The 18th Street Bridge over the Kansas River is one of the few remaining deck truss bridges on the state highway system. Built in 1959, the bridge has undergone numerous rehabilitations over its 60-year life and it is nearing the end of its service life.

In the summer of 2017, a bridge inspection revealed the bridge was in deteriorating condition and in need of repairs. While the bridge was never considered unsafe, it was important to address existing corrosion and prevent further deterioration. Repair plans were developed and the bridge was closed to traffic in April of 2018. Work included significant repairs to the existing steel truss.

Repairs were completed and the bridge reopened to traffic in December of 2018. It is estimated that the repairs will extend the service life of the bridge 5 to 10 years. The purpose of the study is to determine a solution for replacement of the bridge since continued maintenance of the structure is no longer cost effective.

**Goals of the Study:**

- **Evaluate** alternatives and identify a Preferred Draft Alternative Bridge Replacement for the long-term.

- **Develop** options to maintain the river crossing and enhance safety for all travelers through the 18th Street Corridor.

- **Engage** the public and understand the needs and concerns of the Unified Government.
The study process to develop a Preferred Draft Alternative starts with gathering and evaluating information for the study area, soliciting input from project stakeholders, and establishing project goals. A range of initial alternatives are developed to address the goals of the project. Each of the alternatives are compared and evaluated using qualitative and quantitative factors. The alternatives that best meet the goals of the study are carried forward for additional screening and evaluation.
Existing Conditions

These existing conditions were reviewed during the study.

River-related environmental considerations include:
- Fringe Wetlands
- Floodplain
- Aquatic Threatened & Endangered Species (creates seasonal construction restrictions)

Traffic: Traffic analysis determined that the number of lanes and configuration is adequate for the number of vehicles traveling through the corridor. Traffic is not expected to increase in the future so the corridor is capable of handling future traffic needs.

Safety:
Shoulder width across the bridge and ramp lane lengths were identified as areas of potential improvement. However, the rate of crashes in the corridor is low.

Water:
The current bridge does not have adequate clearance over the river and levees. During extreme high water events, the bridge spans can gather debris, which can affect the river's flow capacity.
A review of site conditions at the existing bridge identified challenges and constraints for a replacement bridge. These include the Kansas River and its levees, BNSF Railway tracks, existing bridge foundations, and several major utilities.

The bridge is currently four (4) 12-foot lanes with narrow shoulders measuring two to three feet wide.

The 18th Street Bridge has undergone numerous rehabilitations over its 60-year life - continued rehabilitation is no longer cost-effective to maintain this structure.

Kansas River levees and existing pier foundations limit replacement bridge pier locations.

Replacement bridge piers must avoid railroad tracks and facilities.
The image below is a draft illustration of what the replacement bridge and corridor may look like once the project is complete.

The potential new bridge will include four (4) 12-foot lanes with upgraded, standard shoulders. Exterior shoulders will be 10-feet wide and interior shoulders will be 6-feet wide.

The number of piers in the rail yard will be reduced.
Public Involvement - We Are Listening

Key Stakeholder interviews have been conducted to understand the needs and concerns of the City, area organizations and residents. Groups we have spoken to include:

- Unified Government Elected Officials
- Unified Government Staff
- Chamber of Commerce and Economic Development
- Area Businesses

Understanding public concerns is also important to KDOT. A survey was conducted early 2019 and nearly 500 completed the survey.

Drivers indicated that a delay of 6-10 minutes during construction was acceptable for the work to get done safely and efficiently.

Variable message boards, news media/tv and Intelligent Transportation System (ITS) signs are the top three ways people get information regarding traffic, detours and construction.

“Other” includes Facebook, Nextdoor, Wyandotte County Newsletter

Key improvements the public would like to see include:
- Better lighting
- Improved safety
- Wider shoulders
- Safer pedestrian accommodations
- Improved ramps

“Provide advance knowledge of what is going to happen and when!”

“If you are going to do it, get it done as fast and safely as possible.”

“The 18th Street Bridge is a major route through the County and is vital to businesses and residents.”

18th Street Bridge Replacement Study | KDOT Project No. 69-105 KA-4881 01
Multiple factors were considered and weighed at a high level to screen and compare the Initial Alternatives. Below is a table that shows how each option was rated by category.

### 18th St. Expressway Bridge Replacement Initial Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Description of Alternative</th>
<th>Disruption to Traffic on 18th Street</th>
<th>Construction Schedule</th>
<th>River Bridge Cost</th>
<th>Adjacent Infrastructure Cost</th>
<th>Utility Impacts</th>
<th>Right of Way Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 No-Build</td>
<td>Permanent closure or removal of 18th Street Bridge.</td>
<td>†</td>
<td>†</td>
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</tr>
<tr>
<td>1 On-Alignment</td>
<td>Requires closure of 18th Street during construction. Minimizes impacts to adjacent properties and environment.</td>
<td>†</td>
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</tr>
<tr>
<td>2 Full East Shift</td>
<td>Construct river bridge adjacent while not disturbing existing. Maintain traffic throughout construction, head-to-head for 1 season.</td>
<td>†</td>
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<tr>
<td>3 Full West Shift</td>
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<tr>
<td>4 Overlapped East Shift</td>
<td>Maintain traffic throughout construction, but reduce shift by adding a phase to construction for separate NB and SB river bridge.</td>
<td>†</td>
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<td>6 Partial East Shift</td>
<td>Move river unit completely out of conflict with existing river unit. Maintain traffic throughout construction. Reduce shift in critical areas by phasing demolition of approach spans.</td>
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<td>7 Partial West Shift</td>
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<td>8 Minimal East Shift</td>
<td>Place alignment as tight to existing as possible while still allowing for MOT. Demo NB North and South approach spans of river bridge first, allowing for construction of the NB portion of River bridge.</td>
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<td>9 Minimal West Shift</td>
<td>Place alignment as tight to existing as possible while still allowing for MOT. Demo SB North and South approach spans of river bridge first, allowing for construction of the SB portion of River bridge.</td>
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Legend:
- **Significant Negative**
- **Slight Negative**
- **Neutral**
- **Slight Positive**
- **Significant Positive**
Initial Alternatives: On Alignment and East Shift Examples

Alternative 1, On-Alignment:

Alternative 2, Full East Shift:

Alternative 4, Overlapped East Shift:

Alternative 6, Partial East Shift:

Alternative 8, Minimal East Shift:
Initial Alternatives:
West Shift Alignment Examples

- Alternative 3, Full West Shift:
- Alternative 5, Overlapped West Shift:
- Alternative 7, Partial West Shift:
- Alternative 9, Minimal West Shift:
Evaluation of Reasonable Alternatives

Based on key criteria and how well the alternatives meet the goals of the study, the most feasible options were identified and narrowed down to three alternatives.

**Maintenance of Traffic (MOT) and Safety**

A key factor in evaluating the Reasonable Alternatives is Maintenance of Traffic (MOT). MOT identifies how each alternative may impact safety and travel times during construction. Considerations include predicting if the rate of crashes will increase, and if crashes do happen how it will impact the travel time for commuters. Lack of lanes or reduced shoulder width during construction, is also a negative impact because there is no where to go if a car breaks down.

### 18th St. Expressway Bridge Replacement Reasonable Alternatives

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<th>Description of Alternative</th>
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<th>Maintenance of Traffic (MOT) and Safety</th>
<th>Environmental Impacts</th>
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- **Significant Negative**
- **Slight Negative**
- **Neutral**
- **Slight Positive**
- **Significant Positive**
Reasonable Alternatives

The figures below are the most feasible options being considered and demonstrate the shift of the bridge location.

**Alternative 1, On-Alignment:**

**Pros**
- Minimizes required improvements
- Lowest cost alternative
- Limits impacts to adjacent properties
- Limits environmental impacts

**Cons**
- Requires full closure of 18th Street during construction

**Alternative 2, Full East Shift:**

**Pros**
- Ability to maintain traffic during construction along 18th Street
- Improved river bridge configuration

**Cons**
- Requires additional improvements along corridor
- Significant impacts to adjacent properties
- Safety and travel time concerns during construction should incidents occur in work zone

**Alternative 7, Partial West Shift:**

**Pros**
- Ability to maintain traffic during construction along 18th Street
- Lower impacts to adjacent properties

**Cons**
- Requires additional improvements along corridor
- Most challenging river bridge configuration
- Safety and travel time concerns during construction should incidents occur in work zone
KDOT will be working with the UG to identify improvements to bicycle and pedestrian accommodations in the area considering the Mid-America Regional (MARC) policies and the Unified Government’s Master Plan.
The 18th Street Bridge Replacement Study project kicked off in November of 2018 and a Preferred Alternative will be recommended by fall of 2019. A final public information fact sheet will be provided to the community and will identify the Preferred Draft Alternative and benefits.

No funding has been identified for further design or construction of this project at this time. Once funding is identified, the project will move into the National Environmental Policy Act (NEPA) process, preliminary and final design.

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