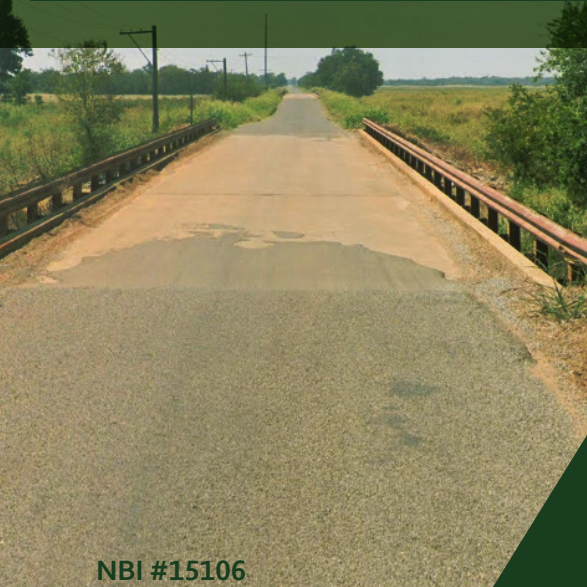


COMPETITIVE  
**HIGHWAY BRIDGE**  
PROGRAM  
KINGFISHER COUNTY BRIDGE BUNDLE



NBI #15106



NBI #15187



NBI #16159



NBI #16167



**OKLAHOMA**  
Transportation



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## A. Basic Project Information

### PROJECT DESCRIPTION

The Oklahoma Department of Transportation (ODOT) is seeking funding through the Competitive Highway Bridge Program to reconstruct four bridges for the Kingfisher County Bridge Bundle project. These bridges need reconstruction and were strategically chosen for their economic importance and benefit to rural communities. The bridges are on US-81 and the Kingfisher County's E. 715 Rd.

The two bridges on US-81 run parallel to each other carrying north and southbound traffic along the highway. US-81 begins in North Texas and runs through North Dakota to the Canadian border, making it an important cross-country connector. The bridges are grade-separated crossings over a Union Pacific Railroad (UPRR) line. Should the bridge experience a catastrophic structural failure, railroad and vehicle traffic would be at a standstill, causing delays and economic losses.

The two county road bridges on E. 715 Rd serve the rural residents just outside Dover, Oklahoma. The bridges are adjacent to each other and cross over Turkey Creek and Turkey Creek overflow. They are the only crossings over the creek. For rural residents west of the bridges, a structural failure would force them to drive five extra miles around to cross the creek and then several miles back down if they were trying to make a grocery trip or go to any common destination in town.

The reconstruction of the bridges is intended to bring them back into high quality condition so they can continue to serve the rural residents of Oklahoma, freight, and travelers for years to come. Additionally, the project will enhance efficiency and safety on US-81 and E. 715 Rd.

The total project cost for the Kingfisher County Bridge Bundle is about \$30.9 million. **ODOT is seeking approximately \$24.7 million in funding and will cover all remaining project costs.**

### **Project Challenges**

As is true with any project, challenges may arise during the construction period. However, to mitigate potential challenges, ODOT has experienced structural and civil engineers, environmental experts, and other team members available to make sure this project is implemented as smoothly as possible.

The bundle does not include any right-of-way (ROW) acquisition, nor does the location host any brownfields. As such, many usual challenges related to acquisition and permitting are not anticipated to impact this bundle. Additional project risks and mitigation strategies are in the *Required Approvals* section of this application.



## Bridge Overview

A summary of the bridges bundled in this project are outlined below:

### 1. E. 715 Rd. over Turkey Creek | NBI #15106

This bridge is located directly over Turkey Creek and 0.3 miles west and 0.2 miles south of Dover, Oklahoma. It was built in 1960. The bridge has a 0-degree skew, a 23.5-foot-wide deck, and is 60 feet in length. The current AADT is 600 and the future AADT, for 2042, is 960. The bridge has a sufficiency rating of 49.2. The bridge is currently load posted for 20 tons.

### 2. E. 715 Rd. West of Turkey Creek | NBI #15187

This bridge is located over the Turkey Creek overflow and 0.5 miles west and 0.2 miles south of Dover, Oklahoma. It was built in 1960. The bridge has a 0-degree skew, a 23.5-foot-wide deck, and is 284 feet in length. The current AADT is 600 and the future AADT, for 2042, is 960. The bridge has a sufficiency rating of 24.8. The bridge is currently load posted for 12 tons.

### 3. US-81 Northbound over UPRR | NBI #16159

This bridge is located directly over an UPRR line and is 5.3 miles north of Junction SH-33. It was built in 1964. The bridge has a 60-degree skew, a 33-foot-wide deck, with 1.5-foot curbs on either side, and is 265 feet in length. The current AADT is 9,000 and the future AADT, for 2045, is 10,000. The bridge has a sufficiency rating of 53.3.

### 4. US-81 Southbound over UPRR | NBI #16167

This bridge is located directly over an UPRR line and is 5.3 miles north of Junction SH-33. It was built in 1964. The bridge has a 60-degree skew, a 33-foot-wide deck, with 1.5-foot curbs on either side, and is 284 feet in length. The current AADT is 9,000 and the future AADT, for 2045, is 10,000. The bridge has a sufficiency rating of 68.4.

## PROJECT LOCATION

### Detailed Geographic Description

The bundled bridges are all within three miles of each other by Dover, Oklahoma. Dover has a population of only 326, and Kingfisher County has 15,288 residents according to the [2023 ACS data](#). The county is expected to grow at an average annual rate of 0.75% per the [Oklahoma Population Projection 2020-2070](#) page 94. Meaning, Kingfisher County is a rural community and will continue to be. However, US-81 runs through many other Oklahoma counties, including Canadian County—the fastest growing county in the state which has experienced an average 3.6% growth rate from 2010 to 2020. Growth is expected to continue at a slightly more modest rate of 2.4% year over year. This is a key metro area and home to some of the fastest growing cities in the state.

***Having infrastructure that supports these metro and rural areas is vital to the continued growth and economic health of Oklahoma.***

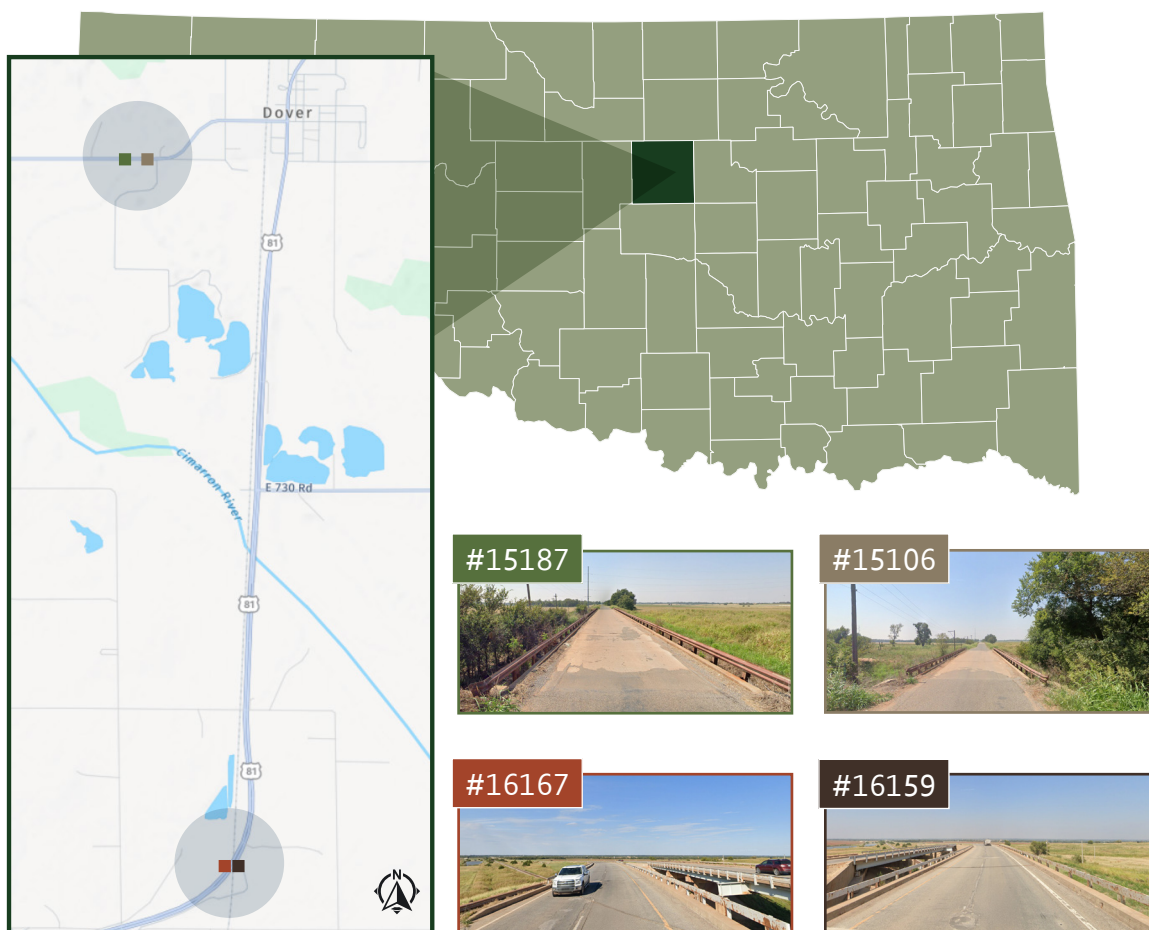
While all four bridges are in Kingfisher County, two of them reside on county roads and the others are on-system. All four bridges need reconstruction to stay functional and not have major impacts on future travelers or freight.

The county road bridges, NBI #15106 and #15187, function as important rural roads for residents. Bridge #15106 is on E. 715 Rd 0.3 miles west of the Town of Dover and runs over Turkey Creek. Bridge #15187 is on the same road but a full half mile from Dover. This means a failure to either bridge will force a miles-long detour for roadway users, taking them further from town. Additionally, unplanned failures like this will cause lengthier interruptions than the planned reconstruction proposals.

The on-system bridges, both on US-81, function parallel to one another. Bridge #16159 carries northbound traffic on US-81, while bridge #16167 carries southbound traffic. The bridges are 3.5 miles from the Town of Dover and run over an UPRR line. This line is an important freight route. If any failure were to occur, the interruptions to the rail line would be costly for both UPRR and ODOT. This is why it is vital for ODOT to receive funding to mitigate future issues.

**The Kingfisher Bridge Bundles balances part of the focus on the reconstructions' impact on the rural farming community of northwest Oklahoma, the economic importance of US-81 as a cross-country connector, and the movement of commerce on the UPRR line.**

### Map



## LEAD APPLICANT

ODOT has significant experience securing and implementing federally funded transportation projects. Since 2020, it has been awarded \$495 million in discretionary grants. The table below details the specific grant programs and corresponding award amounts.

**\$495M**

*Amount in discretionary grants awarded to ODOT from 2020-present*

*Table 1: Funding Received by ODOT in Past Five Years*

FUNDING PROGRAM	AMOUNT
Better Utilizing Investments to Leverage Development	\$59.3 million
Multimodal Project Discretionary Grant	\$236 million
Bridge Investment Program	\$125 million
Railroad Crossing Elimination	\$27 million
Additional Program (CRISI, NSBP, STSFA, and more)	\$48 million

## PUBLIC AND PRIVATE PARTIES

ODOT currently has no private partnerships that will play a role in the delivery of the project. The public partnerships involved with this project are the Oklahoma Cooperative Circuit Engineering District Board (OCCEDB) and Kingfisher County. OCCEDB is a statutory board established in 2001, meant to inform lawmakers on issues related to the county highway system, conduct public outreach and education, provide research for stakeholders, and manage three funding programs. OCCEDB is split into eight geographic regions across the state. For this bundle, ODOT will work with OCCEDB District 8, which encompasses Kingfisher County and the surrounding area. Kingfisher County will be involved as two of the bridges proposed for reconstruction are county owned. ODOT will work with both stakeholders to ensure the project is a success and properly serves the residents and travelers of rural Oklahoma.

## B. Grant Funds, Sources, and Uses of Project Funds

ODOT has completed a budget for the Kingfisher County Bridge Bundle project. The project will be completed using both federal and state funds as shown in the tables below. Based on the current engineering milestone for each bridge, the cost, not including previously incurred costs, is \$30,971,224. Including previously incurred expenses, the overall cost for the project is \$32,370,468, meaning ODOT has already invested \$1,399,244 in this bundle.

***ODOT is requesting \$24,776,979 in CHBP funds, and is committed to providing the full 20% match.***

Table 2: Bundle Funding Sources

MILESTONE	NON-FEDERAL FUNDS	OTHER FEDERAL SOURCES	CHBP	TOTAL
Construction	\$4,728,431 20%	\$0	\$18,913,725 80%	\$23,642,156
Construction Management, Inspection, and Oversight	\$283,706 20%	\$0	\$1,134,823 80%	\$1,418,529
Contingency	\$1,182,108 20%	\$0	\$4,728,431 80%	\$5,910,539
<b>Total</b>	<b>\$6,194,245</b>	<b>\$0</b>	<b>\$24,776,979</b>	<b>\$30,971,224</b>

***ODOT is requesting \$24,776,979 in CHBP funds and will provide the remaining 20% of total project costs, \$6,194,245.***

The matching fund for both county bridges will be provided through the County Improvements for Roads and Bridges (CIRB) program. CIRB is meant to assist with the funding of local county road improvements. It was established through a bill passed by the Oklahoma State Legislature in 2006, which expanded the funding available for ODOT to repair infrastructure on off-system roads. The fund receives its income from a percentage of the taxes, fees, and penalties collected pursuant to the Oklahoma Vehicle License and Registration Act.

Due to the proximity of the US-81 and county road bridges, cost estimates have been combined for the county bridges and another for the US-81 bridges. On the next page, we have outlined the breakdown of the two cost estimates, including previously incurred costs:

MILESTONE	NON-FEDERAL FUNDS		OTHER FEDERAL SOURCES		CHBP	TOTAL
	<i>Previously Incurred</i>	Future	<i>Previously Incurred</i>	Future	Future	
Off-System County Road Bridges						
Engineering	\$250,000 CED	\$0	\$0	\$0	\$0	\$250,000
ROW	\$25,000 CIRB	\$0	\$0	\$0	\$0	\$25,000
Utilities	\$25,000 CIRB	\$0	\$0	\$0	\$0	\$25,000
Construction	\$0	\$600,000 20%	\$0	\$0	\$2,400,000 80%	\$3,000,000
E&C	\$0	\$36,000 20%	\$0	\$0	\$144,000 80%	\$180,000
Contingency	\$0	\$150,000 20%	\$0	\$0	\$600,000 80%	\$750,000
Subtotal	\$300,000	\$786,000	\$0	\$0	\$3,144,000	\$4,230,000
On-System US-81 Bridges						
Engineering	\$0	\$0	\$1,036,449	\$0	\$0	\$1,036,449
Railroad Engineering	\$0	\$0	\$10,000	\$0	\$0	\$10,000
ROW	\$43,000	\$0	\$0	\$0	\$0	\$43,000
Utilities	\$1,959	\$0	\$7,836	\$0	\$0	\$9,795
Construction	\$0	\$4,128,431 20%	\$0	\$0	\$16,513,725 80%	\$20,642,156
E&C	\$0	\$247,706 20%	\$0	\$0	\$990,823 80%	\$1,238,529
Contingency	\$0	\$1,032,108 20%	\$0	\$0	\$4,128,431 80%	\$5,160,539
Subtotal	\$44,959	\$5,408,245	\$1,054,285	\$0	\$21,632,979	\$28,140,468
TOTAL	\$344,959	\$6,194,245	\$1,054,285	\$0	\$24,776,979	\$32,370,468

The cost estimates are intentionally conservative and include adequate contingency funds to accommodate the rehabilitation of the existing bridge. As well, maintenance activities funding will be sourced through local and state sources. ODOT is committed to building and maintaining the bridge improvements on behalf of their constituents and in support of future development.



## C. Merit Criteria

### STATE OF GOOD REPAIR

The bridges included in this CHBP application are all over 60 years of age, having been constructed in 1960 and 1964. They have all exceeded their original design life of 50 years. As expected, the condition of these bridges is deteriorating and requires exponential effort each year to keep them in service. **Three of the bridges are structurally deficient, with bridge NBI #15187 having a sufficiency rating of just 24.80 out of 100, making it one of the worst-condition bridges in the entire State of Oklahoma. The county road bridges are currently load-restricted.**

Sufficiency ratings are used by the Federal Highway Administration (FHWA) to select candidate bridges for the Highway Bridge Program. Sufficiency ratings are determined during the biennial bridge inspection and are intended to indicate a measure of the ability of a bridge to remain in service. Replacing these structures will greatly reduce the amount of maintenance required; they will be virtually maintenance free for the next two decades until expansion devices and bearing assemblies need routine maintenance. There are no feasible rehabilitation alternatives that can bring the bridges back to a Good condition rating, due to the locations and severity of the deterioration. Meaning, reconstruction is the most cost-effective solution. The type of replacement bridges (prestressed concrete girders, continuous steel plate girders) selected for this project allows them to have a service life of 75+ years. The proposed bridge replacements will use ODOT standard bridge railings that have a proven low-maintenance life-cycle performance. Stainless steel bearing assemblies will be used for the US-81 bridges, as well as a CIM 1000 substructure sealing product applied to abutment seats. The number of expansion joints in the proposed superstructures has been minimized. Additionally, the expansion joints have been moved from over the railroad tracks, to the bridge abutments, reducing the potential for run-off onto railroad right-of-way, reducing deterioration of substructure in the railroad right-of-way, and simplifying future access and maintenance of the structure without impacting railroad operations. A preformed silicone foam seal type joint will be applied to skewed joints, with proven performance for expansion along a skew.

These improvements included in the reconstruction are not only going to make the bridges more resilient to the normal wear and tear of vehicular traffic, but they will also make the bridges more resilient to accidents and extreme natural events. The bridges' design and construction consider the variety of natural and human-caused events that could impact them. The intention is not only to keep the bridges from having structural failures, but to keep them functional during extreme events. It is vital emergency response vehicles are able to use these structures when responding to rural Oklahoma. ODOT is committed to making resilient infrastructure that serves and keeps all roadway users safe.

**This grant will allow ODOT to replace these structures with resilient, low-maintenance assets that will remain in a good state of repair for many decades to come.** ODOT has proven maintenance practices that will be applied to these structures as well, including deck

flood coats, joint replacement, and painting structural steel as needed over the life of the structure. ODOT maintains a list of on-call bridge consultants to design rehabilitation and repair projects annually.

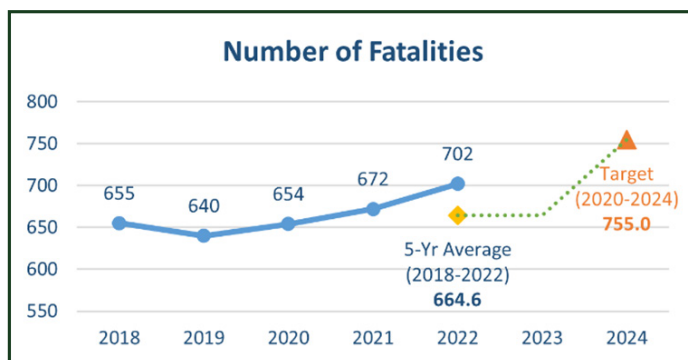
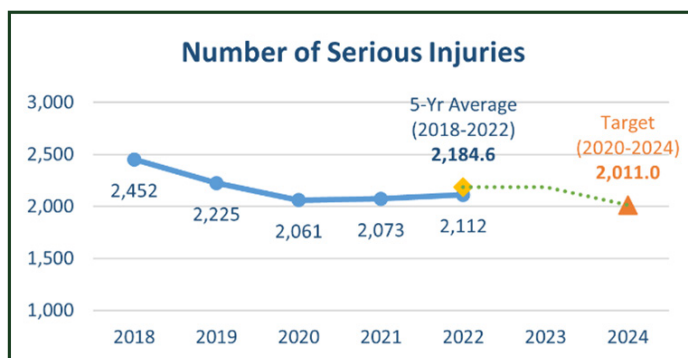
## SAFETY AND MOBILITY

### Overview

Replacing aging bridges in rural Oklahoma will enhance the safety and mobility of residents who depend on these connections for commuting to work and for freight operations in the area. Inspection reports indicate that each of the four bridges requires improvements to remain safe and to avoid costly detours and ongoing maintenance over the next decades.

This project supports ODOT's targets to reduce the number of bridges in poor condition. Of the 6,800 on-system bridges in Oklahoma, approximately 3,200 are National Highway System (NHS) bridges, which are evaluated annually. Structures rated as structurally deficient do not meet minimum conditions and load-bearing standards and may show significant deterioration. ODOT is on track to achieve its 2026 goals of having fewer than 5% of NHS bridges in poor condition and over 40% in good condition. The vision of the ODOT Strategic Highway Safety Plan (SHSP) aligns with the national initiative Toward Zero Deaths. One death on Oklahoma's transportation system is too many; therefore, improving safety for all travelers in the state is a top priority. This project supports the goals of the SHSP and aims to benefit both motorized and non-motorized travelers.

The replacement of these four bridges in rural Oklahoma is an essential infrastructure project aimed at significantly improving safety. The new bridge designs will adhere to the latest engineering standards and safety guidelines.



***By eliminating structural deficiencies and utilizing high-quality materials, this project will reduce the risk of bridge-related accidents, leading to fewer crashes and increased overall safety for users.***

### ***Targeting Known and Documented Safety Issues***

This project directly targets several known and documented safety issues associated with existing bridges. Historical data and recent inspection reports have highlighted the deteriorated conditions of these bridges, including compromised structural integrity, inadequate load-carrying capacity, and insufficient roadway width. By reconstructing the bridges, these deficiencies will no longer exist. The new bridge designs will proactively mitigate risks, preventing accidents related to structural failures, vehicle collisions due to narrow lanes, and limitations on emergency vehicle access.

### ***New and Continued Safety Benefits***

Improving safety in a bridge replacement involves several critical elements. Here are detailed comments on how the proposed plans enhance safety by addressing these components:

#### **UPDATING BRIDGE RAILS**

The proposed replacement bridges are designed to meet higher safety standards, incorporating more robust materials that provide better resistance to impacts and weather-related wear and tear. Improved railings are designed to better contain vehicles, preventing them from falling off the bridge in case of accidents, thereby reducing the risk to both vehicular traffic and pedestrians.

#### **IMPROVING CLEARANCE OVER THE UPRR RAIL LINES**

Increasing the clearance between the bridge and the rail lines minimizes the risk of collisions with tall railway vehicles or equipment that might otherwise strike the bridge, creating smoother and safer rail operations. Ensuring sufficient clearance meets regulatory requirements and standards, thereby fostering safer railway and bridge interactions.

#### **EXPANDED HORIZONTAL CLEARANCE**

The proposed replacement bridges are designed with increased horizontal clearance, creating valuable space that can support the addition of a future rail line. This wider span beneath the bridge not only allows for the passage of freight traffic but also enhances regional connectivity by enabling more diverse travel options. By proactively incorporating this expanded clearance, the design helps future-proof the infrastructure—offering greater flexibility and cost-efficiency for adapting to evolving transportation demands.

#### **ADDING FENCING ON TOP OF PARAPETS OVER THE UPRR**

Fencing helps prevent debris from falling onto the railway tracks, which could otherwise cause damage to trains or disrupt train operations. This is vital for maintaining an uninterrupted and safe railway service. Fencing acts as a barrier to prevent pedestrians from inadvertently or intentionally throwing objects onto the tracks, further enhancing overall safety for railway operations.

#### **IMPROVING CLEAR DISTANCE FROM TRACKS TO PROPOSED PIER COLUMNS**

By increasing the distance between the railway tracks and pier columns, the likelihood of a train striking the columns in the event of a derailment is significantly reduced. This spatial enhancement mitigates the potential for severe structural damage. More clear space around



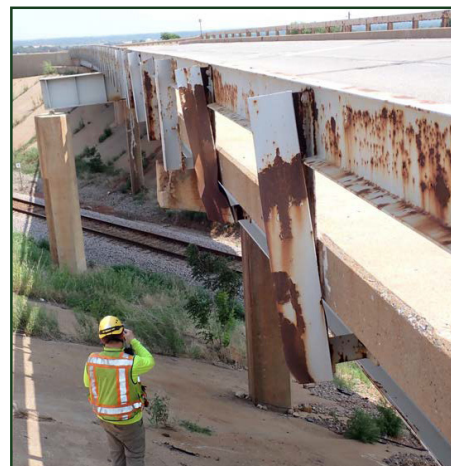
the tracks allows for easier access and maneuverability for emergency responders in case of an accident, ensuring faster and more effective incident response.

These measures collectively create a safer environment for both bridge users and railway operations. The importance of each improvement not only aligns with regulatory requirements but also demonstrates a strong commitment to exceptional community safety.

### **Bridge Inspection Reports**

Regularly scheduled inspections by ODOT provide detailed assessments of each bridge's structural condition. These reports emphasize critical factors such as material deterioration, load-bearing deficiencies, corrosion, and other concerns regarding structural integrity. The National Bridge Inspection Standards reports are essential for identifying urgent safety issues.

The bridge inspection report from July 2024 for NBI #16167 has been rated as "Fair." The inspection notes indicate various improvements and repairs needed to address damaged areas. In contrast, the report for NBI #16159 has been rated as "Poor." This inspection includes highly recommended actions for upgrades and necessary fixes for damaged parts of the bridge.



*Site Visit of Bridge NBI #16159*

County bridge NBI #15187 was also rated "Poor," with the inspection report indicating that the deck is in serious condition. Notes point out spalling at all joints, and the deck has light to moderate cracking. Similarly, county bridge NBI #15106 had its latest inspection conducted in June 2024, which rated the deck as being in poor condition, overall reflecting a poor rating for the bridge. The inspection observed numerous spalls and cracks throughout the deck. Based on recent bridge inspection reports, it is critical to improve the conditions of these four bridges to prevent long detours caused by potential bridge failures or severe more load limits.

### **Load Rating and Capacity**

The load rating serves as a crucial indicator of a bridge's structural integrity and its ability to support various weights under current conditions. The US-81 bridges have not been assigned a formal load rating; however, if the bridge is not replaced, a load rating may be necessary, indicating significant concerns regarding their capacity to handle heavy vehicles. If these bridges are not reconstructed shortly, the load limitations could severely affect freight operations, hindering the transportation of goods and impacting the local economy. Currently, both bridges within the county possess designated load ratings, which impose restrictions on the weights they can safely accommodate. Bridge #15106,



*Site Visit of Bridge NBI #16159*

going directly over the creek, is load posted to 20 tons, and bridge #15187 is posted to 12 tons. **These weight limitations pose challenges for freight carriers who must navigate these constraints. Replacing the bridges will eliminate the existing load restrictions and prevent load restrictions from limiting the movement of freight operations through this important corridor.**

### ***Ensuring Safety During Construction***

**Ensuring the safety of construction workers and the public is ODOT's top priority while construction is underway.** ODOT implements comprehensive traffic management plans that include clear detour routes, adequate signage, and necessary road closures. Nighttime construction will be minimized; when it is unavoidable, proper lighting will be provided to ensure visibility. Barriers and safety buffers will be installed to protect construction zones. ODOT will also enhance communication efforts to inform the public about construction activities and any temporary changes to traffic patterns. It's important to note that transportation-related incidents account for 76% of roadway work zone occupational fatalities, with 70% of these incidents involving a worker being struck by a vehicle (FHWA, 2014). All efforts to avoid roadway work zone incidents are of top importance.

### ***Enhancing Mobility***

**Replacing these bridges will significantly improve mobility in the region by eliminating current bottlenecks and ensuring reliable access for all types of vehicles, including commercial and agricultural traffic.** The new bridges will have an enhanced load-bearing capacity, accommodating heavier vehicles that are essential for transporting goods and services. By removing existing weight restrictions, ODOT will reduce delays caused by detours and route changes, leading to smoother and more predictable travel times.

### ***Travel Time Reliability***

ODOT measures system reliability through several metrics: the percentage of reliable person-miles traveled on the Interstate NHS, the percentage of reliable person-miles traveled on the non-Interstate NHS, and freight movement on the Interstate, measured as a percentage of Interstate NHS system mileage. Travel Time Reliability (TTR) and Truck Travel Time Reliability conditions are calculated using the National Performance Management Research Data Set, commonly referred to as speed data.

According to the 2023 reported data, the Non-Interstate NHS Travel Time Reliability rating stands at 94.21%, with a goal for 2026 of remaining above 90%. US-81, in both directions, has a Level of Travel Time Reliability rating of 1.60, which is higher than average and is considered poor. Improvements to both bridges will help enhance the TTR of US-81, aiding ODOT in achieving its future reliability goals.

The proposed project aims to improve mobility for all users, including both motorized and non-motorized traffic. Replacing the bridge will prevent delays caused by maintenance and potential detours due to bridge closures resulting from failures. **Additionally, the project will offer increased vertical clearance, allowing taller trains to pass under the bridge, and horizontal clearance for the potential addition of another rail line.**

### ***Pedestrian, Bicycle, and ADA Safety and Mobility***

The new bridges will be designed to adhere to the highest standards of safety and mobility compliance. Each bridge will feature shoulders, facilitating safe travel for users. The existing US-81 bridges already have shoulders as an important safety feature. While pedestrian and bicyclist traffic are not common on the highway, shoulders are still an important feature in the event of an accident or breakdown. They facilitate the safe crossing of individuals as necessary, removing them from conflict points with vehicular traffic. The shoulders will be a new safety improvement for the county road bridges. **By comprehensively addressing safety, mobility, and accessibility concerns, this project aims to significantly improve the quality of life for residents and travelers in rural Oklahoma.** The commitment to high standards of design and construction will foster a safer, more efficient transportation network that meets the needs of the entire rural community.

## **INNOVATION**

The reconstruction will include innovative materials that better serve the life of the bridge. Epoxy-coated rebar is an attractive building option for many reasons, one of which is its ability to resist damage from harsh weather and natural disasters. As extreme weather events occur, such as large storms, building structures from materials specifically engineered to face such challenges is necessary. During construction, the project team will use epoxy-coated reinforced steel bars for the on-system US-81 bridges. The rebar serves as a strengthener for the concrete that makes up the deck and other facial components of the bridge. This is a smart choice due to its extended durability compared to uncoated rebar, which reduces the need for replacements and lowers embodied energy compared to other corrosion-resistant reinforcing steels, making it a strong option for construction projects.



*Epoxy-coated Rebar*

While epoxy coated steel provides a major benefit for the rebar, the structural steel used in the projects will be uncoated weathering steel due the benefits it provides in this application. Structural steel is the primary load-bearing framework used for the bridge; it functions like the bridge's skeleton. Various benefits have been found from the use of this uncoated steel. For example, the elimination of the coating removes the necessity of blast cleaning the structure. This cleaning technique causes contaminated debris to aerosolize, leading to health hazards and increased expense. According to the FHWA, there are documented cases where the estimated cost of the collection and disposal of materials from repainting a bridge was so great that the structure was either abandoned or fully replaced. The uncoated weathering steel is a cost-effective alternative material which has been demonstrated in both short- and long-term savings.



## ***Bundling***

ODOT evaluated the bridges in need of reconstruction to determine the most cost-effective and impactful bundle of bridges. Bundling saves money through economies of scale in design, contracting, and construction. It also minimizes the overhead of the project with administration while shortening timelines for construction, as crews will be able to work concurrently on the projects. Additionally, ODOT will be able to purchase construction materials in bulk, providing more cost savings in comparison to keeping them separate.

## **D. Project Readiness and Permitting Risk**

### **TECHNICAL FEASIBILITY**

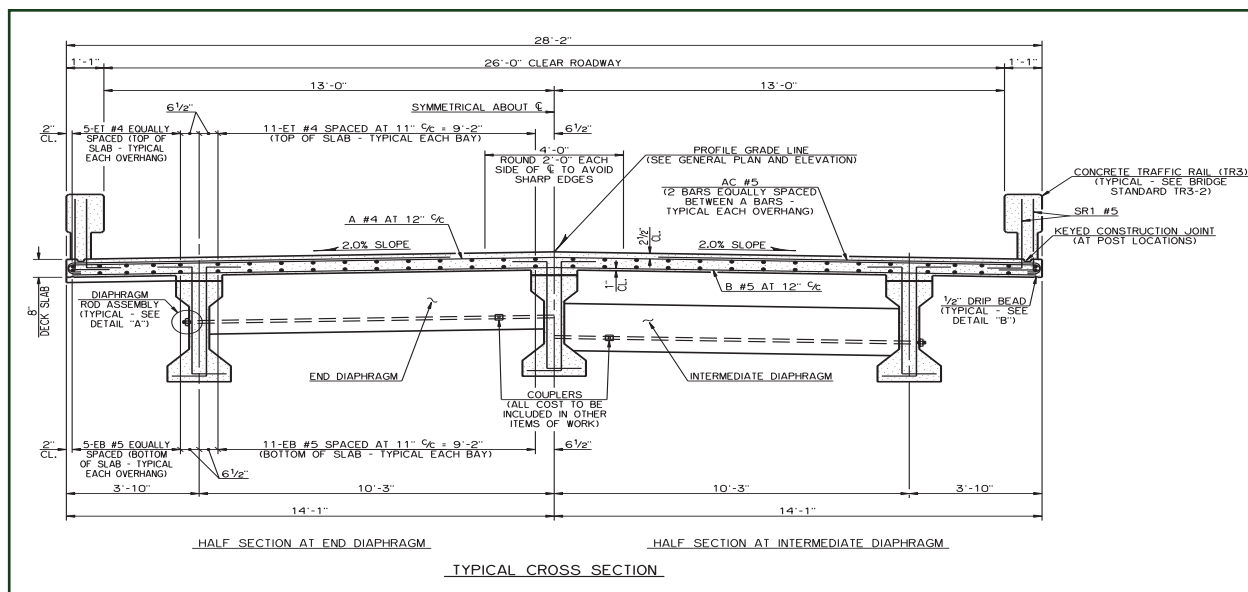
The county road bridges over Turkey Creek and its overflow are currently being designed and anticipate being at 60% design in January 2026. ODOT has completed topographic survey, bridge hydraulics, utility investigations, roadway and bridge design criteria are established, a preliminary design and plan set are complete, as well as Programmatic Categorical Exclusion NEPA clearance. ROW is currently being performed.

Both bridges are currently multi-span steel I-beam bridges that are structurally deficient, have a poor rating for the deck condition, and are currently load posted at greater than 40% below the design vehicle capacity. They have substandard bridge rails, substandard guardrail transitions, and substandard approach roadway guardrail at both ends of the bridges.

The proposed design for Bridge #15106 over Turkey Creek is a three-span prestressed concrete beam bridge that utilizes the ODOT County Bridge Standards. The ODOT County Bridge Standards allow a replacement bridge plan set to be developed efficiently and cost effectively. The bridge standards provide the superstructure, including the deck, bridge railings, beams, and bearing design, as well as abutment and wing wall designs for a variety of bridge lengths.

The proposed design for Bridge #15187 is a five-span prestressed concrete beam bridge that also utilizes the ODOT County Bridge Standards. The proposed bridge utilizes the same girder design on all five spans, an AASHTO Type II beam shape. The same beam shape will be applied to both structures, creating efficiencies with the bridges being bundled together in one package.

During removal of the existing bridges, the I-beams will be salvaged by ODOT and assessed for reuse on other bridge repairs or bridge needs throughout the state. The existing substructures will be removed to the channel elevation, or 1 foot below finished grade. With the bridges being designed following the County Standards, ODOT contractors are very familiar with the type of construction proposed for these replacements. Piers will be supported with drilled shafts founded in bedrock and abutment and wing piles will be driven to refusal in bedrock. Riprap will be installed to armor the channel along the proposed abutments. The deep foundations and riprap reduce the potential for future scour issues, making the bridges more resilient after replacement. The use of similar girder types in both structures will reduce the cost of fabrication and delivery to the site. The County



*ODOT's Standard Bridge Cross Section*

Standards allow the use of stay-in-place forms which expedite the construction of the deck and completion of the project. Standard TR-3 railings will be installed on both structures. Updated guardrail transitions connecting to the bridge rails and updated roadway guardrails installed to the correct length of need to protect traffic will be applied at both bridges.

The US-81 bridges over the Union Pacific Railroad (UPRR) have been advanced to a final design level. ODOT has completed topographic survey, bridge design, roadway design, railroad coordination, and a Programmatic Categorical Exclusion NEPA clearance.

Both bridges are currently six-span steel I-beam bridges that have highly skewed abutments, with straight girder alignments supporting a horizontally curved deck above. These structures do not meet the required vertical clearance over the top of rail. Both structures have a fracture critical member, a non-redundant, steel tension member serving as a pier beam that straddles the single track of the UPRR. The fracture critical members are experiencing corrosion and section loss in the top flange. A fracture critical member is defined as "critical" because its failure would result in a portion of or the entire bridge collapsing. In this case, the spans over the UPRR tracks. The bridge has other fatigue prone details, such as welded partial length cover plates on the bottom flange of some existing beams.

The highly skewed configuration places many complex forces on the existing superstructures (deck, beams, bearings), which are not performing well. ODOT has completed repair projects to weld cracks that are developing and worsening on the connection angles between the diaphragms and the girders. Several girders are floating above the bearing assemblies, putting further unanticipated stresses on diaphragms throughout the bridges. The simple span configuration of the bridges results in many expansion devices along the decks, which require routine replacement and maintenance. The cracking in the curbs and soffit of the deck results in the railings not being sufficiently connected to the structure. In many places, the railing supports are rusted and exposed, leaving the posts unconnected to the structure.

The replacement structures have been designed according to the current state of practice, while working to mitigate the issues experienced by the existing bridge. Both structures will be replaced with a three-span continuous plate girder bridge, with 38 feet of clear roadway (improving shoulder widths) and crash-worthy F-Shaped Parapet bridge rail. The replacement structures have been lengthened so that the skew of the substructure elements can be reduced to below 45 degrees. This reduced skew will help mitigate some of the torsional and warping effects of the bridge curvature, allowing the new structural design to be more efficient. The new structure will meet UPRR vertical clearance requirements, accommodate a future track and access road, and install a safety fence on the parapet over the railroad, further increasing safety for the rails below. The reduction in the bridge skew will also help reduce unanticipated stress in the reinforced concrete deck slab. The existing decks have deteriorated and require full-depth patching to keep the bridge in service; the proposed structure will replace the deck with all epoxy-coated reinforcing steel with a custom design of the acute corners at the skewed abutments.



*Site Visit of Bridge NBI #16159*

Curved and skewed steel girder construction is considered a complex type of bridge construction. ODOT recently completed construction of the US-169 to I-244 flyover ramp bridge, which included continuous curved steel plate girders, like the structures proposed for US-81. This recent successful project, which limited closures of the highways below and was constructed while traffic was maintained on the existing parallel bridge, shows both ODOT's and the Oklahoma contracting community's capabilities to design, fabricate, erect, and construct these types of complex bridges.



*Site Visit of Bridge NBI #16159*

To maintain and preserve infrastructure across Oklahoma, ODOT has the Asset Preservation Plan. It budgets anticipated maintenance costs from FY 2025 to FY 2028. The projects identified in this plan were developed through stakeholder input and the eight field district engineers spread throughout the state. Overall, the plan encompasses nearly \$500 million in funding for roadway preservation, bridge preservation and engineering, and accessibility projects. **ODOT is fully committed to the continued maintenance of the bridges across the state. The Kingfisher County Bridge Bundle is no different.**





*Recently Completed US-169 and I-244 Flyover Ramp Bridge*

### ***Basis of the Cost Estimate***

The current cost estimate is based on itemized quantities developed as part of the design efforts to date for each pair of bridges. The off-system county bridges will be developed to a 60% level by January 2026; however, they utilize the ODOT County Bridge Standards, which provide final quantities for most of the elements of the bridges, building confidence in these early estimates. The itemized cost estimates use typical ODOT bid items and units, and ODOT keeps historical data of bid prices, aiding in cost estimating for upcoming projects. The cost estimates were inflated from the time of the estimate to 2025 dollars using ODOT historic prices as a basis for the inflation. The sum of the county road bridges is \$3.9 million, and the sum of the US-81 bridge estimates is \$27.0 million, resulting in a total project cost for the Kingfisher County Bridge Bundle of \$30.9 million, not including previously incurred costs. This is inclusive of a 20% contingency and overall conservative estimate. If necessary, the bundle could be separated and only the county road or US-81 bridges funded to deliver a smaller benefit to the community.

ODOT understands and commits to providing the 20% match and any additional cost overages that may come up. While ODOT is confident in the cost estimates provided and the incorporated 20% contingency, it understands that unknown cost increases can occur due to extenuating circumstances. If this is the case, ODOT will provide the funds necessary to cover the additional costs and complete the project.

### ***Risk-Mitigation Measures***

ODOT is committed to the complete and on-time delivery of each bridge. As is the case with any project, some risks are already identified, and some may arise during construction. ODOT has completed many projects with a similar scope. As such, ODOT is confident that it can find solutions for any risks or challenges that arise. Specific risks and mitigation strategies are included in the *Required Approvals* section of this application.

### ***Capacity to Deliver the Project in Compliance with Federal Requirements***

In 2004, Oklahoma ranked 49th across the nation in terms of highway bridge conditions. At that time, 1,168 bridges were of deficient quality. Today, there are fewer than 50, with only 45 at the end of 2024 according to page 3 of the [Asset Preservation Plan](#). ODOT made a record investment over the past two decades to improve the bridges that connect Oklahomans and the rest of the nation to them.

This major investment was not made alone; it was with the support of funding from USDOT. As previously mentioned, ODOT has been awarded nearly \$500 million in the past 5 years. ODOT is intimately familiar with all reporting requirements and federal regulations. In fact, the work completed to date was done with those requirements in mind, ensuring that rework will not be necessary if awarded.

### **PROJECT SCHEDULE**

For the county road bridges, ODOT has completed topographic survey, bridge hydraulics, utility investigations, established roadway and bridge design criteria, completed a preliminary design and plan set, and obtained Programmatic Categorical Exclusion NEPA clearance reports developed for a NEPA study. For the US-81 bridges, ODOT has completed topographic survey, bridge design, roadway design, railroad coordination, and a Programmatic Categorical Exclusion NEPA clearance.



*Deck Condition of Bridge #16167*

# COMPETITIVE HIGHWAY BRIDGE PROGRAM

## KINGFISHER COUNTY BRIDGE BUNDLE

### Schedule

	2014 – 2024										2025				2026				2027				2028	
											Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Schedule for On-System US-81 Bridges																								
Preliminary Design	2014 – 2015																							
NEPA		2016											Nov 2025 – June 2026											
ROW Acquistion			2017																					
Utility Relocation		2016 – 2017																						
Final Engineering		May 2015 – June 2026																						
Letting (Obligation)													Sept 2025 – Feb 2026											
Construction																	Oct 2026 – Apr 2028							
Schedule for Off-System County Road Bridges																								
Preliminary Design											2024													
NEPA											July 2023 – June 2025													
ROW Acquistion														Sept 2025 – Feb 2026										
Utility Relocation														Sept 2025 – Feb 2026										
Final Engineering											June 2024 – Aug 2026													
Letting (Obligation)																Sept – Nov 2026								
Construction																	Dec 2026 – Jan 2028							



## REQUIRED APPROVALS

### *Environmental Permits and Reviews*

The US-81 bridges have been granted a Programmatic Categorical Exclusion (CE) NEPA clearance as of March 2016. Since the final agency action with respect to NEPA occurred more than three years before the planned construction date, ODOT will review the Programmatic CE to determine if any changes have occurred with what was originally reported. No changes are anticipated, and ODOT expects to have NEPA completed by June 2026.

The county road bridges have also completed the NEPA process with a Programmatic Categorical Exclusion determined in June 2025.

### *State and Local Approvals*

The county road bridges are listed on the ODOT [State Transportation Improvement Plan](#) (STIP) on page 42, the [8 Year Construction Work Plan](#) on page 14. The US-81 bridges were identified in the [CIRB SFY-2025 through SFY-2029 Construction Work Plan](#) on page 39.

### *Federal Transportation Requirements Affecting State and Local Planning*

As outlined in the section prior, both the US-81 bridges and the E 715 Rd bridges are included in the required state and local planning documents.

ODOT is committed to delivering the project within the timeframe specified in the grant agreement with FHWA if awarded.

### *Assessment of Project Risks and Mitigation Strategies*

All the bridges are included in the required state and local planning documents. ODOT is committed to delivering the project within the timeframe specified in the grant agreement with FHWA if awarded.

*Table 4: Project Risks and Mitigation Strategies*

RISK	MITIGATION STRATEGY
Environmental Clearance	Two of the four bridges already have a Programmatic Categorical Exclusion. NEPA was completed with a CE finding for the county bridges in June 2025. NEPA was initiated, and the CE was received for the remaining two US-81 bridges in 2016. ODOT will be reviewing and updating the finding, with no anticipated changes , by June 2026.
Utility Coordination	The US-81 bridges completed all necessary utility coordination and relocations in September 2017. For the county road bridges, it is anticipated to be completed by February 2026. Early and frequent coordination with the appropriate utility companies will be established, and agreements for the relocation of utilities will be put in place to establish clear responsibility for cost and relocation . This will help ensure adherence to the February 2026 milestone.

RISK	MITIGATION STRATEGY
Railroad Agreement	Railroad coordination started early and will be maintained through the development of an agreement that identifies the responsibilities of each party and completion of the project.
Geotechnical Investigation	The geotechnical component of this project has been completed as part of the preliminary design phase, achieving a design advancement of up to 60%. The project does not foresee any geotechnical issues that would impede its progress.
Cost Increases	<ul style="list-style-type: none"> <li>• Should the bridges be preserved, this decision would necessitate additional rehabilitation and ongoing maintenance expenditures. The cost estimates provided by the ODOT are conservative and include adequate contingency to accommodate the rehabilitation of the bridges for non-vehicular usage.</li> <li>• Cost increases have become more common with rising inflation. All estimates include a 20% contingency reflecting the preliminary level of design.</li> <li>• ODOT has included the project in its 8 Year STIP and remains committed to adjusting as needed to meet all CHBP and statutory deadlines for funding obligations. ODOT has consistently seen contract growth of less than 3%, which is covered by other formulas federal funds or Oklahoma State ROADS funds.</li> </ul>
Right-of-Way Acquisition	<ul style="list-style-type: none"> <li>• The acquisition of ROW has been finalized for the US-81 bridges. This project will not necessitate any additional ROW for the commencement of construction activities.</li> <li>• The design plans for the county road bridges are currently at the 30% completion stage. It is anticipated that the ROW acquisition phase for this project will conclude by February 1, 2026, with no expected delays.</li> </ul>
Material Availability	<ul style="list-style-type: none"> <li>• Due to partial federal funding, these bridge projects must comply with federal reporting requirements. These requirements typically encompass regular updates on project progress, financial expenditures, BABA, AIS and adherence to safety standards, ensuring accountability and transparency in the use of federal funds.</li> <li>• Additionally, global tariffs may affect the costs and availability of construction materials for the bridge. As tariffs increase on imported goods, the prices of steel, concrete, and other essential materials may rise, leading to higher overall project costs. This could potentially delay the project or necessitate adjustments in budget allocation to accommodate the increased expense of materials.</li> </ul>
Section 404 Permitting	The project doesn't anticipate requiring coordination with USACE.
USACE Construction and Maintenance Agreement	ODOT has negotiated numerous maintenance agreements on previous projects and have standard language and terms.

## E. FHWA Priority Selection Considerations

### BRIDGE NBI RATINGS

In accordance with FHWA priorities, the bridge inspection reports showed every bridge had components graded at a 5 or lower. This means, each bridge has components in fair quality, at risk of falling into poor or worse quality, or actively in poor and serious conditions. All bridge inspections were completed within the June 2023 timeframe.

***All the bridges are structurally deficient and in need of full reconstruction.***

#### **1. E. 715 Rd. over Turkey Creek | NBI #15106**

*Inspection completed: June 6, 2024*

The overall sufficiency score of the bridge is 49.2, with the deck rated a 4, or being in poor condition.

#### **2. E. 715 Rd. West of Turkey Creek | NBI #15187**

*Inspection completed: June 17, 2024*

The overall sufficiency score of the bridge is 24.8, with the deck rated a 3, or being in serious condition, and the substructure, meaning abutments and piers, a fair rating of 5.

#### **3. US-81 Northbound over UPRR | NBI #16159**

*Inspection completed: July 24, 2024*

The overall sufficiency score of the bridge is 53.3, with the superstructure having a poor condition rating of 4. The deck rated a 5, or in fair condition, as well as the substructure, meaning abutments and piers. This means both of those components of the bridge are at serious risk of falling into poor condition or worse. The bridge is also fracture critical, meaning it is vulnerable to collapse.

#### **4. US-81 Southbound over UPRR | NBI #16167**

*Inspection completed: July 24, 2024*

The overall sufficiency score of the bridge is 68.4. The deck was rated a 5, or in fair condition, as well as the substructure, meaning abutments and piers. This means both of those components of the bridge are at serious risk of falling into poor condition or worse. The bridge is also fracture critical, meaning it is vulnerable to collapse.



## FUND OBLIGATION

ODOT commits to obligate funds for construction within 18 months of the grant award.

## BENEFITS

**The bridge reconstructions will have safety, mobility, and economic benefits.** A detailed description of the project benefits can be found in the *Merit Criteria* section.

## COST EFFECTIVENESS

The reconstruction of these bridges will be more cost effective over the long-term than other rehabilitation activities. Bundling the four bridge projects allows ODOT to achieve greater cost efficiency through economies of scale in design, contracting, and construction. This approach reduces administrative overhead, shortens project timelines, and lowers overall costs compared to delivering each bridge as a standalone project.

The bridges need full reconstruction. **Across the board, the NBI for the bridge components showed they are in fair or worse condition, in fact, there is only one component on one bridge in good condition.** Other piecemeal activities to improve conditions would be temporary fixes, given that other components would need repair soon after. This approach would require ODOT to continually start and stop work until, ultimately, the bridge is fully reconstructed. This process would require several closures, causing major interruptions for people and goods. Instead, ODOT proposes full reconstruction without delay to minimize interruptions, evaluating all needs and improvements to future-proof the reconstructions to serve Oklahoma and the nation for years to come.



*Site Visit of Bridge NBI #16159*