OKLAHOMA

Centennial Pathways: Enhancing Community Connectivity on US-69 in Muskogee

BUILD Grant 2026

Oklahoma Department of Transportation

Benefit Cost Analysis Narrative

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Executive Summary

The Oklahoma Department of Transportation (ODOT) is seeking **$20 million** in Better Utilizing Investments to Leverage Development (BUILD) Grant funding to support reconstruction of an approximate two-and-a-half-mile segment of US-69 in Muskogee, Oklahoma. The proposed investment, titled Centennial Pathways: Enhancing Community Connectivity on US-69 in Muskogee (Project), integrates three coordinated infrastructure improvements into a single, comprehensive Project. The total future eligible cost for the Project is **$41.2 million**.

The Project involves widening a roadway segment from four lanes with a grass median to six lanes with two-way left turn lanes, sidewalks, and crosswalks at signalized intersections. Additionally, the Project involves replacing an existing pedestrian bridge with a substandard clearance for the oversized truck traffic that frequent this corridor. The primary goals of the Project are to increase safety for both motorized and non-motorized travelers, reconnect the communities on the west and east sides of US-69, and provide a less restrictive roadway for freight movement.

The **$41.2 million** total capital project cost of the Project yields:

- Benefit-cost ratio (BCR) of 2.43
- Positive net present value (NPV) of $22.8 million over 20 years

Over the life of the Project, these investments will produce the benefits shown in **Table 1**:

Table 1: Project Benefits Summary (in NPV)

Benefits	Total
Avoided Operating Costs (from detoured trucks)	$17,953,669
Safety Savings (vehicle collisions)	$4,705,648
Safety Savings (multimodal collisions)	$1,023,213
Travel Time Savings (from detoured trucks)	$13,922,795
Health and Amenity Benefit	$590,100
Avoided Operation & Maintenance Costs	$650,611
Total Benefits	**$38,846,036**

Methodology

The Benefit Cost Analysis (BCA) was prepared in accordance with the U.S. Department of Transportation (USDOT) BCA Guidance for Discretionary Grant Programs (December 2025 Update) using total quantifiable project 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 Project's benefits and costs in terms of proposed improvements versus the baseline 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;

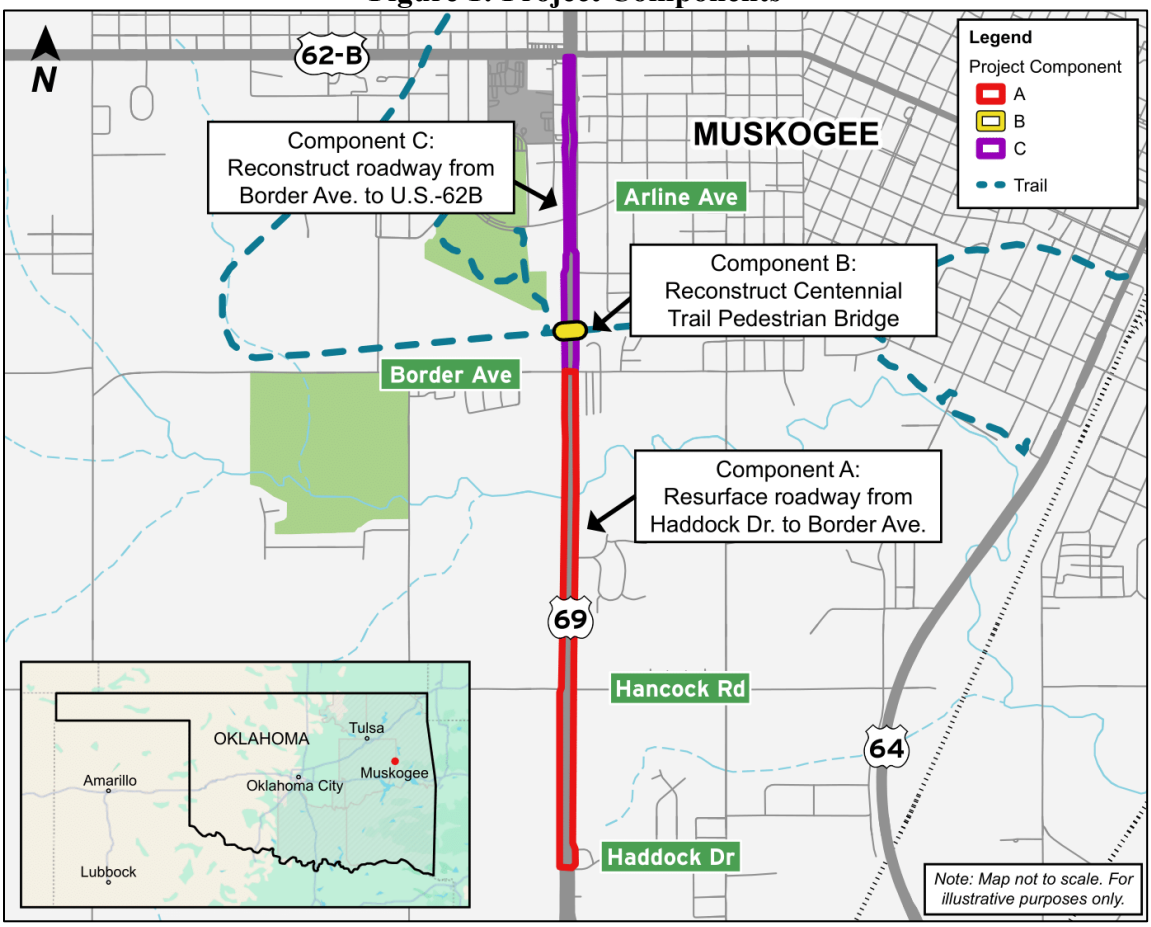
5. Setting an appropriate analysis period of 20 years for the Project's development, construction, and subsequent operational service. (Conservatively assumed 20 years at the start of first full year of benefits.)

Project Overview

The Project combines three components into one overall Project. The first includes resurfacing a segment of US-69 on its current alignment. The second component involves replacing an existing pedestrian bridge that does not meet current design standards. US-69 carries the fourth-highest volume of truck traffic in the state, with average daily truck traffic of 26 percent in this corridor. However, the existing bridge clearance is insufficient to accommodate oversized freight vehicles, necessitating detours to alternate designated truck routes. Lastly, the Project involves widening a segment of US-69 from four lanes with a grass median to six lanes with two-way left turn lanes, sidewalks, and crosswalks at signalized intersections. The goals of the Project are to **increase safety** for both motorized and nonmotorized travelers, **reestablish a non-motorized traveler connection across US-69**, and provide a **direct route on US-69 for freight movement**.

All three components in the Project can be seen in **Figure 1**.

Figure 1: Project Components



Source: ODOT

Component A: Spanning approximately 1.6 miles from Haddock Drive to Border Avenue, the roadway will be reconstructed using its current configuration. The resurfacing will have two 12-foot driving lanes and a 10-foot outside shoulder, in addition to new wider four-foot inside shoulders in both the northbound and southbound directions.

Component B: The Centennial Trail Pedestrian Bridge will be reconstructed. The existing roadway under the bridge has a substandard sag vertical curve and steep grades, which causes a bottleneck as trucks travel down into the sag and then must stop at a stop light. Additionally, the current structure is low, with a posted vertical clearance of 14'-10", so oversized trucks must detour on city streets to avoid the structure. The sag in the road will be raised, improving sight distance, and decreasing grades and the bridge reconstructed to modern design standards. The Centennial Trail Pedestrian Bridge will be reconstructed using prefabricated bridge elements and systems (PBES). The new bridge will be 12 feet wide and connect with the existing trail. The replacement of the Centennial Trail Pedestrian Bridge will allow for room to accommodate the roadway improvements and improve the drainage on the roadway.

Component C: Spanning approximately 1.0 mile from Border Avenue to US-62B, the roadway will be reconstructed to add capacity and multi-modal infrastructure. The roadway will be completely reconstructed from its current divided four-lane roadway to a six-lane roadway with two-way left turn lanes. Additionally, sidewalks will be added throughout the corridor and ADA-compliant intersection crossings will be added at all signalized intersections.

The three components will work in concert to link the people of Muskogee, Oklahoma to increased connectivity for the heavy freight traffic utilizing the US-69 corridor and to improve multimodal traveler access to the city amenities and trails. The Project is part of ongoing efforts to streamline one of the most inefficient freight traffic corridors in rural Oklahoma while improving multi-modal safety in a developed area.

Project Cost

The Project's **total capital cost will be $41.2 million** in 2025 dollars. This estimate includes total project delivery costs (construction, design, environmental analysis, and other project management costs). It also assumes construction from 2026 to 2028, with 2029 acting as the first full year post-construction. The Project has already accumulated previously incurred costs totaling $9.1 million in 2025 dollars. Annual project costs are shown in **Table 2**, which includes its NPV based on a discount rate of 7.0 percent.

Table 2: Project Schedule & Cost

Capital Project Cost (2025$)	Previously Incurred Costs (2024$)	Total Project Cost (2025$)	Total Project Cost NPV (2025$)
$41,232,371	$9,094,480	$50,506,480	**$22,847,994**

The Project components include assets that range in lifespan from 15 years to 25 years. It was conservatively assumed that the residual value would be 20 years, which is equivalent to the analysis period and therefore ***negligible***.

Project Beneficiaries

The Project will create significant regional and national benefits by:

- Providing safer, more reliable micromobility transportation facilities in the rural city of Muskogee, which is an Area of Persistent Poverty (APP);
- Connecting communities to areas of potential job opportunities which have long been disconnected; and
- Better serving the community by creating better accessibility without requiring travel directly on US-69.

Project Benefits

The Project will provide substantial benefits by improving safety, decreasing travel time, reducing operating costs, and adding new multimodal amenities and health benefits. These benefits are quantified in the following subsections. Benefits were calculated using traffic and safety data provided by ODOT and other sources cited in the **BCA Workbook** included with the grant application. It should be noted that this analysis does not include any induced traffic (vehicle or trucks) to the corridor. The benefits directly correlate to the multimodal and oversized trucking component that have been overly challenged along this corridor. No daily traffic changes are expected and therefore any benefits would be ***negligible***.

Safety Benefit

The Project produces two distinct safety savings benefits. The vehicle collision savings come from the reconstruction on the roadway (**Components A and C**) and the reconstruction occurring on the sidewalk and trail connection (**Component B**).

$4.7M

SAFETY SAVINGS (NPV) ROADWAY

The roadway component will be reconstructed to either its existing configuration or to a new configuration incorporating vertical curve enhancements under the Centennial Trail Pedestrian Bridge. To stay consistent across the entire corridor, a crash modification factor (CMF) that suited both components was used. CMF #2242 – Resurfacing Treatment, with a factor value of 0.86, was utilized to cover the corridor in terms of collision reduction. Using the ODOT crash data from the 2017 through 2021 five-year period, avoidable crashes were able to be calculated given the build scenario. The 2017 to 2021 data set represents the most recent and complete data set from ODOT. Data from after 2021 has not yet been fully tabulated and is not an accurate representation of safety concerns for the corridor. On average, 6.6 crashes a year are expected to be mitigated due to resurfacing (severity ranging from no injury to incapacitating injury). The improvements to **Components A and C** resulted in a benefit of **$4.7 million (NPV)** by reducing the number of collisions through resurfacing.

The multimodal component will be reconstructed to install 2.2 miles of new sidewalks along the corridor for bike and multi-modal usage. Unfortunately, given the ODOT crash data from the 2017 through 2021 five-year period, there were four pedestrian-related collisions all occurring with a severity of serious injury (equating to 0.6 collisions annually). No bicycle collisions occurred along the corridor. Multi-modal collisions will likely be reduced due to the improvements of sidewalks along the corridor. CMF #11246 – Install Sidewalks, with a factor of 0.598, was used for the multi-modal collision reduction. An annual reduction of 0.3 serious injury collisions could be expected throughout the corridor. The improvements to **Component B** resulted in a benefit of **$1.0 million (NPV)** by reducing the number of collisions through installing sidewalks.

$1.0M

SAFETY SAVINGS (NPV) MULTIMODAL

Travel Time Benefit

The travel time improvements from the Project were calculated for the oversized freight trucks currently detouring (Route B) due to height restrictions and vertical curve complications from the Centennial Trail Bridge across US-69. Although US-69 has approximately 26% truck traffic (ODOT), the 2011 Recon Report, included in the **Supporting Documents**, indicated that 1.5 percent of traffic were considered oversized trucks utilizing the detour. Route B detour takes trucks an average of 18 extra minutes and 12 extra miles to get from start to end compared to using the recommended traffic route along the US-69 corridor. These trucks are restricted to marked detour routes because Muskogee's Code of Ordinance prohibits trucks from using any city streets that are not designated as truck routes, a policy intended to protect local roads not designed for high-weight vehicles, reduce safety risks in residential areas, and prevent premature pavement damage. As a result, oversized loads are legally required to follow only the approved truck routes through or around the city until the vertical clearance deficiency on US-69 is corrected. In the build scenario, all trucks would be able to utilize the US-69 corridor without any height restrictions or incline challenges. This travel time savings for truck drivers equates to total benefit of **$13.9 million (NPV)**.

$13.9M

TRAVEL TIME COST (NPV)

Avoided Operating Costs

Like the travel time benefit, using Route B as the detour for oversized trucks causes unnecessary wear and tear on the freight vehicles. As noted previously, each use of Route B applies 12 extra miles of travel on each truck. By monetizing the 1.5 percent of truck traffic taking the detour (as shown in the 2011 Recon Report), and the average operating cost for commercial trucks (per vehicle mile), a total benefit of **$18.0 million (NPV)** could be saved through the build scenarios use of the conflict-free US-69 corridor.

$18.0M

VEHICLE OPERATING COSTS (NPV)

Health and Amenity Benefits

The Project produces a total amenity benefit and mortality reduction benefit of **$0.6 million (NPV)** over 20 years. The multimodal travelers receiving benefits were calculated using the new 2.2-mile facility. Additional benefits were calculated for the incorporation of new signalized intersections with multi-modal signal heads at Arline and Border Avenues, and the striped crosswalks at Border, Arline, and Elgin Avenues along the US-69 corridor. Multi-modal and cycling trips were assumed to have the USDOT recommended percent of induced trips over the 20-year analysis period.

$0.6M

HEALTH AND AMENITY SAVINGS

Avoided Operations & Maintenance Costs

The Project is expected to greatly reduce the annual operation and maintenance (O&M) costs occurring along the corridor over the analysis period. The project corridor currently experiences annual O&M costs averaging $88,000 per year (ODOT). Given the Project components and improvements, this O&M cost is expected to drop to a range of $5,000 to $10,000 per year (ODOT). The **BCA Workbook** took the average of $7,500 per year into consideration when calculating annual O&M reduction costs between the build and baseline scenarios. This significant reduction creates an **O&M cost savings benefit of $0.7 million (NPV)** over the 20-year analysis period.

$0.7M

O&M COST SAVINGS (NPV)

Benefits Summary

The Project has a Benefit-Cost Ratio (BCR) of 2.43. This ratio was derived by dividing total discounted benefits by total discounted costs over a 20-year period. The results shown in **Table 3** and throughout this memo were derived based on USDOT BCA Guidance for Discretionary Grant Programs (December 2025 Update).

2.43

BENEFIT-COST RATIO

Table 3: Project Benefits Summary

Total Benefits	Total	Total ($M)
Avoided Operating Costs (from detoured trucks)	$17,953,669	$18.0
Safety Savings (vehicle collisions)	$4,705,648	$4.7
Safety Savings (multimodal collisions)	$1,023,213	$1.0
Travel Time Savings (from detoured trucks)	$13,922,795	$13.9
Health and Amenity Benefit	$590,100	$0.6
Avoided Operation & Maintenance Costs	$650,611	$0.7
Net Benefits	**$38,846,036**	**$38.8**
Total Costs	**$15,998,042**	**$16.0**
B/C Ratio	**2.43**	**-**
Net Present Value	**$22,847,994**	**$22.8**

Unquantifiable Benefits Summary

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 that were not included in the BCA analysis.

Typically, the travel time savings and operational costs would be calculated for vehicular traffic in addition to truck specific traffic. However, the Project does not necessarily shorten the trip distance for vehicles and trucks already utilizing the US-69 corridor, nor would the Project create any induced trips for vehicular traffic. It could be argued that the new signalized intersections and reduction of the steep vertical grade could inevitably save a few seconds of time per trip, but no quantified benefits were calculated.

Benefits regarding the enhanced shared use bridge across US-69 were not independently quantified. Multimodal travelers would receive most of their new or improved benefits from the addition of sidewalks and safer connections across the US-69 corridor.

Improvements along the US-69 corridor include additional lighting improvements that were not quantified. The addition of street and sidewalk lights along with LED enhancements will provide improved safety measures for micromobility visibility. In addition, the intersections along the corridor will be upgraded to meet ADA standards. Ramps, tactile warning strips, and other design components were not monetized in the **BCA Workbook**.

The replacement of the pedestrian bridge allows for more room to accommodate the roadway improvements on US-69 and will improve drainage on the US-69 roadway. Because of comments to the City of Muskogee from adjacent landowners near the bridge, the City expressed concerns early in the process concerning drainage and erosion. Erosion control measures will be adhered during construction and US-69 is being raised approximately five feet at the overpass to improve drainage. This will be accomplished by use of phased construction and work potentially completed during the closure for removal of the existing multi-modal bridge structure.