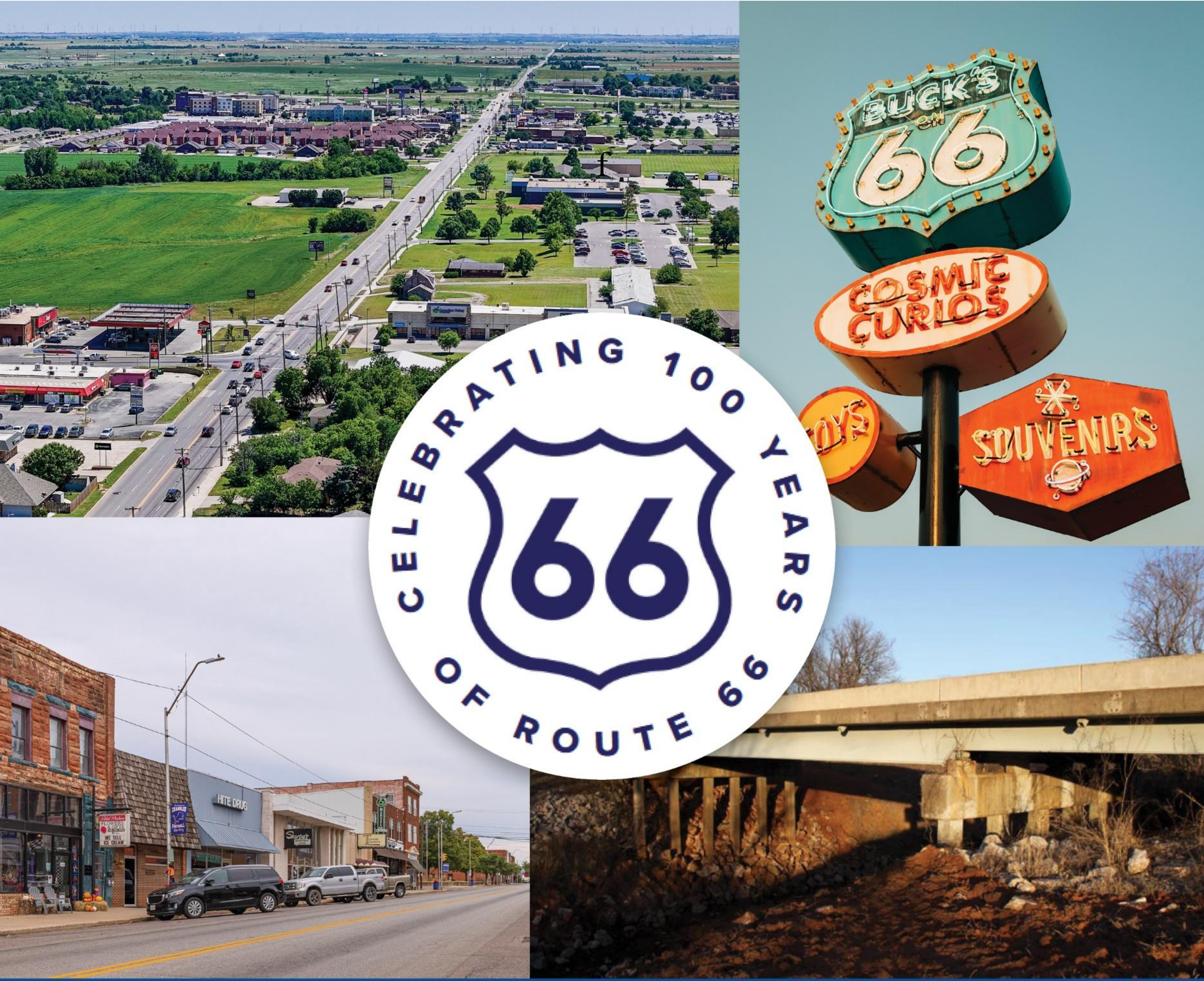

Route 66 Bridge Bundle

Honoring a Century, Enabling the Future

June 2026

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Executive Summary

The **Route 66 Bridge Bundle: Honoring a Century, Enabling the Future Project** (the Project) is working to replace or rehabilitate eight bridge and culvert structures located along Historic Route 66 in Beckham, Canadian, and Lincoln counties in Oklahoma.

The $35.5 million total capital project cost of the Project yields:

- Benefit-cost ratio (BCR) of 3.29
- Positive net user benefit of about $64.0 million (Net Present Value [NPV]) over 30 years

Over the life of the Project, these investments will produce a total benefit of (in NPV):

Table 1: Project Benefits Summary

Benefits	Total
Safety	$34,425,596
Travel Time	$7,704,670
Vehicle Operating Cost	$40,443,720
Emissions	$1,126,256
Other Environmental	$83,978
Maintenance	$7,337,487
Residual Value	$819,767
Total	**$91,941,474**

Over the life of each Improvement investment, these eight structures will produce benefits of (in NPV):

Table 2: BCA Results

Benefits	15089	01751	12596	12630	12629	14138	17530	17529	Total (NPV 2024)
Safety	$603,173	$224,634	$141,035	$4,306,982	$21,867,630	$2,712,044	$1,617,229	$2,952,869	$34,425,596
Travel Time	($973,374)	($2,865,932)	($1,817,037)	$4,711,679	$19,673,726	($3,686,246)	($3,813,452)	($3,524,694)	$7,704,670
VOC	$375,432	$258,450	$0	$3,060,496	$16,461,209	$6,614,094	$4,576,086	$9,097,954	$40,443,720
Resilience	$0	$0	$0	$0	$0	$0	$0	$0	$0
Health and Amenity	$0	$0	$0	$0	$0	$0	$0	$0	$0
Emissions	$9,162	$7,153	$0	$78,733	$422,041	$197,050	$138,329	$273,788	$1,126,256
Other Environmental	$298	$515	$0	$3,909	$20,499	$18,302	$14,279	$26,177	$83,978
Maintenance	$851,155	$124,258	$794,081	$749,278	$1,038,168	$994,148	$1,393,163	$1,393,236	$7,337,487
Other Benefits	$0	$0	$0	$0	$0	$0	$0	$0	$0
Residual Value	$45,915	$81,133	$137,477	$80,990	$81,155	$120,095	$139,438	$133,564	$819,767
Total Benefits	**$911,761**	**($2,169,789)**	**($744,444)**	**$12,992,066**	**$59,564,428**	**$6,969,488**	**$4,065,070**	**$10,352,894**	**$91,941,474**
Total Discounted Costs	**$1,041,406**	**$1,777,270**	**$10,803,563**	**$1,433,295**	**$1,436,207**	**$3,508,413**	**$4,073,479**	**$3,901,877**	**$27,975,510**
BCR	**0.88**	**-1.22**	**-0.07**	**9.06**	**41.47**	**1.99**	**1.00**	**2.65**	**3.29**
Net Present Value (NPV)	**($129,645)**	**($3,947,059)**	**($11,548,007)**	**$11,558,771**	**$58,128,220**	**$3,461,075**	**($8,409)**	**$6,451,017**	**$63,965,964**

BCA Methodology

For the 2026 Bridge Investment Program (BIP) application Benefit-Cost Analys (BCA) model, the Federal Highway Administration (FHWA) released a new tool (updated January of 2026) using the National Bridge Inventory (NBI) in coordination with the National Bridge Investment Analysis System (NBIAS) and Environmental Protection Agency (EPA) Motor Vehicle Emissions Simulator (MOVES) to pull in anticipated values for calculating the benefit-cost ratio (BCR) of BIP projects/programs. This tool was used for the BCA analysis, which is based on this program eliminating the possibility of lane and bridge closures and thus avoiding the costs associated with detours. The model utilizes the NBI, NBIAS, and EPA MOVES data, various region or corridor specific statistics, and global parameters provided by the U.S. Department of Transportation (USDOT) specifically for the purposes of completing BCAs in support of federal grant applications.

Using program-specific inputs, the BCA model calculates life-cycle costs, life-cycle benefits, annual benefits, the NPV of quantifiable costs and benefits, and the resulting BCR, utilizing a methodology that aligns with the most recent USDOT guidance.

The BCA was prepared using total quantifiable program costs and benefits that are adjusted for inflation and then discounted to reflect the time value of money. In summary, the BCA was created by:

1. Identifying the Program's benefits and costs in terms of proposed improvements versus a no-build scenario;
2. Deriving current and forecasted use levels for the baseline and the "build case";
3. Denominating all benefits and costs in constant 2024 dollars;
4. Assuming inflation based on the Implicit Price Deflators for Gross Domestic Product and a discount factor of 7 percent;
5. Setting an appropriate analysis period of 30 years for the Program's development, construction, and subsequent operational service.

Project Overview

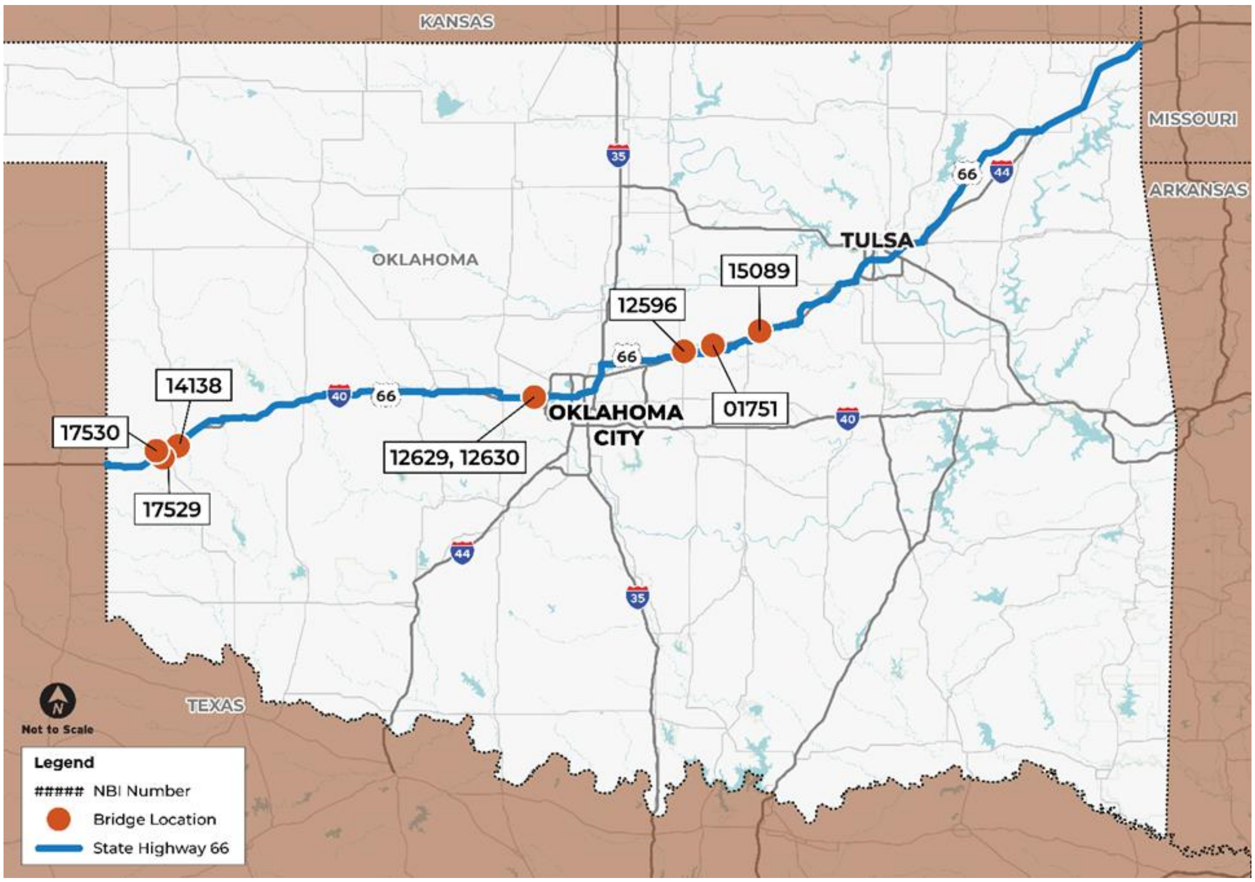
Route 66 Bridge Bundle: Honoring a Century, Enabling the Future Project (the Project) consists of eight investment projects. The NBI number and description of structures are shown below:

- Salt Creek – 15089 – Rehabilitation of one bridge structure
- Stillwater Central Railroad (SLWC RR) – 01751 – Replacement of one bridge structure
- Spring Creek – 12596 – Rehabilitation of one culvert structure
- Shell Creek – 12630, 12629 – Rehabilitation of two bridge structures
- Turkey and Sand Creeks – 14138, 17529, 17530 – Replacement of three bridge structures

The eight improvements will address longstanding challenges associated with aging bridge and culvert infrastructure along Oklahoma's Historic Route 66 corridor and will result in measurable improvements to safety, mobility, resiliency, and corridor reliability. The Project focuses on restoring critical assets to a state of good repair while preserving the historic character and functional role of the corridor.

All eight improvement projects in the Project can be seen below (**Figure 1Error! Reference source not found.**).

Figure 1: Project Locations



Salt Creek: 15089

The proposed improvements will rehabilitate the structure. The existing superstructure will be replaced with a widened deck. The beams, diaphragm, and bearings in the superstructure will be replaced. The deck will be widened to 32 feet with new expansion joints at the piers and a new traffic railing will be installed. Additionally, abutments and piers will be repaired, and new rip rap will be installed to limit erosion impacts.

Stillwater Central Railroad: 01751

The proposed improvement will replace the existing bridge with a new two-lane bridge with 12-foot lanes on the same footprint over SLWC rail tracks.

Spring Creek: 12596

The Oklahoma Department of Transportation (ODOT) is improving a four-mile corridor of State Highway 66 (SH-66) from SH-102 to US-177. The existing facility consists of a two-lane roadway with 12-foot-wide driving lanes and 2-foot-wide shoulders. Proposed improvements include widening and resurfacing the roadway, adding shoulders, repairing the bridge at Captain Creek, and improving or replacing the existing culvert over Spring Creek. For this project, ODOT is exclusively seeking BIP funds to help replace the culvert in Spring Creek only.

Shell Creek: 12629 & 12630

This project will rehabilitate twin bridges on SH-66. The project will repair the substructures, piers and provide a full deck replacement. For added resiliency, ODOT will address the slope walls of the bridges and creek bed. These improvements will create a new clear approach roadway width on both bridges that will be 38 ft. wide, consisting of two 12-foot driving lanes, a 4-foot paved inside shoulder and 10-foot paved outside shoulder.

Sand and Turkey Creeks: 14138, 17529, 17530

The proposed improvements along I-40 (on former Historic Route 66 alignment) will replace all three bridges on their existing alignment including the roadway approach. The existing facilities consist of a two-lane roadway with 12-foot driving lanes and 2-foot-wide shoulders. The replacement facility will have a two-lane roadway with 12-foot driving lanes and varied shoulder widths.

Project Cost

The Project's **total capital cost will be $36.43 million** in 2026 dollars or $27.95 million in 2024 discounted dollars per federal guidance. This estimate includes total project delivery costs (construction, design, environmental analysis, and other project management costs). Annual project costs and timelines are shown in Table 3. Previously incurred costs was assumed to be 7% of each structure's total project costs.

Table 3: Project Costs

Bridge	NBI Structure #	Construct Start (Year)	Construct End (Year)	Total Project Cost (2024$)	Total Project Cost NPV (2022$)
Salt Creek	15089	2027	2028	$1,303,102	$1,041,406
Stillwater Central RR	01751	2029	2030	$2,531,784	$1,777,270
Spring Creek	12596	2028	2029	$14,425,130	$10,803,563
Shell Creek EB	12629	2028	2029	$1,913,764	$1,433,295

Bridge	NBI Structure #	Construct Start (Year)	Construct End (Year)	Total Project Cost (2024$)	Total Project Cost NPV (2022$)
Shell Creek WB	12630	2028	2029	$1,917,652	$1,436,207
Sand Creek	14138	2027	2028	$4,390,045	$3,508,413
Turkey Creek WB	17530	2027	2028	$5,097,107	$3,901,877
Turkey Creek EB	17529	2027	2028	$4,882,383	$4,073,479
Project Total				**$36,460,966**	**$27,975,510**

Note: Costs Rounded to Nearest Dollar

The residual values are shown in **Table 4** below. At the end of the analysis period, shown as 30 years, the corridor will have a **discounted residual value of $820 thousand** as calculated using the FHWA-recommended residual value calculation for the time before the improvement components will need to be replaced.

Table 4: Project Residual Value

Bridge	Residual Value NPV (2024$)
Salt Creek	$45,915
Stillwater Central RR	$81,133
Spring Creek	$137,477
Shell Creek EB	$80,990
Shell Creek WB	$81,155
Sand Creek	$120,095
Turkey Creek WB	$139,438
Turkey Creek EB	$133,564
Total	**$819,767**

Project Benefits

The following benefits are quantified for this analysis:

- Safety cost savings from avoided crashes on the additional distance traveled on detour routes and safety improvements on primary route.
- Emissions savings from avoided additional distance travelled on detour routes.
- Travel time savings from avoided longer travel time on detour routes.
- Vehicle operating costs savings from avoided additional distance travelled on detour routes.
- Other Environmental benefits due to avoided load posting or closures.
- Operation and Maintenance cost savings from bridge condition improvements.

The Project will provide substantial benefits by improving safety, decreasing travel time, reducing emissions, and reducing operating costs. These benefits are quantified in the following subsections. Benefits were calculated using traffic and safety data provided by the ODOT and other sources cited in the **BCA Workbook** included with the grant application.

Safety Benefit

The Project produces **safety savings of $34.4 million (NPV)** primarily through the avoidance of the detours for load posting and closures as structures deteriorate, in addition to minor crash savings.

$34.4M

CRASH SAVINGS (NPV)

The reduction in crash costs for users in the Build scenario is estimated based on the crashes avoided by not travelling additional distance on detour routes. The Oklahoma crash rates are provided for each structure's respective county rates. These rates, additional vehicle miles traveled (VMT) due to detours, and cost of each person killed or seriously injured are used to develop a portion of the safety cost savings.

Crash data was provided by ODOT according to the project number (JP). Due to the Project being within rural areas and minimal crash occurrences in the area, crashes within a 500 foot radius from the center of the bridge were taken as bridge-related crashes. A five-year analysis, from 2017 to 2021, of crash data was used.

Travel Time Benefit

The Program reduces potential detour total travel time, resulting in a benefit of **$7.7 million (NPV)** to travelers. Only vehicle impacts were calculated for each bridge. Conservatively, bike and pedestrian travel times were not included in the analysis due to minimal usership along the Historic U.S. 66 corridor. However, all bridge structures are along the US Bicycle Route 66, which was approved as an official bike route in Oklahoma in 2022. This route recognition has increased the potential for increased non-motorized travelers throughout the Project area.

$7.7M

TRAVEL TIME COST (NPV)

Travel time calculations were only calculated for structures that NBI deemed to fail within the assigned analysis period, hence the usage of detour routes. The FHWA LTBP InfoBridge Tool was used where applicable for the structures. Load posted, level 1 with direct truck and bus traffic reduction was assigned to the structure when the first of the three conditions (deck, superstructure, or substructure) dropped to a rating of 3. If the structure was not expected to fail within the given period, no ($0) benefit was calculated for that respective structure. Full closure was assumed to match the NBI forecast year at a conservative measure. ODOT would close the bridge prior to conditional ratings falling to a 2.

Avoided Operating Costs

By providing more direct routes for travelers, the Program is projected to reduce vehicle operating costs by **$40.4 million dollars** over the period analyzed (30 years). Only vehicle operating costs were quantified in the benefit calculations. This was a conservative approach due to not including bike operations in the benefit calculation.

$40.4M

VEHICLE OPERATING COSTS (NPV)

Operating cost calculations were only calculated for structures that NBI deemed to fail within the assigned analysis period, hence the usage of detour routes. The FHWA LTBP InfoBridge Tool was used where applicable for the structures. Load posted, level 1 with truck and bus traffic reduction was assigned to the structure when the first of the three conditions (deck, superstructure, or substructure) dropped to a rating of 3. If the structure was not expected to fail within the given period, no ($0) benefit was calculated for that respective structure. Full closure was assumed to match the NBI forecast year at a conservative measure. ODOT would close the bridge prior to conditional ratings falling to a 2.

Emissions Benefit

The Project produces a total **reduced damage of pollutant emissions of $1.1 million (NPV)**. The majority of the emissions benefits were due to avoidance of load posting and closures as structure ratings began dropping.

$1.1M

EMISSIONS SAVINGS (NPV)

Emission calculations were only calculated for structures that NBI deemed to fail within the assigned analysis period, hence the usage of detour routes. The FHWA LTBP InfoBridge Tool was used where applicable for the structures. Load posted, level 1 with truck and bus traffic reduction was assigned to the structure when the first of the three conditions (deck, superstructure, or substructure) dropped to a rating of 3. If the structure was not expected to fail within the given period, no ($0) benefit was calculated for that respective structure. Full closure was assumed to match the NBI forecast year at a conservative measure. ODOT would close the bridge prior to conditional ratings falling to a 2.

Other Environmental Benefit

In addition to the emissions savings resulting from the avoided detours, other environmental benefits were calculated. The Project benefits from increased noise due to avoided load posting or closure forecasting. The analysis estimates **$84 thousand (NPV)** in total noise related environmental benefits.

$84K

OTHER ENVIRONMENTAL SAVINGS (NPV)

Other environmental calculations were only calculated for structures meeting the same criteria as state in the emissions benefits.

Maintenance Benefit

$7.3M

OPERATIONS & MAINTENANCE SAVINGS

The Project produces a total **Operation & Maintenance benefit of $7.3 million (NPV).**

Operation & Maintenance (O&M) costs are calculated from the difference in the O&M costs in the Build and No-Build scenario. The O&M cost methodology was dependent on rehabilitation or replacement of the respective structure over the 30-year analysis period. For structure replacements, the No-Build scenario includes frequent annual maintenance and major rehabilitation costs as the bridge deteriorates over the analysis period, resulting in increased long-term costs. ODOT conservatively estimates replacement structures in the Build scenario will have less costs and more 5-year cycle costs to cover striping, and general maintenance over the course of the 30-year analysis period. For rehabilitated structures, ODOT estimates $450,000 in maintenance costs every 5 years until structure failure in the No-Build scenario. The Build scenario of rehabilitated structures will include roughly $7,500 in annual maintenance due to minimal striping, weather clearing, and other baseline activities.

Benefits Summary

3.29

BENEFIT-COST RATIO

The Project has a Benefit-Cost Ratio (BCR) of 3.29. This ratio was derived by dividing total discounted benefits by total discounted costs over a 30-year period. **Table 6** shows the breakdown of BCR per structure below. The results shown in **Table 6** and throughout this memo were derived based on the 2025 BCA Guidance - December Update and USDOT's 2026 updated guidance on the BIP BCA Tool.

Table 5: Project Improvements Benefits Summary

Benefits	15089	01751	12596	12630	12629	14138	17530	17529	Total (NPV 2024)
Safety	$603,173	$224,634	$141,035	$4,306,982	$21,867,630	$2,712,044	$1,617,229	$2,952,869	$34,425,596
Travel Time	($973,374)	($2,865,932)	($1,817,037)	$4,711,679	$19,673,726	($3,686,246)	($3,813,452)	($3,524,694)	$7,704,670
VOC	$375,432	$258,450	$0	$3,060,496	$16,461,209	$6,614,094	$4,576,086	$9,097,954	$40,443,720
Resilience	$0	$0	$0	$0	$0	$0	$0	$0	$0
Health and Amenity	$0	$0	$0	$0	$0	$0	$0	$0	$0
Emissions	$9,162	$7,153	$0	$78,733	$422,041	$197,050	$138,329	$273,788	$1,126,256
Other Environmental	$298	$515	$0	$3,909	$20,499	$18,302	$14,279	$26,177	$83,978
Maintenance	$851,155	$124,258	$794,081	$749,278	$1,038,168	$994,148	$1,393,163	$1,393,236	$7,337,487
Other Benefits	$0	$0	$0	$0	$0	$0	$0	$0	$0
Residual Value	$45,915	$81,133	$137,477	$80,990	$81,155	$120,095	$139,438	$133,564	$819,767
Total Benefits	**$911,761**	**($2,169,789)**	**($744,444)**	**$12,992,066**	**$59,564,428**	**$6,969,488**	**$4,065,070**	**$10,352,894**	**$91,941,474**
Total Discounted Costs	**$1,041,406**	**$1,777,270**	**$10,803,563**	**$1,433,295**	**$1,436,207**	**$3,508,413**	**$4,073,479**	**$3,901,877**	**$27,975,510**
BCR	**0.88**	**-1.22**	**-0.07**	**9.06**	**41.47**	**1.99**	**1.00**	**2.65**	**3.29**
Net Present Value (NPV)	**($129,645)**	**($3,947,059)**	**($11,548,007)**	**$11,558,771**	**$58,128,220**	**$3,461,075**	**($8,409)**	**$6,451,017**	**$63,965,964**

Table 6: Project Benefits Summary

Benefits	Total	Total ($M)
Safety	$34,425,596	$34.43 M
Travel Time	$7,704,670	$7.70 M
Vehicle Operating Cost	$40,443,720	$40.44 M
Emissions	$1,126,256	$1.13 M
Other Environmental	$83,978	$0.08 M
Maintenance	$7,337,487	$7.34 M
Residual Value	$819,767	$0.82 M
Total Benefits	**$91,941,474**	**$91.94 M**
Total Discounted Costs	**$27,975,510**	**$27.98 M**
BCR	**3.29**	**3.29**
Net Present Value	**$63,965,964**	**$63.97 M**

Unquantifiable Benefits

The Project has been conservatively evaluated using the methodology and assumptions described above. The cost effectiveness of the Project may be greater than indicated by the quantitative calculations because certain benefits were not included in the BCA analysis.

The span bridge structures that will undergo replacements and superstructure replacements will be constructed in accordance with ODOT's special provision for Longitudinal Deck Tining. This means that all replaced structures will incorporate a design aspect that is intended to reduce the noise of traffic on the newly constructed bridge decks. In addition, some of these bridges were originally built during the era where lead paint was commonly used on bridges. Due to aging, lead paint has been slowly chipping off these bridges and into the creeks and surrounding areas below. Due to lead paint's toxic characteristic, these Project improvements will remove the ability for lead paint to find its way into the environment.

In response to increased seismicity during the 2010s, ODOT developed a Shakecast system to identify span bridge structures that would require inspection after triggering seismic events. This effort was coordinated with the U.S. Geological Survey (USGS) and implemented through a contract with the University of Oklahoma and consulting engineer partners. Utilizing elemental NBI bridge data, the researchers developed fragility curve models for their span bridges and subsequently modified these resistance parameters based on a more detailed seismic response analysis from a sample of representative bridges. These fragility curves were based on Federal Emergency Management Agency (FEMA) HAZUS models and are well accepted in the determination of seismic resistance. Part of the vulnerabilities that were taken into consideration on the bridge resistance side of the demand / resistance equation is the bridge condition state, the age of the structure, the beam bearing seat width, the beam bearing type, and the confinement of the column steel reinforcement. The span bridges over Shell Creek, Salt Creek, and the SLWC RR all are in areas of elevated seismic activity, perform poorly in an analysis of their seismic resistance, and therefore are at a greater level of risk to seismic activity. The proposed major rehabilitation and replacement of these structures would eliminate the associated seismic vulnerabilities and improve the system reliability to these environmental threats.

Although seismic activity reduced substantially after coordinated efforts were implemented in Oklahoma to monitor and limit saltwater disposal well pressures and volumes, earthquakes continue to occur and remain a threat to vulnerable bridge infrastructure. The areas of continued seismic activity have remained consistent over the past 15 years, and the expectation is that all structures within these geographic boundaries will continue to remain under the threat of induced seismic activity.

Safety benefits that were unquantified include the improvement of US 66 to meet federal highway standards, improving clear zone criteria on the US 60 culverts and at Spring Creek, lane width widening at various structures, and improving safer sight distance at residential and commercial driveways directly connecting to US 66.

For operational and travel time benefits, only vehicle benefits were accounted for in seven out of the eight structures. The SLWC RR bridge was the only structure with a significant number of non-motorized travelers due to the bridge's proximity to residential areas, schools, and ridership. In an effort to be conservative, the other structures were included due to location and ridership factors. Non-motorized traveler operational wear and tear on bikes will decrease if anticipated detour routes are avoided due to project improvements. Similarly, travel time will drastically increase for non-motorized travelers if a bridge were to fail and the detour route was used.