

THE NEW BUCK O'NEIL (U.S. 169) CROSSING

A crossroads connecting the nation.



Was an INFRA application for this project submitted previously?	No
Previously Incurred Project Cost	\$0.00
Future Eligible Project Cost	\$204,100,000
Total Project Cost (This should be the sum of the previous two rows)	\$204,100,000
INFRA Request	\$60,000,000
Total Federal Funding	\$140,000,000
Are matching funds restricted to a specific project component?	No
Is the project or a portion of the project currently located on National Highway Freight Network?	Yes
Is the project or a portion of the project located on the NHS?	Yes
Does the project add capacity to the Interstate system?	Yes
Is the project in a national scenic area?	No
Do the project components include a railway-highway grade crossing or grade separation project?	Yes
Grade crossing ID	063183U
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	No
If answered yes to either of the two component questions above, how much of the INFRA a will be spent on each of these project components?	\$60,000,000
States(s) in which project is located	Missouri
Small or large project	Large
Urbanized Area in which project is located	Kansas City
Population of Urbanized Area	2,104,115
Is the project currently programmed in the:	
TIP	Yes*
STIP	No**
MPO Long Range Transportation Plan	Yes
State Long Range Transportation Plan	N/A***
State Freight Plan	N/A****
If selected, would you be interested in participating in a new environmental review and permitting approach?	Yes

* "Beyond the Loop" PEL included in TIP which addresses the Buck O'Neil Bridge.

** MoDOT STIP includes funding for rehabilitation of the existing Buck O'Neil Bridge

*** MoDOT Long Range Transportation Plan and Freight Plan are goal based and no individual project solutions are included.

**** State Freight Plan includes congestion relief in downtown Kansas City area routes as a priority to remove freight bottlenecks.



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The New Buck O'Neil (U.S. 169) Crossing

ORGANIZATION:

City of Kansas City, Missouri

DEPARTMENT:

Office of the City Manager

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Project Information



Project Description

The Kansas City region has long been an important economic crossroads for our nation, dating back to its history as the last trading outpost at the convergence of the Oregon, California, and Santa Fe Trails before they separately headed west. Kansas City's infrastructure has always supported this prominence as a crossroads for trade and freight and the Buck O'Neil Bridge – formerly the Broadway Bridge – is a critical piece of that infrastructure. Now, however, the existing Buck O'Neil Bridge faces a convergence of challenges that will require its replacement, presenting a multi-generational opportunity for the city and region.

The region's status as the country's largest rail center by tonnage is one reason Kansas City is a vital economic engine for the nation. Kansas City's central location, highway system size, and connectivity between all transportation modes are also a strength for moving freight. More than 88 million tons of freight were shipped from or to Kansas City in 2015, with the number expected to top 125 million tons by 2045. These figures also do not include the significant amount of freight traveling on rail, roads, and waterways passing through the region – again highlighting Kansas City's status as an economic crossroads.

The existing Buck O'Neil Bridge has served the Kansas City region well. Much as Kansas City operates as an economic crossroads for the nation, the Buck O'Neil Bridge facilitates local, regional, and national connectivity. Built in 1956, it stands immediately west of the site of the original Hannibal Bridge, which in 1869 was the first bridge to cross the Missouri River and was a driving force behind Kansas City's status as a rail center. The Hannibal Bridge's replacement still carries rail traffic, and the Buck O'Neil Bridge was erected to divert vehicle traffic.

Today, 45,000 vehicles a day cross the Buck O'Neil bridge between downtown Kansas City and the many rapidly-growing communities north of the Missouri River, and nearly 66,000 vehicles a day are anticipated to cross the bridge and maneuver through its associated interchanges by 2040. In addition, the bridge also serves as a connection point to the north-south Interstate 35 corridor and the east-west Interstate 70 corridor through downtown Kansas City. Both rail and water freight traffic also travel underneath the bridge.

Unfortunately, the bridge's current condition requires either replacement or significant repair,



Construction of the Buck O'Neil Bridge 1955

More than 950 crashes have occurred in the project area over the past five years and crash rates at the south project limits are three times higher than the average rates experienced in the Kansas City region.

and its outdated interchange design is insufficient to meet current or future needs. The upcoming decisions regarding the future of the Buck O'Neil Bridge will require an innovative, long-term vision for the region, one that will serve as an added catalyst for the continuing economic surge of downtown Kansas City. This vision must look beyond immediate needs, address quality of life, sustain and improve economic vitality, and prepare Kansas City for the next 100 years of growth as

the nation's economic crossroads. Replacement, rather than repair, of the Buck O'Neil Bridge presents an opportunity to leverage benefits far beyond improvement of a deteriorating asset. Planning a replacement will improve system performance by promoting national, regional, and local connectivity and freight movement. It will also improve quality of life through economic development, expanded transportation choices, and neighborhood livability.

Replacement of Outdated Infrastructure

The bridge's condition has required the Missouri Department of Transportation (MoDOT) to increase the frequency of repairs, and potentially invest \$52 million for rehabilitation in 2018, at which time the bridge would be closed to traffic for a 24-month period.

Freight across the bridge has been limited as its allowable weight has been reduced due to its increasingly poor condition. MoDOT recently completed an extensive inspection of the bridge, which identified numerous structural deficiencies



Extensive corrosion at the approach piers

in need of rehabilitation. Significant deterioration of structural elements such as steel stringers and bearings has occurred due to roadway drainage exposure. These elements need to be repaired or replaced, and deck replacement will be required to minimize this type of damage in the future. In addition, hanger cable retainers are missing, gusset plates and structural members are exhibiting extensive rust, expansion joints need to be replaced, and some cracking due to repetitive stress is evident. Also, approach spans have repetitive stress cracking and similar extensive rust and corrosion issues. The center river pier has a large scour hole on all sides and, at this point, is only embedded in one foot of shale. Repainting the entire bridge, repairs to the tie beams, lower laterals, floor beams and bridge railings have been proposed. Scour countermeasures have been suggested at the center river pier to protect against further undermining.

MoDOT completed a conceptual study of the repair and rehabilitation requirements of the Buck O'Neil Bridge in March 2017 as part of the inspection process. Four improvement scenarios were evaluated: a short-term repair option, a long-term repair option, a "hybrid" of short- and long-term, and a second "hybrid" that included some span replacements. An evaluation of replacement in-kind was also evaluated to serve as a baseline.

Based on the result of this conceptual study, MoDOT has adopted the recommended longer term, 35-year rehabilitation option as the preferred approach. MoDOT added the recommended longer-term project to their Statewide Transportation Improvement Program (STIP) with a total of \$52.1 million in State Fiscal Year 2019. The conceptual study further added that complete in-kind replacement will be required at the end of the 35-year period, with an estimated uninflated cost of \$98 million. The rehabilitation proposed by MoDOT will require a minimum 24-month closure of the U.S. 169 Buck O'Neil Bridge to accommodate the proposed work.

MoDOT has identified a short-term solution as well, which would provide a five-year rehabilitation to extend the life of the existing bridge. The implementation of a five-year rehabilitation project



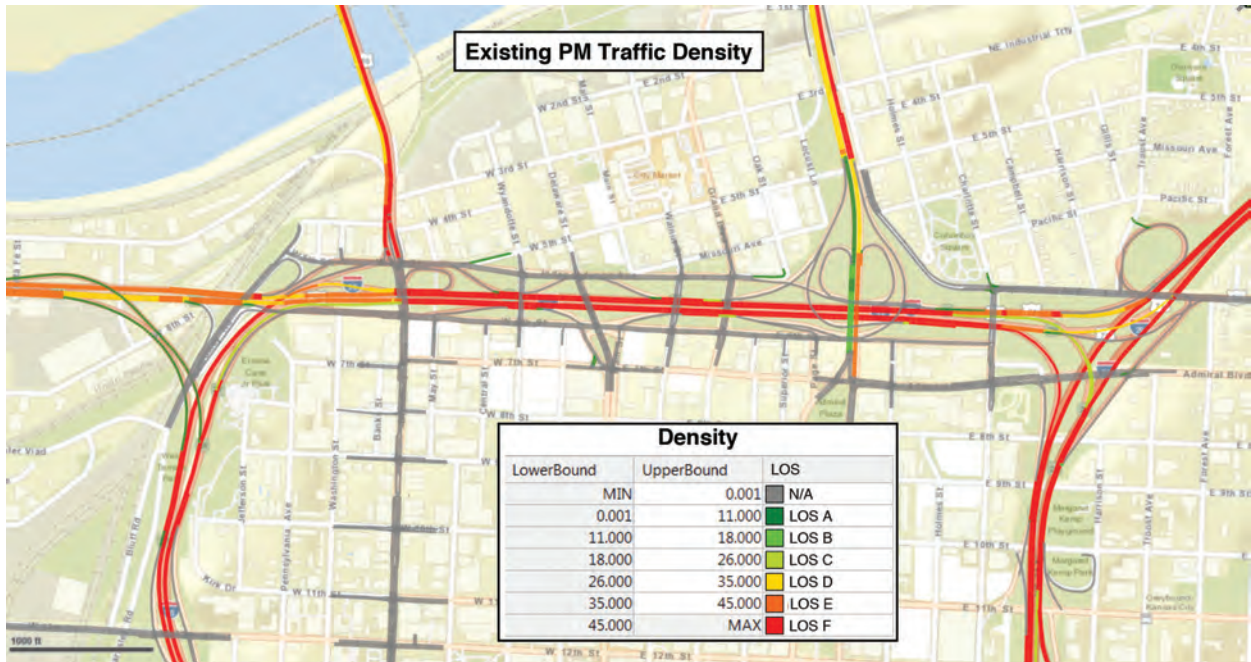
Typical deterioration at steel elements



Deterioration at expansion joint support

in 2018 would align with the timeline to open the new bridge to traffic, keep U.S. 169 open to traffic during construction of the project, and allow nearly all the planned rehabilitation expenditures to be used as part of the financing for the project.

The project would construct a new Missouri River crossing and the new Buck O'Neil (U.S. 169) bridge will be designed and constructed to provide a minimum of a planned 100-year service life. Estimates are that the new bridge will require no planned contracted maintenance expenditures for a 35-year period, and bridge replacement will allow for a new bridge with no weight restrictions, allowing for increased freight movement.



Congestion Issues

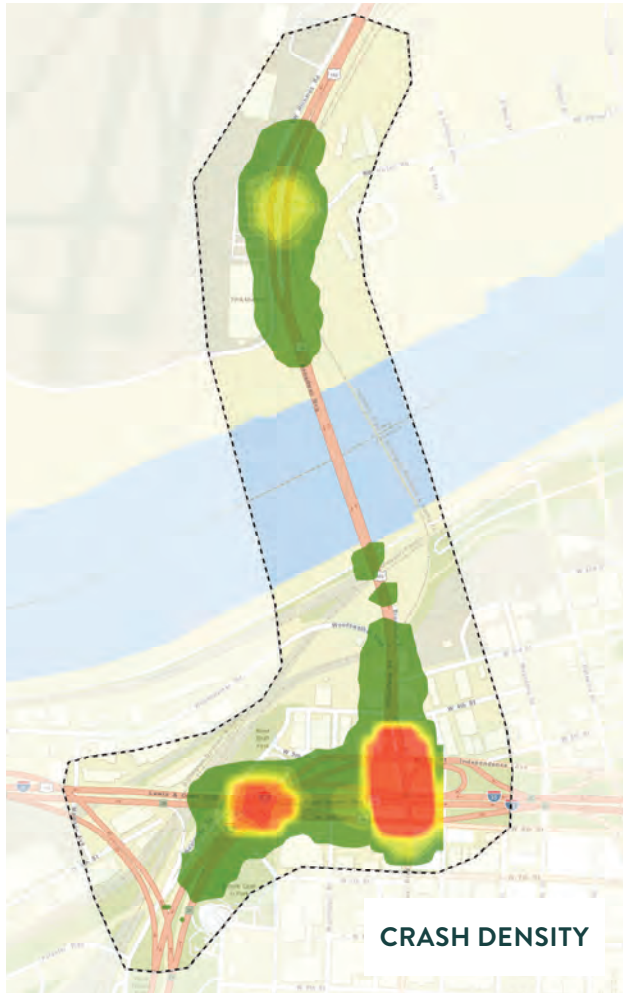
Unfortunately, the Buck O’Neil Bridge was designed and constructed before the interstate system was developed; in fact, U.S. 169 was initially developed to serve as a city street, not the major, economic arterial it currently serves for the region. Now, the current bridge design with associated interchanges no longer has capacity to adequately serve the needs of the Kansas City region, including access needs for interstate travel.

Large traffic volumes and poor connections create daily congestion for morning and evening commuters, often extending for three hours during each period. Existing Levels of Service are classified as E or F for both through and ramp traffic, with average travel speeds 10 or more miles per hour below the posted operating speed. Ramp congestion adds to the poor operations of the roadways in the region, with ramp traffic often backing into through lanes creating added delay.



Daily recurring congestion includes:

- Queues on southbound U. S. 169 extend from 5th St north 1.5 miles
- Queues on northbound Interstate 35 to Broadway Blvd extend from Broadway Blvd to south of 12th St (0.75 mile).
- Queues on westbound Interstate 70 to Broadway Blvd extend to east of Route 9 (0.6 mile).

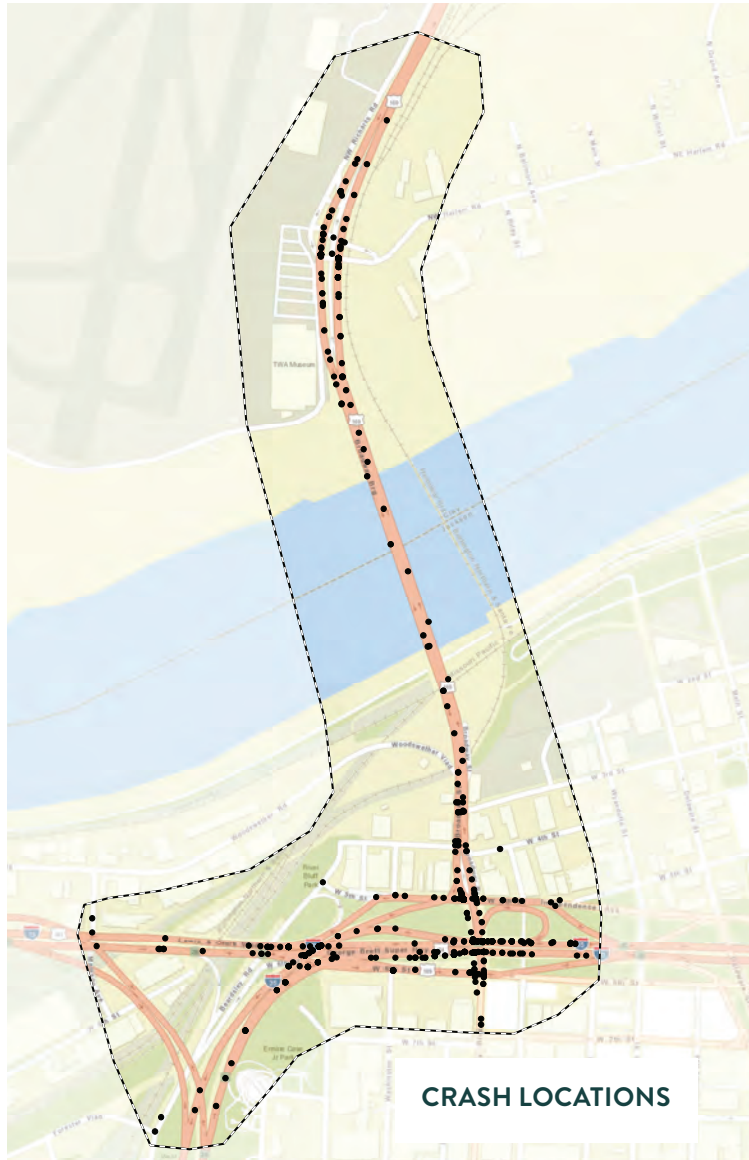


CRASH SEVERITY	(2010-2014) NUMBER OF CRASHES	PERCENT
Fatal	0	0%
Disabling Injury	12	1.2%
Minor Injury	161	16.6%
PDO	794	82.1%
Total	967	

Safety Issues

Safety is always at the forefront in both evaluating transportation investment decisions and determining what project strategies will be implemented when planning a new project. As referenced, nearly 66,000 vehicles a day are anticipated to cross the Buck O’Neil Bridge and maneuver through its associated interchanges by 2040, an increase of 33 percent over existing traffic volumes. Motorists experience higher-than-average crash rates usually resulting from significant congestion, and the southern project limits including the connection with Interstates 35 and 70 experience crash rates nearly three times the average rate in Kansas City.

Crash types, severity and location trends available from Missouri State Highway Patrol records (2010-2014) have been analyzed to identify any geospatial or causal trends to be potentially addressed by the project. Both approaches to the existing Buck O’Neil Bridge were identified as having very heavy concentrations of crashes. North of the bridge, crashes are very dense around the interchange with Harlem Road and the Charles B. Wheeler Downtown Airport. This interchange is configured with on-and off-ramps that access U.S. 169 on the left, which run counter to driver expectations. Additionally, the ramps are very steep and have very short



CRASH TYPE	(2010-2014) NUMBER OF CRASHES	PERCENT
Backing	6	0.6%
Intersection	70	7.2%
Parking or Parked Car	8	0.8%
Pedestrian/Bike	3	0.3%
Fixed Object/ Out of Control	168	17.4%
Head On	14	1.4%
Rear End	322	33.3%
Right Angle	53	5.5%
Sideswipe/ Changing Lanes/ Passing	303	31.3%
Other	20	2.1%
Total	967	

areas before merging with mainline traffic. The southern connection, formed with the intersection of U.S. 169 with 5th and 6th streets present a safety challenge by overstressing the capacity of the signalized intersections, creating long queues resulting in a high frequency of rear end crashes.

The New Buck O’Neil (U. S. 169) Crossing offers many different improvement and countermeasure opportunities to reduce the number and severity of crashes. These treatments include a combination of operational and geo-

metric strategies focused on improving both the critical crash locations and types identified in the existing crash data analysis. Proposed treatments focus on elements that have a proven track record of providing quantifiable crash reductions. A summary of the proposed treatments with crash modification factors (CMFs) derived from traffic projects, as well as published safety performance functions (SPFs) - as identified and adopted by AASHTO’s “Highway Safety Manual” (HSM) - are provided on the following page:

Rerouting U.S. 169 traffic to/from Interstate 35

Currently, northbound drivers need to exit Interstate 35, then drive through at-grade signalized intersections at Broadway and 5th and Broadway and 6th to access northbound U.S. 169. Similar traffic patterns are needed for southbound drivers. The proposed project includes a direct connection between U.S. 169 and Interstate 35 that will dramatically reduce the traffic demand and improve safety performance at these two intersections. A CMF of 0.67 was used at the 5th Street Intersection and 0.54 at 6th Street.

Modernizing the U.S. 169 / Harlem Interchange

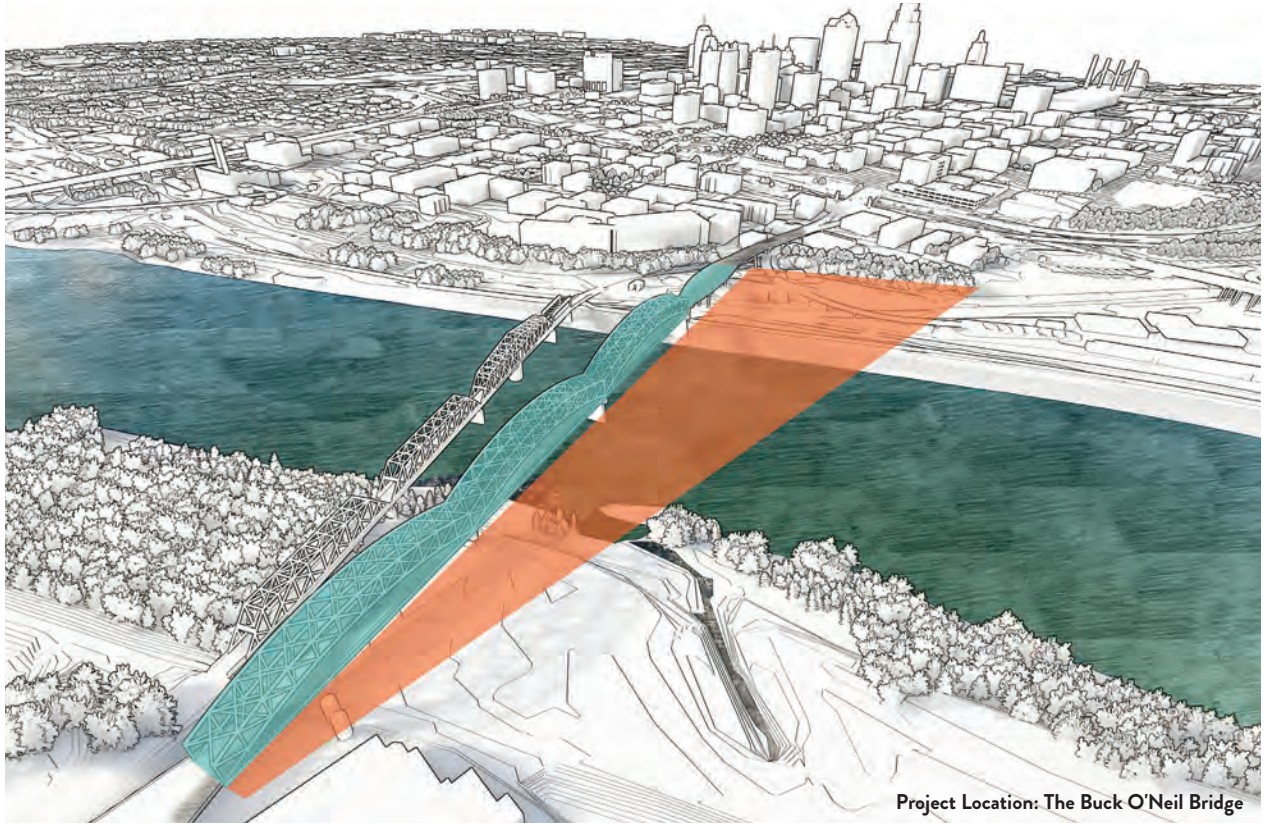
The existing U.S. 169 and Harlem interchange is one of the primary concentrations of crashes in the study corridor. The current interchange configuration has substandard features, including left-hand entrance and exit ramps, short merge distances and acceleration distances. The proposed interchange configuration addresses all the existing deficiencies and reroutes southbound on-ramp traffic to adjacent access points further from the bridge. The existing and proposed improved interchanges were modeled using HSM crash prediction models with a CMF of 0.57.

Buck O'Neil Bridge Width

The existing Buck O'Neil Bridge has a substandard width and does not provide any shoulders for through traffic. The proposed bridge replacement will provide the opportunity for a wider corridor, including shoulders meeting current design standards. A CMF (0.77), was created using HSM values for the existing and proposed shoulder width. This was applied to the existing crashes across the bridge to calculate the proposed crash reduction associated with providing wider shoulders.

50 percent fewer crashes are projected after evaluating the proposed improvements using published CMFs.

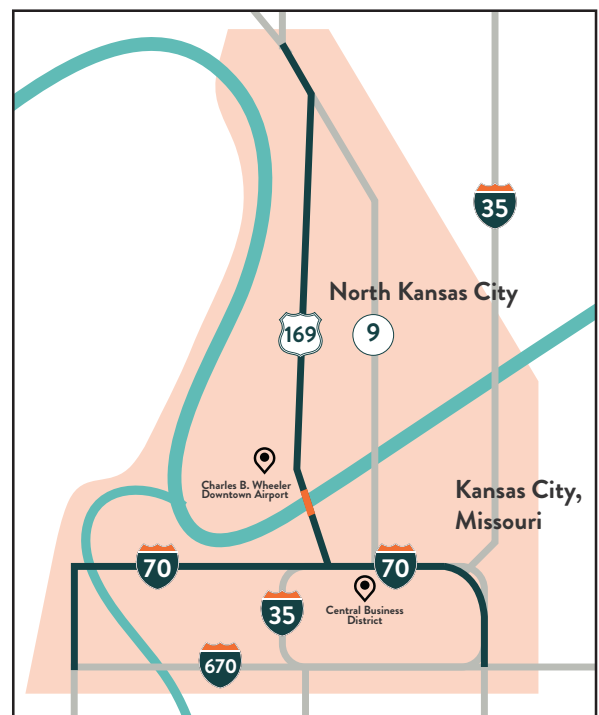
The proposed project will also provide other safety improvements for which the crash reduction could not be quantified. Traffic operations are projected to improve dramatically with the proposed project reducing delay and queue length for daily commuters. This is likely to reduce the high number of rear end crashes often associated with poor operations and delay. The current practice of pedestrians and bicyclists crossing the bridge on the median grate system will be replaced with a barrier-separated, multi-use trail, eliminating conflict points with vehicular traffic.



Project Location

- U.S. 169 Missouri River crossing (north/south) in Kansas City, Missouri
- Provides access to Central Business District (south end)
- Provides access to Charles B. Wheeler Downtown Airport and northland areas (north end)
- Facilitates connection to Interstate 35 and Interstate 70 (south end)
- Located in Census-Designated Urbanized Area of Kansas City, MO-KS 43912

- Project Location
- Area of Influence



Project Parties



The City of Kansas City, Missouri, is the designated application sponsor and is proud to lead a regional, state and federal effort to permit, design, and construct the Buck O’Neil (U.S. 169) Crossing. As the lead applicant, Kansas City will commit more than \$35 million of local funds to the project.

MoDOT, who owns and manages the U.S. 169 corridor including the existing bridge, has offered up to \$100 million of combined state and federal funds to support the replacement of this vital national project.

The Mid-America Regional Council (MARC), is playing a crucial role in facilitating project planning and assisting with promoting the importance of the project to all other municipalities in the region.

Local entities supporting the project include:

Counties:

Clay and Jackson

Government Agencies

MoDOT

MARC

Municipalities:

North Kansas City, Gladstone, Liberty, Riverside, Parkville, Excelsior Springs, Gladstone, Lake Waukomis, North Kansas City, Parkville, Platte City, Platte Woods, Pleasant Valley

Business and Business Associations:

BikeWalkKC, Clay County EDC, Clay County Public Health Center, Commenco, Commerce Bank, Executive Airshare, Greater Kansas City Chamber of Commerce, Hallmark Cards, Kansas City Area Development Council, Kansas City Area Transit Authority, Kansas City Life Insurance, Kansas City Smart Port, Kansas City Downtown Council, Northland Regional Chamber of Commerce, Platte County Economic Development Council, RideKC Streetcar

Grant Funds, Sources, and Uses of Project Funds

Preliminary Engineering, Permitting & Environmental Documentation	\$5.1 million	Non-Federal (20%) Other Federal (80%)
Land Acquisition and Utility Relocation	\$15 million	Non-Federal (20%) Other Federal (80%)
Construction	\$181.1 million	Non-Federal (31%) Other Federal (36%) INFRA (33%)
Construction Engineering	\$1.5 million	Non-Federal (100%)
Stipends for Non-Selected D/B Teams	\$1.4 million	Non-Federal (100%)
Total	\$204.1 million	\$60 million INFRA (29%) \$80 million Other Federal (39%) \$22.9 million State of Missouri (11%) \$35 million City of Kansas City (18%) \$6.2 million (3%) Combined from Regional Funds including local sources and sub-allocated federal funds

Kansas City's commitment to serving the nation as a vital freight and logistics hub by improving interstate access into downtown and expanding U.S. 169 to increase freight capacity in the region, began more than one year ago with a \$3.8 million investment studying the downtown loop including U.S. 169. A direct result of the study, which will be finalized in April 2018, was the significant opportunity associated with reconstructing the Buck O'Neil Crossing of the Missouri River in conjunction with redefining access to Interstate 35, Interstate 70, downtown Kansas City, and the downtown airport.

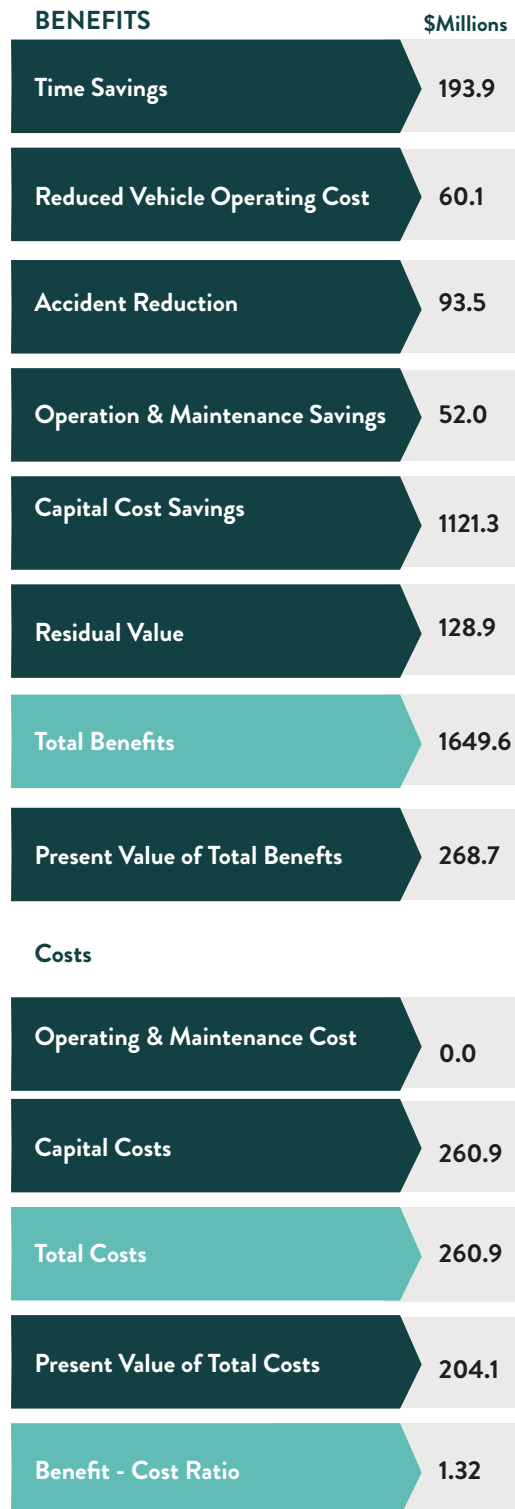
Kansas City is requesting \$60 million in INFRA Funds to construct the new Buck O'Neil (U.S. 169) Crossing, connector ramps, and approaching roadway. The INFRA Funds represent 33 percent of the construction cost, and 29 percent of the overall project cost. Total federal funding for the project would be approximately \$140 million, or 68 percent of the overall project cost. MoDOT will utilize ap-

proximately \$22.9 million in state transportation funds to match available federal funding allocated to the state for a total project share of \$102.9 million. Kansas City will provide \$35 million in funding utilizing local tax revenues. The remaining project funds will come from other regional sources including sub-allocated federal funds and other available local revenue to complete the funding package.

Kansas City will engage the services of an engineering firm upon notification that this request for INFRA Funds has been awarded to start NEPA documentation and permitting. Kansas City in conjunction with MoDOT and MARC are committed to work together to address other project costs not related to construction. The use of MoDOT's State Infrastructure Bank to address immediate project expenditures and leverage the local funds committed by Kansas City is one innovative financial solution that may be pursued.

Merit Criteria

Economic Vitality



The Benefit-Cost Analysis summarized on this page highlights the economic importance of the U.S. 169 corridor locally, regionally, and nationally. The anticipated investment by MoDOT of \$52 million for rehabilitation of the existing Buck O'Neil Bridge will require complete closure of U.S. 169 for 24 months, and will delay the inevitable need for replacement of the bridge by a 35-year period. Each day U.S. 169 is closed, the 45,000 motorists using the bridge daily will be impacted, resulting in 46,413 additional vehicle miles traveled and 1,450 hours of added travel time, costing the region more than \$16 million annually. When coupled with the anticipated investment by MoDOT for bridge rehabilitation, an \$80 million benefit will be derived in the next three years alone.

A well-planned New Buck O'Neil (U. S. 169) Crossing will allow the U.S. 169 corridor to remain open and the current economic vitality of the region to grow. The future benefits of the project including improved rail and truck movement, more efficient access for commuters and visitors, and reduced congestion, are important to the continued economic momentum ongoing in the region.

Benefits of the New Buck O'Neil Bridge will include:

- Keep the current structure open for traffic while a new bridge is being built, rather than closing the current structure for significant amounts of time during repair
- Enhance national and regional economic vitality with improved connections to Interstates 29 and 35, strengthening connections into downtown Kansas City and Interstate 70
- Traffic will be redirected to create a direct connection between U.S. 169 and Interstate 35
- Improved interchange operations at downtown Kansas City and the Charles B. Wheeler Downtown Airport, will reduce recurring congestion and significantly enhancing operational safety
- Implementing a new bicycle and pedestrian crossing of the Missouri River eliminating conflict points with vehicular traffic
- Innovation opportunities encompassing key federal priorities including acceleration of environmental documentation and permitting
- Promoting of alternative project finance solutions from private entities by including optional financing opportunities as part of the project delivery process
- Adopting principles from the SEP-14 program to integrate the design/build delivery method with NEPA
- Replacing a weight-restricted bridge with an unrestricted bridge to enhance truck freight movement
- Enhancing the regional freight network through:
 - Consideration of a new river crossing for the BNSF
 - Port KC consideration; improved truck and rail access and rail capacity to further develop this multi-modal port
 - Truck freight improvements, particularly freight moving north on I-35 accessing Interstate 29, avoiding bottlenecks on the northeast corner of the downtown Kansas City loop
 - Increased opportunities to enhance freight facilities and commercial development in the downtown Kansas City Harlem neighborhood
 - Airport freight and accommodation to businesses using the Charles B. Wheeler downtown Airport, the fourth busiest airport in Missouri

Freight and Commuter Traffic Impact

Currently, the U.S. 169 interchange with Interstate 70 at the south end of the Buck O'Neil Bridge accommodates two differing purposes: getting U.S. 169 traffic to the interstate system via either Interstate 35 or Interstate 70, and providing travelers with access to and from downtown. Traffic is evenly split between those two purposes, but the overall volumes are large and are competing for the same space. The competition results in daily congestion in several different directions, impacting daily commutes, freight traffic, and access to the Central Business District. Based on regional travel demand modeling, there is significant "pent-up demand" for use of the interchange. If additional capacity and improved design function are added to the interchange, traffic will divert from other major roadways. If the current delays at the interchange are reduced, significant volumes of traffic will divert from Interstates 635, 35, 29, Route 9, and the east side of Interstate 435.

In addition to roadway traffic, the existing bridge and roadway configuration negatively impact the region's rail freight. BNSF Railway operates a major rail yard north of the Missouri River and east of U.S. 169. Access to the rail yard requires crossing the Missouri River at the second Hannibal Bridge immediately east and downstream of the Buck O'Neil Bridge. Coming off the second Hannibal Bridge, the railroad tracks make a sharp turn commonly referred to as the "Gooseneck", which results in greatly reduced speeds underneath the south end of the Buck O'Neil Bridge, adding to delays and operating expenses for rail operations. Additionally, because of the narrow clearance created by the design of the bridge on the south end, long freight cannot travel along the rail tracks underneath the bridge. This forces long freight to find another, slower path through the region and im-



pedes rail freight traffic. Creative, strategic redesign of the bridge will alleviate the congestion impeding commuter and freight traffic at both ends of the bridge, as well as rail traffic traveling underneath the bridge.

Currently, the junction of Interstate 70 and Interstate 35 associated with the project area; Interstate 670 south and west of the project area; and Interstate 35 south of downtown all rank as top 25 freight bottlenecks in Missouri. This project will help alleviate that congestion and ultimately allow better freight and commuter access in, from, and through Kansas City's Central Business District. The project will allow Kansas City to build upon its significance as a freight mover, removing those national and regional bottlenecks and adding greater opportunity for the region.



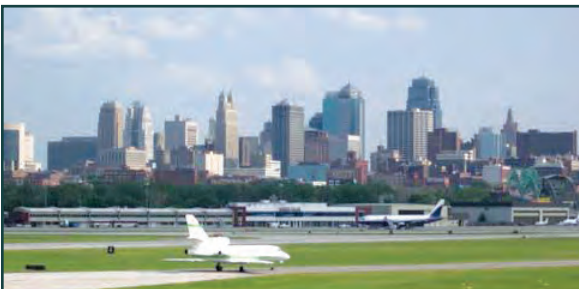
- **Rail** – The BNSF rail crossing of the Missouri River, nearly adjacent to the existing Buck O’Neil Bridge, provides level of service F (severely congested) and restricts train speeds to 5 MPH for the four class 1 rail lines that utilize the Hannibal Bridge daily. The project will consider the future needs of the BNSF to realign their rail crossing of the Missouri River, increasing allowable travel speeds promoting added opportunity for more trains to pass daily.



- **Water** – Port KC, is revitalizing shipping on the Missouri River. Current access limitations for rail and truck traffic are restricting factors for growth potential. The new Buck O’Neil Bridge will consider future rail and truck access needs to Port KC providing opportunity for growth.



- **Roadway** – The existing bridge and location of U.S. 169 would serve as an ideal connection for north-bound Interstate 35 truck traffic to access north-bound Interstate 29, and avoid the congested system-to-system interchange at the northeast corner of the downtown Kansas City loop serving both Interstates 35 and 70. The existing roadway geometry, interchange operations and poor condition of the existing bridge severely limit commercial vehicles making this movement. The proposed addition of directly connecting the new Buck O’Neil (U.S. 169) Crossing with both west-bound Interstate 70 and Interstate 35 will enhance commercial vehicle connectivity to Interstate 29 via U.S. 169.



- **Air** – The Charles Wheeler B. Downtown Airport is a 24-hour, 7-day a week full service general aviation facility. Improved access will provide for airport freight and business accommodation.

Leveraging Downtown Revitalization Efforts

Innovative and creative replacement of the bridge, rather than repair of the current bridge, will allow the economic development momentum ongoing in downtown Kansas City to continue by maintaining access while a new bridge is built. Maintaining that access is critical for regional and local connectivity, allowing the economic progress made through investments both north and south of the bridge to continue forward uninterrupted. Modeling from MARC anticipates that the daily impact to the region due to closure of U.S. 169 at the Buck O'Neil Bridge would include an added 46,413 miles and 1,450 hours of travel. Additionally, a new, added direct connection between U.S. 169 and Interstate 35 will allow for more efficient access to downtown Kansas City and the Central Business District.

The economic development climate in downtown Kansas City, immediately to the south and east of the Buck O'Neil Bridge, has changed considerably since the 2007-2009 recession. Prior to the recession, Kansas City invested in the creation of the Sprint Center and the adjacent Power + Light Entertainment District downtown. These investments corresponded with the City's expansion of the Bartle Hall convention facility's new ballroom, and each project contributed to expanding tourism and increasing awareness of events being held in the area.

As the housing market began to rebound, interest in building new or converting older buildings into residential uses throughout the urban core also expanded. Additionally, Kansas City recently completed the KC Streetcar line, connecting the River Market District south to Union Station — offering free rides to residents and visitors alike. KC Streetcar has spurred approximately \$2 billion in new economic development activity throughout the downtown area and has drawn outside investors into the Kansas City development market.



Kansas City's Northland has likewise experienced significant growth over the last several decades, including numerous large-scale residential developments. The growth has resulted in an increase in traffic entering the Kansas City Central Business District daily. Access to the Northland from the Central Business District occurs either across the Buck O'Neil Bridge and U.S. 169, across the Heart of America Bridge through North Kansas City, or across the Bond Bridge, and Interstates 29 and 35. The majority of the Northland traffic, about half, uses the Bond Bridge while the Buck O'Neil Bridge and Heart of America Bridge comprise about 25 percent each.

Maintaining, and ultimately improving, connectivity between these two areas of economic growth on either side of the Missouri River is vitally important to the region's economic competitiveness. Moving forward with a replacement of the Buck O'Neil Bridge — rather than repair — will ensure that Kansas City can continue to leverage the significant public and private investments made on both sides of the river, without the interruption of bridge closure. Additionally, the creative and innovative design associated with bridge replacement will ultimately improve interchanges on both sides of the bridge, facilitating both visitor and commuter movement between the two areas.



Leveraging of Federal Funds

The project development process for the New Buck O’Neil (U.S. 169) Crossing is evolving rapidly. Starting one year ago with commencement of the “Beyond the Loop” PEL, opportunities to explore a replacement Missouri River crossing, improved interchanges, and adding direct connections to Interstate 35 began to solidify. Overlapping with the PEL study was the completion of a detailed inspection by MoDOT of the existing Buck O’Neil Bridge, in March 2017, and the identification that extensive rehabilitation is needed.

Although the existing Buck O’Neil Bridge is owned and operated by MoDOT, the river crossing and connection to the Kansas City Northland is vital to the region. Facing the possibility of a two-year closure period for the needed bridge rehabilitation work, Kansas City initiated discussions with MoDOT to pursue a replacement structure. Understanding MoDOT’s financial position and working rapidly to show a strong commitment for the project, Kansas City offered \$35 million of local non-federal revenue as a starting point for completion of the New Buck O’Neil Bridge under a cost-share arrangement. MoDOT has offered up to \$100 million in construction funds for the project.

Now, barely 4 months after initiating cost-share discussions with MoDOT, Kansas City is continuing and refining options to secure non-federal funds. Kansas City regularly receives federal transportation funds and the average local participation rate is 50% of project construction cost. Kansas City is accustomed to stepping up and well exceeding the minimum federal matching requirements

Non-federal funding options under consideration include:

- Partnering with the BNSF to construct a combined rail and roadway bridge to replace both the existing Buck O’Neil Bridge and the rail crossing immediately downstream.
- The largest private business at the airport, VML, Inc., a national and international advertising firm, has plans to add 600 jobs. Kansas City plans to capitalize on this new economic activity, and dedicate portions of the added tax revenue to increase their local share of the project cost.

Potential for Innovation

Both Kansas City and MoDOT have long histories as being leaders in innovation. The use of innovation is already evident in this project through the partnership formed by the city, MoDOT, MARC and FHWA in undertaking a planning, environment and linkage study (PEL) to assess a range of feasible projects to transform the north side of the downtown Kansas City loop, including U.S. 169 and the Buck O'Neil Bridge. The PEL (<http://www.beyondtheloopkc.com/>), a first of its kind study in Missouri, has allowed Kansas City and MoDOT to conduct valuable dialogue about long range transportation system needs, document critical issues and at the same time engage other interested stakeholders and members of the public.

The spirit of both innovation and partnership between the City and MoDOT will continue after the project is selected for funding. The City will immediately embark upon the preparation of an environmental document for the project and will use as a model MoDOT's recently approved Environmental Assessment (EA) for Interstate 270 improvements. MoDOT's adoption of performance measures as part of designating the preferred solution in the Interstate 270 EA promotes flexibility for future build scenarios. The identified performance measures from the environmental document can be seamlessly transitioned into Request for Qualification and Proposal documents used to select a design/build team.

Kansas City looks forward to working with FHWA and participating in the environmental review and permitting opportunities offered under the INFRA Program. Discussions with the Federal Aviation Administration, U.S. Coast Guard, and U.S. Army Corps of Engineers have

been ongoing as part of the PEL process and the challenges of project permitting, design and construction have been reviewed. Increased coordination will be vital with all three federal agencies once the project specific NEPA process begins to address the reviews and coordination needed, specifically with the U. S. Army Corps of Engineers Section 401 and 404 permits, and Section 408 approval.

Autonomous Vehicles (AV) and Connected Vehicles (CV) have the potential to significantly improve driver mobility, improve safety and enhance the operational performance of roadway systems. While many benefits may be possible with no additional infrastructure, some benefits will require the combination of on-board equipment with roadside equipment (RSE). The impacts and needs of AV and CV will be included in the planning and design of the new Buck O'Neil (U.S. 169) Crossing. Considerations for the infrastructure needs of passenger vehicles, commercial vehicles and freight, and transit vehicles will be added when possible.

Kansas City and MoDOT are exploring benefits of pursuing both contracting and finance innovation. Most notably, requesting the project be designated as experimental under SEP-14 and the use of progressive design/build as an optional approach would simplify and shorten the timeline for selection of a design/build team, allowing critical preliminary design including identification of needed property rights to occur rapidly. Opportunities to leverage private financing options are also under review and the use of a design/build/finance proposal could be considered.



Performance and Accountability

The advancement of the Beyond the Loop PEL study, sponsored by Kansas City and MARC in partnership with FHWA and MoDOT, is laying a great foundation for the New Buck O'Neil (U. S. 169) crossing. The study, in conjunction with the recently completed inspection of the existing bridge by MoDOT, have not only demonstrated a great need for the project, but many added values that can be realized.

Kansas City, as the lead agency for the INFRA Grant, is committed to work with MoDOT who will lead the administration of the project including the selection of a design/build team, to identify project milestones and adhere to the schedule identified in this grant application.

MoDOT has a history of success using project milestones to condition funding as part of their

standard contracting practices. The application of milestones, most often for completion of work or meeting intermediate phasing goals, continues to add great value and accountability in the project delivery process. Last year alone, 92 percent of all highway construction projects in the state were delivered on-time based upon the adjusted contract completion date, with penalties assessed for delay on 28 contracts.

Specific measures and objectives will be established as the development of the New Buck O'Neil (U. S. 169) Crossing enters the NEPA process and continue through the creation of the RFP documents used for selecting a design/build contractor.

Project Readiness



The ongoing Beyond the Loop PEL, which will conclude in April 2018, has identified the replacement of the Buck O'Neil Bridge including new connections and interchange modifications as a segment of independent utility allowing it to complete a separate NEPA evaluation. Consultation with FHWA has occurred throughout the PEL development and it is anticipated that an EA will be the required NEPA document.

Many of the early building blocks required to initiate an environmental document are being addressed through the PEL process. Current activities on the PEL including public outreach, project coordination and resource agency consultation are ongoing and will promote rapid transition for the environmental document. Within the PEL process, a NEPA transition plan will be included as part of the study rec-

ommendation. Many long-lead time tasks such as evaluation of the existing bridge and traffic modeling, have been completed as part of the PEL, potentially shaving months off the preparation time.

Technically, the project has identified a wide range of challenges that have been reviewed and assessed through conceptual level design efforts sufficient to determine feasibility and estimate preliminary project construction costs. Specific reviews for determining feasible roadway alignment and grade configuration for connecting ramps, interchange reconstruction, and crossing of the Missouri River have been conducted. Further advancement of conceptual level design will occur as part of the NEPA process.

Project Schedule

ANTICIPATED DESIGN/ BUILD CONTRACTING METHODS	PERIOD
Notice of INFRA Grant Selection	Anticipated January 2018
Project Specific Environmental Document including Conceptual Access Modification Report	March 2018 to May 2019 (15 months)
Preparation of Project D/B Bidding Documents	May 2019 through October 2019 (6 months)
Right of Way Acquisition and Utility Planning	October 2019 to June 2020 (9 months)
Permitting	October 2019 to August 2020 (10 months)
Request For Qualifications from D/B Teams	November through December 2019 (2 months)
Request For Proposal from shortlisted D/B Teams	January 2020 to May 2020 (5 months)
Proposal Review and Recommendation of Best Value Proposer	June to July 2020 (2 months)
Contract Execution with Best Value Proposer	August 2020 (1 month)
Obligation of Funds	August 2020 (1 month)
Construction	September 2020 to December 2023

RISK MITIGATION

PROJECT RISK	MITIGATION STRATEGY
<p>FHWA approval of the environmental document could delay preparation of bid documents.</p>	<p>Mitigation efforts include advancing the PEL study and continuing with long lead time tasks needed, such as traffic modeling and communication with partnering agencies to avoid costly delay.</p>
<p>Acquisition of needed property could delay the ability to select a design/build team.</p>	<p>Mitigation efforts include advancing the development of right of way plans as a priority initiative upon completion of environmental documentation, maximizing time for property acquisition.</p>
<p>Environmental document processes could reveal commitments or permitting requirements requiring long processing time, delaying the project bidding timeline.</p>	<p>The ongoing Beyond The Loop PEL, which encompasses the project area, has completed an exhaustive review of potential cultural and environmental resources that could be impacted, minimizing the risk of added commitments or permitting issues being found during the environmental document process.</p>

Large Project Requirements

The New Buck O'Neil (U.S. 169) Crossing is a unique opportunity to bring together wide-ranging benefits addressing deficiencies with existing infrastructure, and add significant national and regional mobility within the existing roadway system.

The project will:

- **Replace an aging and failing Missouri River crossing with a new bridge providing 100-years of service.**
- **Reduce the projected number of crashes occurring in the project area by an estimated 50 percent.**
- **Avoid investing more than \$50 million to rehabilitate the existing Buck O'Neil Bridge and, eliminating a required two-year shutdown of U. S. 169 to complete rehabilitation efforts.**
- **Add new connections from Interstate 35 to U. S. 169 increasing mobility options in the region, creating optional travel patterns for national and regional freight movement, and avoiding the congested downtown loop and Interstate 35 Missouri River crossing.**
- **Provide a predicted 1.32 Benefit to Cost return.**
- **Incorporate innovative approaches to accelerate environmental reviews and permitting.**

Conceptual design efforts of sufficient detail have been conducted to determine feasibility of the project's elements and establish a preliminary cost estimate including construction contingency. Future refinements to the conceptual level design, and advancement of preliminary design will occur as part of the upcoming NEPA process.

All non-federal financial commitments are generated by use taxes at the state level, and general tax levies at the city level that are not classified as a special assessment for either a specific project or activity. Both the city and state level financial commitments do not contain a specific sunset or expiration date for collection, adding long-term stability for addressing initial project outlays and long-term operational and maintenance costs.

Absent federal funding, project implementation will not be easily and efficiently completed, and represent a true opportunity lost for both the nation and region. Developing a project funding plan will require renewed efforts at the city and state level to assess added resources to implement the project.

Construction of the New Buck O'Neil (U.S. 169) Crossing is scheduled to commence in September 2020 with completion by December 2023. The obligation of federal funds for the project will be tied to selection of a successful design/build proposer which is scheduled to occur in August 2020.

Appendices

A. The New Buck O’Neil (U.S. 169) Crossing Benefit-Cost Analysis

B. Supporting Letters

C. Supplemental information

The supporting documentations listed above can be obtained here:

<http://marc2.org/assets/Transportation/INFRA/2017INFRA.htm>