftware-to-catch-malware-more-effectively.html?pagewanted=all;Gartner, Inc., http://www.gartner.com/newsroom/id/2156915,"Gartner Says Security Software Market Grew 7.5 Percent in 2011,"April 26, 2012, http://www.gartner.com/it/page.jsp?id=1996415

[cccxxxv] 2013 – The Impact of Cybercrime INFOSEC Institute (http://resources.infosecinstitute.com/2013-impact-cybercrime/)

[cccxxxvi] Ponemon Institute© Research Report

[cccxxxvii] Internet Access Local – Missouri Internet Access (http://internetaccesslocal.com/states/missouri/)

[cccxxxviii] Symantic Internet Security Threat Report 2014 (page 13)

[cccxxxix] Consumer Report 2008 State of Net Summary (http://www.itthoughtoftheday.com/2010/01/18/the-odds-of-getting-a-computer-virus-are-insane/)

[cccxl] 20141 Cost of Data Breach Study: United States Ponemon Institute, May 2014 (Introduction)

[cccxli] A Short History of Computer Viruses and Attacks Brian Krebs, Washington Post 2003-02-14 and Timeline of computer viruses and Worms (http://en.wikipedia.org/wiki/Timeline_of_computer_viruses_and_worms)

[cccxlii] http://www.investopedia.com/financial-edge/0512/10-of-the-most-costly-computer-viruses-of-all-time.aspx

[cccxliii] http://www.csmonitor.com/Business/2011/0504/Data-theft-Top-5-most-expensive-data-breaches/5.-US-Veterans-Affairs-25-30-Million)

[cccxliv] https://www.jkrug.com/identity-theft/223

[cccxlv] http://pgitl.com/costs-cyber-data-breach/

[cccxlvi] http://techcrunch.com/2015/02/25/target-says-credit-card-data-breach-cost-it-162m-in-2013-14/

[cccxlvii] Integrated Solutions for Retailers K. Murphy 3/25/2014 (http://www.retailsolutionsonline.com/doc/neiman-marcus-continues-to-pay-for-security-breach-0001)

[cccxlviii] http://www.scmagazineuk.com/ebay-counts-the-cost-after-challenging-data-breach/article/361338/

[cccxlix] Bank Info Security Insider Breach Costs AT&T $25 Million E. Chabrow (http://www.bankinfosecurity.com/insider-breach-costs-att-25-million-a-8089/op-1)

[cccl] Claims Journal S. Braun 11/5/14 (http://www.claimsjournal.com/news/national/2014/11/05/257240.htm)

[cccli] VB News Community Health Systems breach could cost up to $150 million 8/25/14 M. Sullivan (http://venturebeat.com/2014/08/25/community-health-systems-breach-could-cost-up-to-150-million/)

[ccclii] Cyber Attacks on U.S. Companies in 2014 (10/27/14) Issue Brief #4289 on National Security and Defense The Heritage Foundation

[cccliii] Apple stock plunges amid celebrity hacking, ahead of purported iWatch announcement 9/4/14 (http://www.washingtonpost.com/news/morning-mix/wp/2014/09/04/apple-stock-plunges-amid-celebrity-hacking-ahead-of-purported-iwatch-announcement/)

[cccliv] Supervalu profit down23%, data breach costs weigh MarketWatch 10/16/14 (http://www.marketwatch.com/story/supervalu-profit-down23-data-breach-costs-weigh-2014-10-16)

[cccliv] Fast Feed C. Gayomali Snapsaved.com Shuts Down Following Snapchat Photo Breach (http://www.fastcompany.com/3037057/fast-feed/snapsavedcom-shuts-down-following-snapchat-photo-breach)
[ccclv] Missouri State Mitigation Plan Terrorist Hazard Section 3.283
[ccclvi] Bombs frequent in U.S.; 172 'IED' incidents in last 6 months, by 1 count (http://www.mcclatchydc.com/2013/04/16/188733/bombs-frequent-in-us-172-ied-incidents.html#storylink=cpy (McClatchyDC) Author M. Schofield
[ccclvii] Kansas City Star Article Kansas City officials lament the loss of $1 million in homeland security funds L. Horsley (http://www.kansascity.com/news/government-politics/article19240293.html)
[ccclviii] Missouri 2013Mitigation Plan (Page 3.287)
[ccclix] The History of Terrorism from Antiquity to Al Qaeda G. Chaliand 2007
[ccclx] National Consortium for the Study of Terrorism and Response to Terrorism START Research Highlight 11/14
[ccclxi] KCTEW 5/18/15
[ccclxii] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxiii] Global Terrorism Database (GTD)
[ccclxiv] Global Terrorism Database (GTD)
[ccclxv] Global Terrorism Database (GTD)
[ccclxvi] Global Terrorism Database (GTD)
[ccclxvii] Global Terrorism Database (GTD)
[ccclxviii] Global Terrorism Database (GTD)
[ccclxix] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxx] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxxi] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxxii] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxxiii] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxxiv] Political Violence and Terrorism in Modern America (a Chronology) C. Hewitt Pager Security International 2005
[ccclxxv] CNN Interactive article Jan/3/97 (http://www.cnn.com/US/9701/03/letter.bomb.update/)
[ccclxxvi] Global Terrorism Database (GTD)
[ccclxxvii] Global Terrorism Database (GTD)
[ccclxxviii] Global Terrorism Database (GTD)
[ccclxxix] United States Attorney's Office Western District of Missouri 2008 Press Release (http://www.justice.gov/usao-wdmo/united-states-attorneys-office-0)
[ccclxxx] Kansas City Star Article 7/25/14 J. Thomas Report Notes Terrorist Encounters at KCI (http://www.kansascity.com/news/local/article805127.html)
[ccclxxxi] Kansas Public Radio Headlines 11/25/14 (http://kansaspublicradio.org/kpr-news/headlines-tuesday-november-25-2014)
[ccclxxxii] Kansas City Star article, author M. Morris (9/17/14) Man is charged with the attempted firebombing of Rep. Cleavers KC Office
[ccclxxxiii] National Consortium for the Study of Terrorism and Response to Terrorism START Research Highlight 11/14
[ccclxxxiv] Integrated United States Security Database (IUSSD): Data on the Terrorist Attacks in the United States Homeland, 1970 to 2011 START
[ccclxxxv] National Socialist Movement After Action Report 11/09/13
[ccclxxxvi] Southern Poverty Law Center Website National Socialist Movement (http://www.splcenter.org/get-informed/intelligence- files/groups/national-socialist-movement)

[cccxxxviii] ADL 2015 Sees Dramatic Spike In Islamic Extremism Arrests (http://www.adl.org/combating-hate/domestic-extremism-terrorism/c/2015-terror-arrests-30-april.html#.VV01HE3bJ9A)
[cccxxxix] Ibid
[cccxc] Business Insider ISIS Is Now Directly Threatening To Attack American And European Targets M.Georgy 8/20/14 (http://www.businessinsider.com/isis-now-openly-threatening-attacking-us-targets-2014-8)
[cccxci] SFI Strategic Foresight Initiative (http://www.fema.gov/media-library-data/20130726-1836-25045-4508/evolving_terrorist_threat.pdf)
[cccxcii] Pearlstein, Fatal Future? Transnational Terrorism and the New Global Disorder.
[cccxciii] Global Trends 2025: A Transformed World, National Intelligence Council, November 2008.
[cccxciv] Brian Caulfield and Naazneen Karmali, "Mumbai: Twitter's Moment," Forbes.com, October 28, 2008, (http://www.forbes.com/2008/11/28/mumbai-twitter-sms-tech-internet-cx_bc_kn_1128mumbai.html)
[cccxcv] Brian Michael Jenkins, "No Path to Glory: Deterring Homegrown Terrorism," RAND Corporation, May 2010.
[cccxcvi] National Institute of Justice No. 261 Prisoner Radicalization: Assessing the Threat in U.S. Correctional Institutions. M.S. Hamm (http://www.nij.gov/journals/261/pages/prisoner-radicalization.aspx)
[cccxcvii] Catherine Bott , "The Internet as a Terrorist Tool for Recruitment & Radicalization of Youth," Homeland Security Institute, 04/24/2009.
[cccxcviii] Catherine Bott , "The Internet as a Terrorist Tool for Recruitment & Radicalization of Youth," Homeland Security Institute, 04/24/2009.
[cccxcix] Kansas City Star Local J. Thomas 7/25/14 Report Notes Terrorist Encounters at KCI (http://www.kansascity.com/news/local/article805127.html)
[cd] Washington Post Article Eight facts about terrorism in the united states B Plumer 4/16/13 (http://www.washingtonpost.com/blogs/wonkblog/wp/2013/04/16/eight-facts-about-terrorism-in-the-united-states/)
[cdi] Terrorism-Related fear and Avoidance Behavior in a Multiethnic Urban Population D.P. Eisenman (2007) Abstract (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2636595/)
[cdii] UCLA Newsroom Article 1/21/09 Disabled and other vulnerable groups more susceptible to terrorism fears (http://newsroom.ucla.edu/releases/the-disabled-and-other-vulnerable-77609)
[cdiii] Terrorism, The cost to an Economy (http://marathon.neu.edu/exhibits/show/terrorism--the-costs-to-an-eco/terrorism--the-costs-to-an-eco)
[cdiv] Economic Impact of the September 11 World Trade Center Attack (http://www.fiscalpolicy.org/sep28WTCreport.pdf)
[cdv] NRDC Onearth article Spring 2002 (http://www.nrdc.org/onearth/02spr/default.asp)
[cdvi] Oklahoma City Police Department Alfred P. Murrah Federal Building Bombing After Action Report" (PDF). Terrorism Info. p. 58. Archived from the original (PDF) on July 3, 2007.
[cdvii] Rehabbing The D.C. Snipers" by Investor's Business Daily, October 17, 2007.
[cdviii] FEMA *Local Mitigation Planning Handbook,* 6-B, March 2013