

I-40 DOUGLAS BOULEVARD INTERCHANGE AND CORRIDOR IMPROVEMENTS

Oklahoma City, Oklahoma

I-40 & Douglas Boulevard Interchange

and Widening of I-40 from Douglas Boulevard to I-240

Sponsor: Oklahoma Department of Transportation

Previously submitted for INFRA under the title "I-40 Douglas Boulevard Interchange and Corridor Improvements."



OKLAHOMA
Transportation

Supporting information can be found at:

<https://oklahoma.gov/odot/progress-and-performance/federal-grant-awards/infra-grants/2021-oklahoma-county-i-40-and-douglas.html>

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INFRA Request: \$65,254,916*

Other Federal Funds: \$0

Non-federal funds: \$43,503,277

Future Eligible Costs: \$108,758,193

Previously Incurred Cost: \$5,413,422

Total Project Cost: \$114,171,614

• Matching funds restricted to specific project component? NO

Location: 35.404N, -97.2915W to 35.434N, -97.379W

State: Oklahoma

Size of project: Large

Urbanized Area (UA): Oklahoma City

UA population, 2010 Census 861,505

• Future eligible costs spent on components on NHFN \$108,758,193

• Future eligible costs spent on components on NHS \$108,758,193

• Future eligible costs spent on railway-highway grade crossings or \$0

• Future eligible costs spent on intermodal or freight rail projects, or within a public or private freight rail, water, or intermodal facility \$0

Inclusion in Planning Documents:

• TIP: NO**

• STIP: NO**

• MPO LRTP: YES

• State LRTP: Consistent

• State Freight Plan: YES

Federally Designated Community Development Zone NO

• Includes Opportunity Zone, Empowerment Zone, Promise Zone, and Choice Neighborhood

* All amounts in 2020 dollars

** The most current STIP and TIP extend through 2023. The I-40/Douglas Interchange project is programmed in ODOT's 8 Year Work Plan in 2027. With INFRA funding, the project will be added into the TIP and STIP and advanced in the Work Plan.

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Supporting Materials

Supporting documentation can be found at the project website, <https://oklahoma.gov/odot/progress-and-performance/federal-grant-awards/infra-grants/2021-oklahoma-county-i-40-and-douglas.html> and includes:

- Letters of Support
- Schedule and Budget
- Reports and Technical Information (including the BCA)

I-40 DOUGLAS BOULEVARD INTERCHANGE AND CORRIDOR IMPROVEMENTS

Oklahoma City, Oklahoma

1. PROJECT DESCRIPTION

The I-40 Douglas Interchange and Corridor Improvements Project widens 6.3 miles of Interstate 40 (I-40) and reconstructs the I-40 and Douglas Boulevard Interchange in Oklahoma City and Midwest City, Oklahoma (**Figure 1**). The Project provides much needed improvements to access at Tinker Air Force Base (Tinker AFB), and a more reliable commuter and freight route within the Oklahoma City metropolitan area, state and nation. Specifically, the project will:

- Provide enhanced mobility to suburban and rural populations east of the Oklahoma City metro area that use I-40 to commute to jobs and services in the city
- Benefit freight (i.e. truck) traffic that is transporting products within and through Oklahoma
- Reduce emissions and enhance mobility on an Alternative Fuels Corridor
- Provide pedestrian/bicycle/wheelchair access across I-40, which has historically been a barrier to non-vehicular modes of transportation
- Implement an innovative single-point urban interchange design that will improve safety and mobility while minimizing impacts to surrounding properties

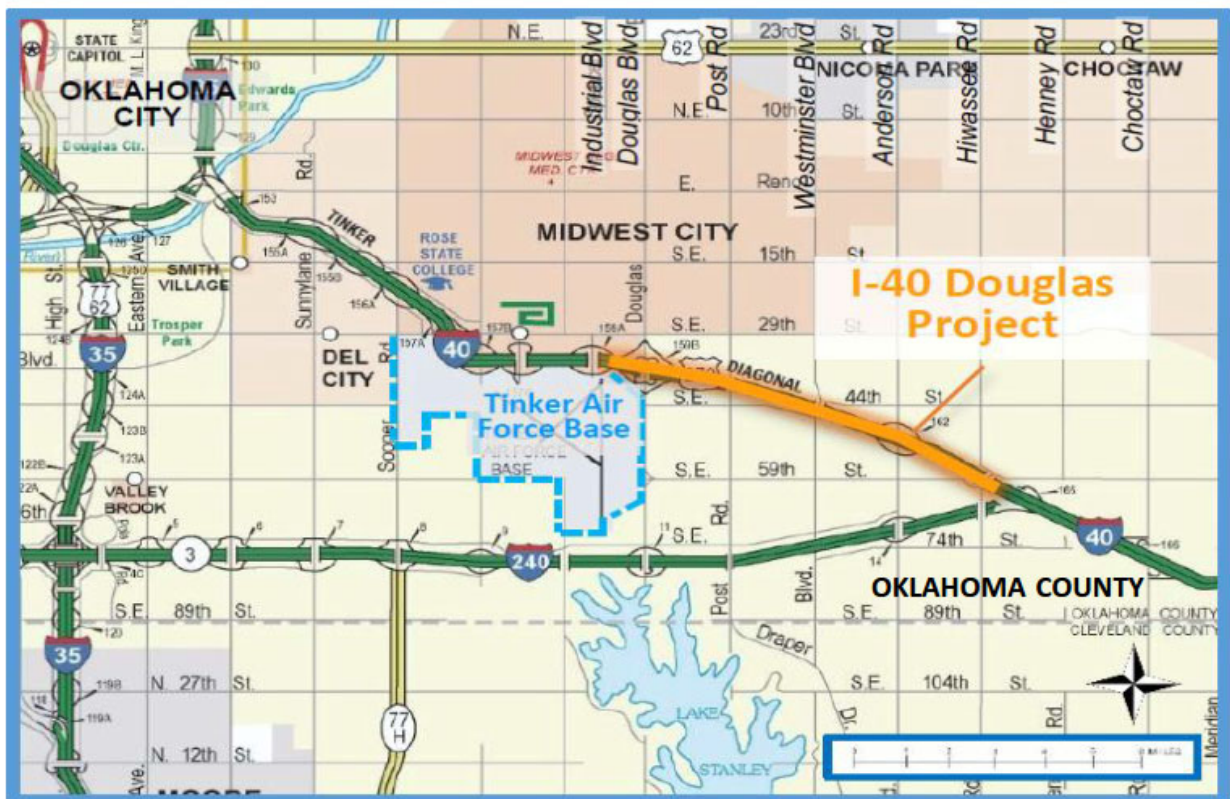


Figure 1: I-40 Douglas Interchange and Corridor Improvements Project Location

I-40 DOUGLAS BOULEVARD INTERCHANGE AND CORRIDOR IMPROVEMENTS

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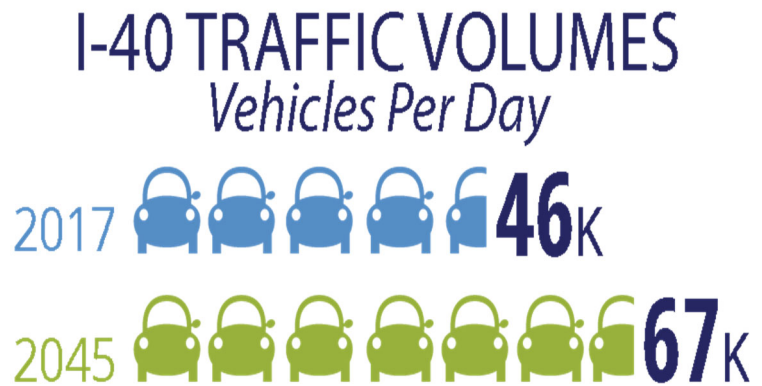
1.1. Project Summary

This Project includes the following specific improvements:

- Widen 6.3 miles of I-40 from four lanes to six lanes between Industrial Boulevard and the I-240 interchange
- Reconstruct Douglas Boulevard Interchange using a single point urban interchange (SPUI) design that maintains a similar footprint as the current cloverleaf, but with enhanced functionality and improved safety
- Add sidewalks on both sides of Douglas Boulevard across I-40, providing enhanced connectivity for non-vehicular modes
- Raise the existing bridge at Westminster Road and lower the I-40 mainline under Post Road to correct the substandard vertical clearances at these two locations
- Reconstruct the I-40 bridges over Anderson Road to accommodate the widened interstate and to increase vertical clearance
- Add acceleration and deceleration lanes in the vicinity of Anderson Road Interchange
- Widen the bridges on mainline I-40 over the westbound I-240 ramps at the I-40/I-240 Interchange to accommodate six through-lanes

1.2. Challenges and How the Project will Address Them

The current state of I-40 does not provide adequate mobility for the 45,960 cars and trucks it carries (east of Douglas Blvd.) **By 2045, daily traffic is expected to exceed 66,500 vehicles per day**, including regional traffic diverted by the newly-opened Kickapoo Turnpike. Without improvement, severe congestion is expected to occur along multiple segments of I-40, as well as at ramps during peak hours. This congestion is compounded by traffic on the local street network. Streets such as Douglas Boulevard and S.E. 29th Street carry tens of thousands of vehicles per day and affect mobility on I-40. Traffic on Douglas Boulevard in the vicinity of I-40 is expected to grow from 24,120 in 2017 to over 42,040 vehicles per day in 2045, an increase of 75%.



Reliability is a major problem along this corridor. There have been **over 1,200 recorded accidents** in the project area in the last ten years. High numbers of accidents cause multiple-lane shutdowns and ramp closures. During peak hours, local officials estimate that accidents close at least one lane of I-40 about once every three weeks.

The I-40 Douglas Project is designed to address the following concerns, described in more detail below: (1) state of good repair and geometric issues, (2) safety, and (3) inadequate capacity, leading to congestion and delay. All of these issues contribute to poor mobility and reliability in the corridor.

I-40 DOUGLAS BOULEVARD INTERCHANGE AND CORRIDOR IMPROVEMENTS

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Safety

Collision rates on the existing highway are **twice the state average** for a similar Interstate facility, averaging 2.5 collisions per week, with eight fatalities in the past 10 years. The interchanges at Douglas and Anderson have an average of 20 collisions per year. This is in part

due to inadequate acceleration and deceleration lane lengths at the Anderson Road Interchange, and tight ramp curves, short weaves, and the need for merge lanes at the Douglas Boulevard Interchange. In addition, there is congestion throughout the Project caused by inadequate capacity. The Project addresses these concerns by lengthening the acceleration and deceleration lanes, replacing the Douglas Boulevard Interchange with a new and more efficient design, eliminating weaving and adding one through driving lane in each direction on I-40 to reduce congestion-related accidents.

There is an average of OVER TWO ACCIDENTS PER WEEK in the project area

Capacity, Congestion, and Delay

Congestion and delay are a problem today and are projected to worsen with traffic expected to grow by 1.6% annually through 2045 due to increasing development in eastern Oklahoma County and throughout the region. Growth in national freight traffic along I-40 is also a contributing factor. The recent expansion of the Oklahoma turnpike system in eastern Oklahoma County is projected to add to this growth. The Kickapoo Turnpike opened to traffic in January 2021 and is expected to add over 2,000 vehicles per day to this segment of I-40, and 3,400 vehicles by 2045.

Under normal peak hour traffic today, the I-40 corridor has segments that operate at Level of Service (LOS) D (i.e., speeds below posted speed limit) or worse. Without improvement, **LOS F conditions** (i.e., traffic flow is irregular, and speeds vary substantially because of congestion) will result along most segments and ramps during peak hours. Delay reduces travel time and more importantly, especially for freight traffic, reliability. Freight businesses rely on predictable travel times to schedule their trips and unanticipated delays result in increased costs to the businesses and ultimately the consumers.

The Project will improve Level of Service from F to C in 2045

The Project addresses these concerns with its design of additional through-lanes (**Figure 2**). With these improvements alone, LOS analysis shows at peak traffic times 2045 LOS would be **improved from LOS F in the most congested segments of the corridor to a minimum of LOS D**. The problems related to

accident-caused delay will be dramatically reduced, as a single blocked lane would leave two lanes still open for traffic, and not just a single lane as is the case today.

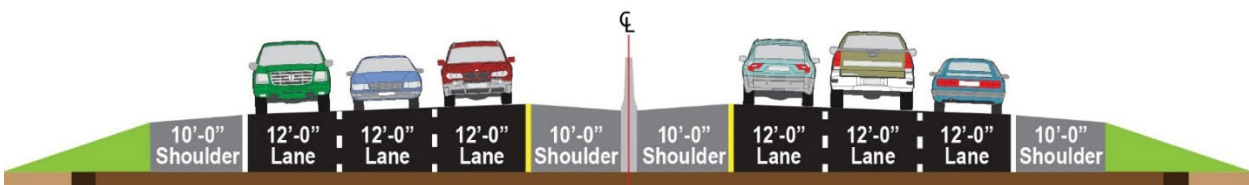


Figure 2: Proposed Typical Section for I-40

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Oklahoma City, Oklahoma

State of Good Repair and Geometric Issues

I-40 in the Project area, including the current I-40/Douglas Boulevard Interchange, was built in 1963 and is many years beyond its design life. The Douglas Boulevard Interchange is an outdated, functionally obsolete, and inadequate design for the level of traffic it now carries, and its **bridge structure is at risk** for becoming structurally deficient and needs to be replaced (**Figure 3**). Other bridges on the Project are too narrow, and most have **inadequate vertical clearance** compared to today's standards (**Figure 4**).

In addition to bridge deficiencies, there are roadway design concerns. For example, the close proximity of the existing Industrial Boulevard and Douglas Boulevard interchanges create multiple weave movements within a short distance, which pose safety and mobility concerns. In addition, the acceleration and deceleration lanes near the Anderson Road Interchange are of insufficient length and inadequate for the current levels of traffic, making it difficult for traffic to safely enter and exit I-40. This segment of I-40 has narrow (4-foot) inside shoulders, less than today's standards and leaving little room between through traffic and the median barrier.

The Project addresses these concerns by widening the inside shoulders, eliminating the east side ramps at Industrial Boulevard, replacing the Douglas Interchange, correcting the vertical clearances at Westminster Road, Anderson Road, and I-240, and by lengthening the acceleration and deceleration lanes at the Anderson Road Interchange. I-40 lanes under the Post Road Bridge will be lowered to provide adequate vertical clearance.

1.3. Project History and Related Projects

I-40 within the Project area was built over 50 years ago. There have been pavement overlays, but no other major improvements. In recent decades, development has spread east from downtown, causing congestion on this commuter route during peak hours.

This Project is part of a **long-term plan to widen I-40** through downtown and east to the Harrah-Newalla interchange at the eastern border of Oklahoma County (**Figure 5**). Over the last 15 years, ODOT and its federal partners have invested almost \$1 billion in I-40 from El Reno to the Pottawatomie County line. There are several projects on I-40 included in the long-range plans of ODOT and the Oklahoma City Metropolitan Planning Organization, the Association



Figure 3: Douglas Boulevard Bridge Deck



Figure 4: Substandard Vertical Clearance at Anderson Road

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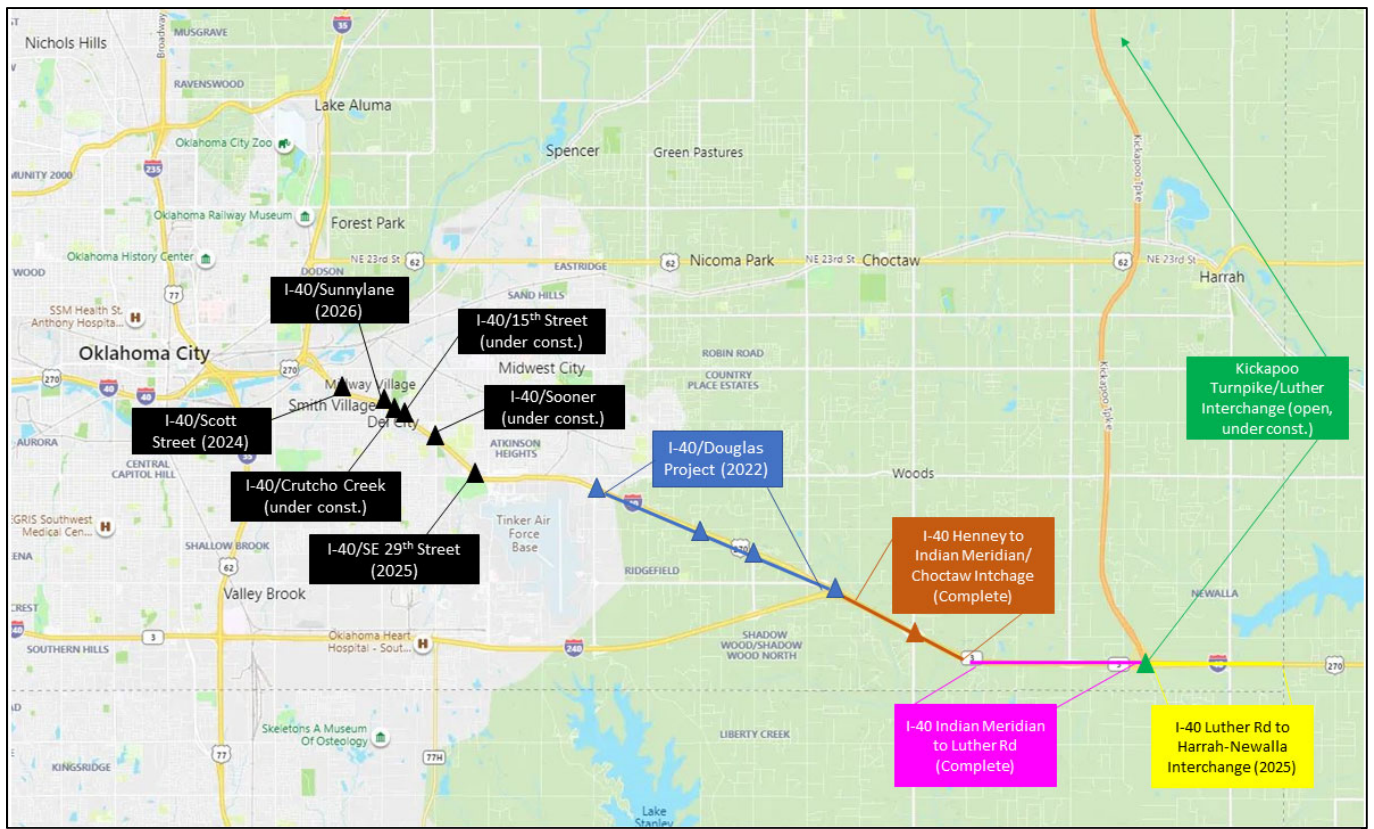


Figure 5: Projects in the I-40 East Corridor, Oklahoma County

of Central Oklahoma Governments (ACOG). ODOT's other high-cost projects to update and add capacity to I-40 east of downtown include widening the following segments:

- From the I-240 Interchange near Henney Road to Indian-Meridian Road, including Choctaw Road Interchange (complete)
- From Indian-Meridian Road to Luther Road (complete)
- New interchange at Luther Road for Kickapoo Turnpike (complete)
- Luther Road to the Harrah-Newalla Interchange (funded in FY 2025)

ODOT has also been working on a corridor study on I-40 from I-35 east to I-240, which encompasses the Douglas Interchange and related widening project presented in this application. The corridor study has looked at numerous alternatives for adding capacity and improving access within this 11-mile segment, which has a number of bridges with inadequate clearances, an undesirable number of access points, and two-way frontage roads with ramps suitable for one-way access that constrain mobility and contribute to accidents. ODOT recently awarded projects to replace the bridges at Crutcho Creek, 15th Street, and Sooner Road, and these projects have begun construction. Future projects are programmed for the bridges at Scott Street, SE 29th Street, and Sunnylane Road. Replacing these bridges will provide the needed clearance for future I-40 widening. These projects are illustrated on **Figure 5**.

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Kickapoo Turnpike Construction

The need for this Project is made more pressing given the traffic that has been and will continue to be added by the Kickapoo Turnpike as the additional lanes are completed and the turnpike is opened to its full four lane capacity (**Figure 5**). This 21-mile Turnpike extension, identified in the OTA's *Driving Forward OK* plan (<http://www.drivingforwardok.com/>), connects I-44 to I-40 five miles east of the I-40 Douglas Project. This project improve connections between the state's two largest cities (Tulsa and Oklahoma City), relieves traffic on I-35 and parallel state and local roads in eastern Oklahoma County, and provides a reliable, access-controlled, high-speed connection between I-44 and I-40. Without the Project, **each year of delay would worsen construction-related traffic impacts**, as traffic volumes will be 4% to 6% higher after the full Kickapoo Turnpike is completed, on top of yearly background growth of 1.3%.

2. PROJECT LOCATION

The Project is situated in southeastern Oklahoma County, ten miles east of downtown Oklahoma City (see **Figure 1 and 5**). It begins one-half mile west of the I-40 Douglas Boulevard Interchange at Industrial Boulevard in Midwest City, and continues 6.3 miles east to the I-240 Interchange. Latitude and Longitude for the Project are from approximately 35.404N, -97.2915W to 35.434N, -97.379W.

2010 Population: 861,505
2040 Population: 1,113,926

29% *growth*

The majority of the Project lies within the Oklahoma City Urbanized Area. As of the 2010 Census, the population of the urban area was 861,505. **Population and employment are expected to grow substantially over the next 20 years in this area¹.** Notably, Oklahoma County is estimated to grow by 29.3% (2010-2040), with employment increasing an expected 34.7% over the same period. Other communities along the Project (mapped in **Figure 1**) are also growing in terms of both population and employment. More

commuters are driving from eastern Oklahoma County to the growing number of jobs and other opportunities in Del City, Midwest City, and Oklahoma City. **The inability of the I-40 corridor to handle the growing demand negatively impacts business location decision-making and harms the competitiveness of manufacturers, agricultural producers, and Oklahoma's energy industry.** The I-40 Douglas Project is necessary to maintain the economy, ensure mobility for people and freight, and strengthen communities through job creation and increased access to Tinker AFB and Oklahoma City.

2.1. Connections to Existing Infrastructure

I-40 is part of the National Highway System and the National Highway Freight Network. Douglas Boulevard is a Principal Arterial, connecting residential areas to the north (e.g., Midwest City) to Tinker, and to I-40 into downtown. Douglas Boulevard carries 24,120 vehicles per day, a number expected to nearly double by 2045.

The Project's national and regional significance is illustrated in **Figure 6**, which projects the average daily freight traffic across the nation in 2040. **I-40 has one of the highest truck volumes in Oklahoma, almost 8,000 per day.**

¹ Source: Association of Central Oklahoma Government's (ACOG) *Encompass 2040* Metropolitan Area Plan, 2016.

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This includes over 6,900 through the Project segment (east of Douglas). The 2018-2022 Oklahoma Freight Transportation Plan indicates that I-40 is one of the top three “pass-through” routes in the state, with 76% of I-40’s truck miles passing through Oklahoma. The heaviest truck volumes occur in and around Oklahoma City, where I-40 converges with I-35 and I-44, illustrating the **national freight industry’s dependence on I-40**. Statewide, the estimated freight volume growth across all modes is 41.9% from 2015 to 2040. For trucking, expected volume growth is even higher at 52.4%.



Blue circle shows Project location. Source “Freight Facts and Figures 2015” USDOT BTS
Figure 6: 2040 Major Trucking Routes

2.2. Tinker Air Force Base

The Project is critical to the local economy not only for supporting freight movement, but because of its importance in bringing workers throughout the region to the major aerospace employment centers in and around the Project area. The Oklahoma City metropolitan area continues to attract residents with its low cost of living and good-paying job opportunities.

I-40’s Douglas Boulevard exit provides access to Tinker AFB, which employs more than 26,000 military and civilian personnel. The installation has an annual statewide economic impact of \$3.6 billion, stimulating an estimated 33,000 secondary jobs. While many planes are flown to Tinker for maintenance, the AFB ships and receives the bulk of its goods and supplies by truck. An aircraft maintenance facility was recently built for the KC-46 Pegasus aircraft, adding 1,300 more jobs.

3. PROJECT PARTIES

3.1. Project Sponsor (Grant Recipient)

The **Oklahoma Department of Transportation** is the Project sponsor and would be the grant recipient. ODOT will sponsor, manage, and provide oversight for this Project.

3.2. Key Supporting Stakeholders

The **Association of Central Oklahoma Governments (ACOG)** supports the I-40 Douglas Project (see [Oklahoma I-40 INFRA](#)). As the region’s metropolitan

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planning organization, ACOG is responsible for prioritizing critical transportation and transit needs. ACOG has developed the long-range Oklahoma City area Metropolitan Transportation Plan (“MTP”) *Encompass 2040*, which includes the I-40 Douglas Project.

Tinker Air Force Base, the major employer and freight receiver along this stretch of I-40, is working closely with ODOT in planning for the Douglas Interchange improvements. Recognizing the importance of the improved access to and from the base, Tinker has provided a letter of support for this Project.

Oklahoma County encompasses both the I-40 Douglas Project and the Kickapoo Turnpike project. Oklahoma County worked with ODOT to transfer some needed County property to ODOT for the project.

4. SOURCES/USES OF PROJECT FUNDS

In view of the importance of the Project, ODOT is submitting this request for **\$65,254,916** in INFRA funds for the I-40 Douglas Project (see **Table 1**). Over \$5.4 million has been expended as of the spring of 2021, leaving just over \$108.7 million in future eligible Project costs. The total cost for the Project is estimated at \$114,171,614 including environmental review, design, and construction. The Project cost includes a 4.8% contingency to cover unanticipated cost increases. None of the funds are subject to the limit on freight rail, port, and intermodal infrastructure. Further, both the state funding and any INFRA funding can be used to fund any and all components of the Project. As discussed in Section 5.4 below, 10% of the requested INFRA funding will be contingent upon meeting the schedule described in this application.

Table 1: Sources and Uses of Project Funds

Uses	Cost Estimate	INFRA Funds (60%)	Other Federal (0%)	State Funds (40%)
Engineering, Environmental, Design	\$5,313,422	<i>Pre-incurred (not part of grant application)</i>		
ROW and Utility Relocation	\$100,000	<i>Pre-incurred (not part of grant application)</i>		
Total Pre-Incurred Costs	\$5,413,422	<i>Pre-incurred (not part of grant application)</i>		
Reconstruct Douglas Blvd. Interchange	\$43,000,000	\$25,800,000	\$0	\$17,200,000
Raise Westminster Rd.	\$537,000	\$322,200	\$0	\$214,800
Anderson Rd. & I-240 bridges	\$12,230,000	\$7,338,000	\$0	\$4,892,000
I-40 Widening	\$48,000,000	\$28,800,000	\$0	\$19,200,000
Contingency (4.8%)	\$4,991,193	\$3,200,343	\$0	\$2,133,562
Total Future Eligible Costs	\$108,758,193	\$65,254,916	\$0	\$43,503,277
Total Project Costs	\$114,171,614			

The \$114.2 million Project cost would place a heavy burden on ODOT in the absence of an INFRA grant. As of the latest Eight Year Construction Work Plan (2021-2028), the remaining cost of this Project would amount to

approximately 70% of the yearly budget for ODOT District 4 (which averages \$163 million annually and is responsible for nine counties). Even spread out over three years, it would consume close to ¼ of the District's budget each year. Given the budget constraints, without the INFRA grant, the project would not begin construction until 2027 and would take many more years to complete, resulting in increased user costs in terms of delay and collisions in the interim. The project would have to be split into multiple construction packages, thereby increasing total project cost when considering costs of contracting and mobilization and creating more user delay and potential for collisions. **The Project cannot be easily and efficiently completed without other Federal funding or financial assistance.**

ODOT's Field District 4 (in charge of construction in this region) has set aside a portion of their allotted funding in recognition of the importance of this Project. **ODOT's 40% share is state funding and does not include federal funding sources.** A letter from ODOT assuring that the state has match funding available has been provided as part of this application. The cost estimates in **Table 1** are based on 90% engineering and recent experience with similar nearby projects and include a relatively small (4.8%) contingency. **Ongoing operating and maintenance costs will be paid for by ODOT.** The total anticipated costs of maintenance, rehabilitation, and repairs that will be required for the pavement and bridges within the Project is \$6.4 million over the next 25 years. See Section 5.6 for a more detailed description of the lifecycle costs. These costs are included in the BCA but are not part of this request.

5. MERIT CRITERIA

5.1. Criterion #1: Support for National or Regional Economic Vitality

This section demonstrates the Project's benefits to national and regional economic vitality. These benefits flow from the Project's **increased capacity, which reduces congestion and travel time delay, and increases travel time reliability.** Travel time reliability benefits quality of life and is an important element in business travel and freight movement, especially with demand for efficient "just in time" freight delivery, and truck driver "hours of service" rules. This section also covers the Project's safety benefits, because safety is important to the flow of commerce – the cost of accidents (reflected in higher insurance rates) is a tangible cost of driving. Additionally, collisions are one of the main causes of the lack of travel time reliability for this segment of I-40. State of Good Repair also affects safety and travel time reliability, as frequent repairs cause slowdowns in travel, and poor geometrics contribute to collisions.

5.1.1. Cost Effectiveness (Benefit Cost Analysis)

A formal benefit-cost analysis (BCA) was conducted following the latest USDOT BCA guidance (February 2021). It is important to note that a formal BCA is not a comprehensive measure of a project's total economic impact, as many benefits cannot be readily quantified or occur under conditions of uncertainty. The BCA restricted its analysis to the following quantifiable benefits:

- Reduction in the number of collisions and corresponding social costs and travel delay costs;
- Reduction in travel times for autos and trucks;
- Reduction in maintenance and operation costs over the long term; and
- Improvement in state of good repair with residual investment value.

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BCA Assumptions

The analysis was performed for a period beginning in 2019 and ending in 2045. The first year of full benefits is expected to be 2026, so that 20 full years of discounted benefits are considered in the BCA. It is noted that capital construction costs are anticipated to be distributed over the years 2023 to 2026 with the last payment installment taking place in December 2026. The monetized benefits and costs are estimated in 2019 dollars with future dollars discounted in compliance with INFRA requirements using a 7 percent real rate.

Results

Table 2 summarizes the cost and the quantifiable benefits of the Project in terms of Present Value. Federal guidance recommends that applicants discount future benefits and costs to present (2019) values using a real discount rate of 7% to represent the opportunity cost of money in the private sector. USDOT guidance also allows for present value analysis using a 3% discount rate as a sensitivity analysis.

Detailed analysis of costs and benefits, including data sources and methodology descriptions, are available in the BCA Technical Memo. As shown in **Table 2**, the present value of the Project's cost is \$78.3 million (using the 7% discount rate), and the benefits have an estimated present value of \$127.9 million. The resulting benefit cost ratio and net present value (NPV) are 1.61 and \$49.6 million respectively. With a 3% discount rate, the benefit cost ratio and NPV are 2.49 and \$146.4 million.

Table 2: Benefit Cost Analysis Summary (\$2019)

Project Evaluation Metric	Undiscounted	Present Value at 7% Discount Rate	Present Value at 3% Discount Rate
Total Benefits	\$414.1	\$127.9	\$242.3
Total O&M Costs	\$6.4	\$1.5	\$3.3
Total Construction Costs	\$112.3	\$78.3	\$95.8
Net Present Value	\$301.8	\$49.6	\$146.4
Benefit / Cost Ratio	3.63	1.61	2.49
Internal Rate of Return (%)		12.5%	

BENEFIT COST ANALYSIS RESULTS

1.61 Benefit / Cost Ratio

at the **7%** Discount Rate

2.49 Benefit / Cost Ratio

at the **3%** Discount Rate

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Safety Benefits

Increasing roadway safety is an important priority for ODOT. The Project introduces several roadway enhancements that increase safety and mobility. Collisions along this stretch of I-40 (outside of the interchanges) occur at a high rate, with over 1,200 collisions between 2009-2018, an average of more than two collisions each week (**Table 3**). The overall collision rate on this segment of I-40 is **53% higher than the statewide average**, and the collisions involving injuries and/or fatalities are 19% higher.

Evidence points to high traffic volumes and congestion as a factor in the high collision rate along the mainline lanes. Relieving peak hour congestion by increasing capacity will reduce many of these collisions. The crash mitigation factor (CMF) for adding an additional 12-foot lane suggests a 74% drop in the collision rate. Collisions at the interchanges will also be reduced by adding acceleration and deceleration lanes and eliminating weave movements. The CMFs used for the Project are discussed in the Benefit-Cost Analysis Tech Memo. The Access Justification Report (AJR) prepared for the Douglas Interchange utilized FHWA's Interactive Highway Safety Design Model (IHSDM) and had similar findings, i.e. interchange improvements would reduce collisions by approximately 25%.

Safety benefit impacts were estimated based on the number of accidents, by type, expected under No-Build versus the Build scenario and monetized using the social values of accident cost by type recommended by USDOT. Results suggest a **\$59.0 million dollar safety benefit** (discounted at 7%) over the life of the Project.

Table 3: Collision Statistics 2009-2018

Collisions I-40, Douglas Boulevard to I-240 (including interchanges)	
Fatal collisions	8
Total fatalities (persons)	8
Serious injury collisions	48
Other injury collisions (incl. possible injury)	301
Property damage only collisions	874
Total Collisions	1,231

Source: ODOT Collision Analysis & Safety Branch

**Estimated Safety Benefit of the Project
(Discounted 7%):**

\$59.0M

Travel Time Savings

Travel time savings and improved reliability will result from the widening of I-40. As explained above, increased capacity has two benefits: reduced peak hour congestion, and additional room for traffic when lane-blocking accidents occur. Travel time savings are a significant benefit to this Project, with travel speeds projected to increase by over 37 miles per hour above No Build speeds on westbound in the AM peak. Interchange delay is also

**Estimated Travel Time Savings Benefit of
the Project (Discounted 7%):**

\$44.5M

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projected to improve, with future annual vehicle delay decreased 227 vehicle hours in the AM and 117 vehicle hours in the PM over the No Build. Results suggest a benefit of **\$44.5 million in travel time savings** (discounted at 7%) over the life of the Project.

The Project responds to the continuing growth in commuter traffic and freight movement by expanding the facility from four to six lanes. Traffic analysis shows that with one lane closed on the existing four-lane I-40, mainline speeds between Anderson Road and Douglas Boulevard are near zero (break down conditions) when traffic exceeds 1,500 vehicles per hour per direction. Current peak hour traffic is double this threshold in both the AM (eastbound) and PM peak (westbound). By comparison, a similar closure would meet the current AM demand and maintain a travel speed of 50 mph and current PM demand would approach capacity but not without the drastic spillback.

Agency Cost Savings

The existing I-40 pavement and Project structures are now well beyond their design life span. Without replacement they will require extensive maintenance and repairs to ensure that they are in a condition suitable for operations. If the Project is built, these expenditures will be eliminated, resulting in savings to ODOT. (Note that operations and maintenances costs of the Project under Build are captured separately under project costs). Based on the lifecycle costs of the Build and No Build scenarios, the Project is expected to realize over **\$12.2 million in maintenance savings** (discounted at 7%) over the Project life.

***Estimated Maintenance Savings of the
Project (Discounted 7%):***

\$12.2M

Environmental Sustainability

The Project will contribute to environmental sustainability by reducing congestion within the project vicinity and improving access. Improved travel times, reliability, and safety within the corridor will contribute to a greater overall quality of life for users. See Section 5.2 for additional discussion of environmental sustainability measures included in the Project.

Summary of BCA Analysis

Table 4 below provides the monetary estimates of the quantified and monetized benefits of this project. Note that project benefits include the residual value of structures renewed or replaced under this Project.² The table shows that **total project benefits amount to \$127.9 million** in 2019 dollars discounted at 7%. Accident cost savings account for the largest share of benefits at \$59.0 million (or 46 percent of total) followed by travel time savings at \$44.5 million (\$29.0 on I-40 mainline, \$15.5 on interchanges, or 35 percent of total) and agency cost savings at \$12.2 million (10 percent of total).

² Residual value was calculated with respect to structures (i.e. excluding expenditures on engineering and design), assuming a design life of 60 years and a straight line depreciation.

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Table 4: Summary of Project Benefits; Millions of 2019 Dollars

Benefit Categories	Over Project Lifecycle		
	Undiscounted	Present Value at 7% Discount Rate	Present Value at 3% Discount Rate
Reduction in Accident Costs	\$172.2	\$59.0	\$105.9
Travel Time Savings - Mainline	\$93.6	\$29.0	\$55.1
Travel Time Savings - Interchanges	\$45.9	\$15.5	\$28.1
Emissions Costs	-\$0.07	-\$0.06	-\$0.05
Residual Value	\$71.1	\$12.2	\$33.0
Agency Cost Savings	\$31.4	\$12.2	\$20.3
Total Benefits	\$414.1	\$127.9	\$242.3

5.1.2. Other Benefits Supporting Economic Vitality

There are other benefits to the project that are not as easily quantified as those presented in the BCA, including creation of good-paying jobs, improvements to the regional and national freight networks, congestion relief and travel time reliability, and state of good repair.

Employment Benefits

In the short term (over the 2023-2026 construction period), the project will provide good-paying jobs to residents. At the peak in 2024, **over 600 people are estimated to be working on the Project**. In the long-term, this Project enhances access to existing good-paying jobs in the region, most notably at Tinker AFB. The Project will help secure future jobs in the shipping industry nationwide, as well as improving the competitiveness of the many industries that rely on trucking, both in-state and outside of Oklahoma.

Freight Mobility

Figure 7 illustrates that I-40, and the project corridor in particular, play a key role in the freight network of Oklahoma and the south-central U.S. I-40 is part of the national Primary Highway Freight System, and improvements to this corridor will reduce congestion on this key freight corridor – which enhances access to markets and contributes toward

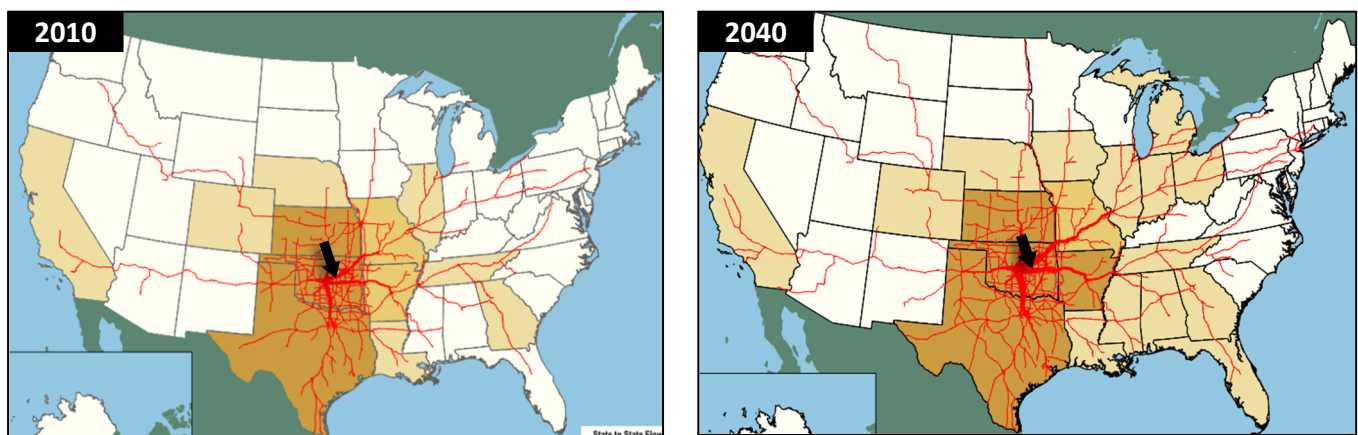


Figure 7: Major Truck Flows To, From, and Within Oklahoma

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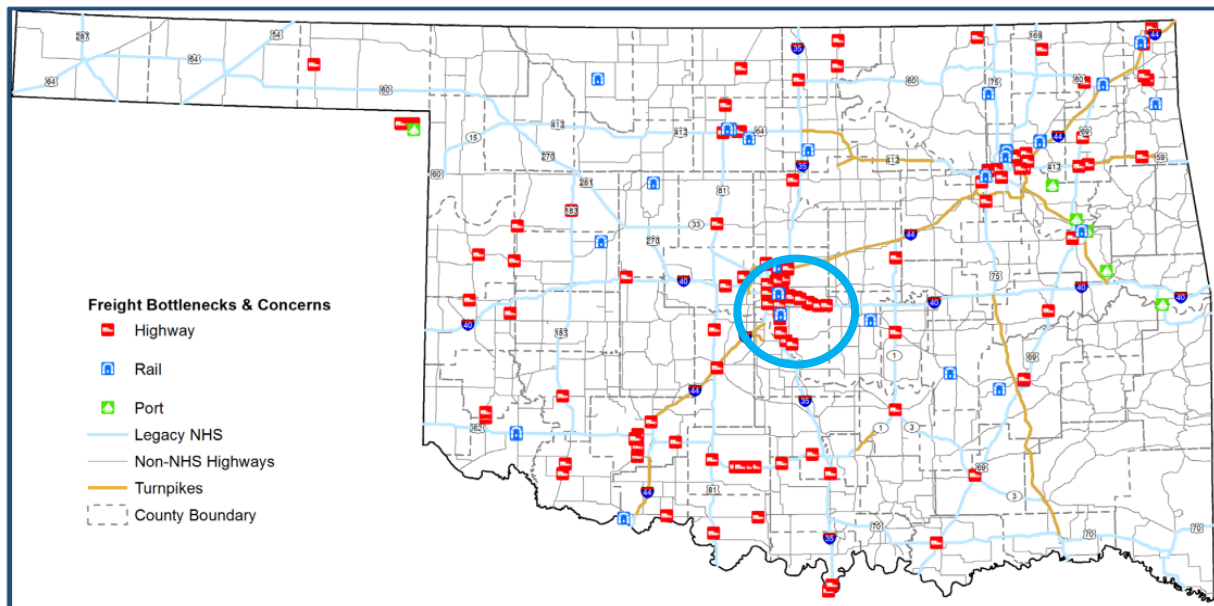
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the region’s and nation’s economic competitiveness. Oklahoma freight flows are primarily through the state; and thus improvements on this segment of Interstate will benefit shipping and goods movement effort nationwide.

According to the *2018-2022 Oklahoma Freight Transportation Plan*, freight traveling by truck in Oklahoma totaled 473 million tons in 2015, which represents 58% of all freight tonnage transported in the state and 67% of the total freight value. The majority of the remainder travels by rail. Truck freight is particularly dominant in the east-west direction, as none of the main east-west railroads pass through Oklahoma. I-40 in the western half of the state carried over 90 million tons in 2015, or close to 8,000 trucks per day, with trucks accounting for more than 40% of total traffic on some segments.

I-40 West of I-240 Carried Over:
90M tons
of Freight in Oklahoma in 2015

In a stretch of over 40 miles from El Reno, OK through Oklahoma City to the new Kickapoo Turnpike, there are only 8 miles with 4-lane capacity, including the current 5.5-mile Project. With only two lanes in each direction today, the Project section of I-40 backs up for hours when an accident blocks a lane during peak hours, which occurs approximately every three weeks. This greatly reduces I-40’s reliability east of Oklahoma City, as indicated by the map of freight stakeholders’ top concerns (**Figure 8**). The Project’s three lanes in each direction will double the current capacity when an accident blocks a lane (two lanes of moving traffic compared to just one). Analysis of traffic volumes indicate that the additional lane should greatly diminish accident-related delay.



Source: OK State Freight Plan *Highway Bottleneck Analysis Technical Report*, 2017

Figure 8: Stakeholder-Identified Freight Concerns, showing the Project Area

There is also potential for this segment of I-40 to become a bottleneck between the wider sections in downtown Oklahoma City to the west, and the sections to the east that were recently widened to six lanes in anticipation of the

Kickapoo Turnpike. The Project would widen I-40 to six lanes to tie in with the six-lane section to the east, including the recently completed I-40 & Choctaw Road interchange approximately 1 mile east of I-240. ODOT is currently studying alternatives to provide additional capacity to the west.

Congestion and Reliability Impacts

In addition to the monetized travel time savings, the higher speeds and increased reliability along the corridor provided by the project imply that trucks spend less time on the road and can reach their destinations faster. The delivery times will lead to inventory cost savings, which are important to improve connectivity between production and consumption sites and to increase the fluidity of the movement of goods. Inventory cost savings were not monetized as part of the BCA. A commonly used measure of trip time reliability is the buffer index, which is simply the additional time required to make the trip compared with uncongested conditions. Given that crashes and incidents can add to these times, these “buffers” indicate a current high degree of future trip unreliability.

State of Good Repair and Geometrics

The project will replace five bridges all of which are over 50 years old. The bridge on Douglas Blvd. over I-40 is at risk of becoming structurally deficient, while the remaining four bridges are functionally obsolete and have insufficient vertical clearances. Replacing these bridges will not only address these issues but will provide renewed infrastructure with improved geometrics that will benefit traffic operations, safety, and maintenance for decades to come.

The substandard geometry and inadequate capacity on I-40 in the Project area cause delays and accidents. Problems include a paved inside shoulder of four feet (the standard is ten feet). Ramps at the Douglas Boulevard Interchange are tightly curved, with 25 mph speed limits. The weaving section is short as well. Acceleration and deceleration lanes at both the Douglas and Anderson interchanges are too short.

The Project will pave ten-foot median shoulders and lengthen the acceleration and deceleration lanes. The new SPUI interchange design eliminates loop ramps and tight curves at Douglas Boulevard, and removes the weaving section where traffic entering I-40 or Douglas Blvd. must cross traffic exiting the highway. The SPUI separates these two movements. Improved geometrics will improve safety as well as travel times and reliability in the corridor.

5.2. Criterion #2: Climate Change and Environmental Justice Impacts

The Project has incorporated climate change and environmental justice in both planning and design. ODOT utilized the U.S. Census American Fact Finder during preparation of the NEPA document to assess the presence of, and impacts on, environmental justice populations. Analysis identified the presence of some minority and low-income populations in the study area, although overall percentages were small. No disproportionate high or adverse impacts to minority or low-income populations were identified. According to **EPA’s EJSCREEN tool**, the low-income populations are generally west of Douglas Boulevard, the highest proportions of which are associated with Tinker AFB and the neighborhoods west of Air Depot Blvd (**Figure 9**). Up to 45% of the population in this area is considered low-income. The presence of minority and low-income populations decreases to the east towards I-240.

In terms of design, the project includes elements that will reduce climate change impacts. Specifically, the project includes two 6-foot-wide sidewalks on either side of the new Douglas Boulevard bridge over I-40 with signalized

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Figure 9: EPA EJSCREEN Results

access to facilitate crossings. These sidewalks will provide pedestrian, bicycle, and wheelchair access where none currently exists, providing **opportunity for some vehicle trips to shift to non-vehicular modes**.

The Project will also **reuse the existing bridge** on Westminster Road over I-40 rather than building a new bridge. Raising the bridge will accommodate six lanes of traffic on I-40 and maintain appropriate vertical clearance, without having to build an entirely new structure. The slab span bridges are in good condition and structurally sound and do not otherwise need to be replaced. The benefits of this innovation are the **cost and schedule savings of preserving much of the existing bridge, and energy savings over building a new bridge and disposing of the old one**. Impacts to the traveling public are greatly reduced over a traditional bridge replacement. The Project also offers opportunity to **recycle existing materials**. Contractors may re-use the existing pavements that will be removed during construction as base material for new pavement.

Outside of project-specific planning and design, the I-40 corridor supports other climate change reduction technologies. Importantly, this Project is one of the nation's designated **Alternative Fuel Corridors**. In 2016 the FHWA established the first segments in a national network of alternative fuel corridors, along which drivers are assured a consistent supply

Raising instead of replacing the Westminster bridge will result in cost, time, and energy savings

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of stations providing alternative fuel. Thanks to years of proactive efforts by Oklahoma’s state and local governments, the entire statewide length of I-40 (along with I-35 and I-44) is now recognized by FHWA as a compressed natural gas (CNG) corridor. Oklahoma recently achieved its goal of having at least one CNG fueling station for every 100 miles of Interstate. There are now more than 20 CNG stations along the 331 miles of I-40 in Oklahoma.



I-40 is also an **Electric Vehicle corridor, designated as “EV-Ready”**. I-40 has eight electric charging stations today, including two Tesla “Superchargers.” Most of these facilities are near Oklahoma City, and more are planned elsewhere along I-40. There are several EV charging stations in the immediate vicinity of the Project, including at the OnCue Express at Douglas and I-40.



Figure 10: Transporting a Wind Turbine Tower Component

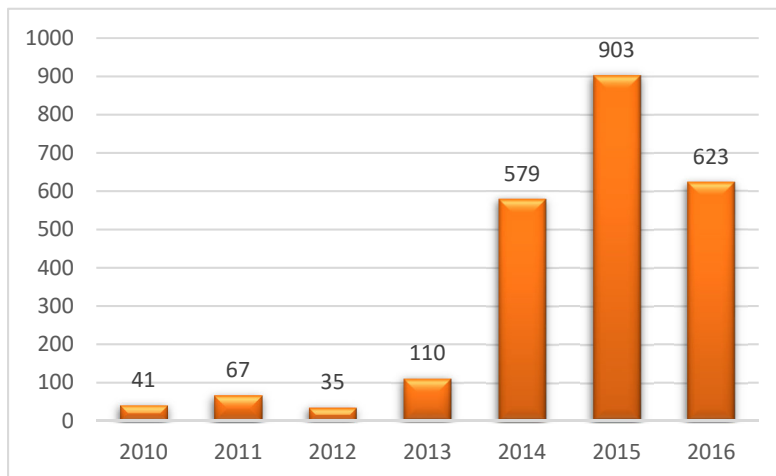


Figure 11: Oklahoma Earthquakes, 2010-2016

The Project also serves the **renewable energy supply chain**. I-40 is used for the transport of renewable energy components, particularly wind turbines and towers. These loads are often oversized and overweight and are restricted to certain times of the day on the interstate (**Figure 10**). Widening the interstate and increasing vertical clearance under bridges will enhance the ability to transport these important renewable energy components.

Finally, the Project will **enhance Oklahoma’s disaster preparedness and response**. I-40 serves Oklahoma National Guard units stationed at Tinker AFB, and improvements to I-40 will streamline deployments statewide. The new bridges will be designed to withstand seismic events that are becoming more frequent in the state (**Figure 11**). To address this risk and increase preparedness, ODOT recently released a new software program called ShakeCast. Previously, following a seismic event, ODOT crews were checking all bridges within a pre-determined radius of an earthquake’s epicenter, resulting in many unneeded inspections. Using bridge and seismic data, ShakeCast automatically generates a priority order for bridge inspections

after an earthquake based on several factors including bridge condition, age, and proximity to an earthquake’s epicenter, seismic movement data and magnitude rating. ShakeCast provides ODOT with immediate earthquake detection and a plan to mitigate the safety risks in a prioritized manner.

5.3. Criterion #3: Racial Equity and Barriers to Opportunity

ODOT has internal equity and inclusion programs related to project procurement for both pre-construction and construction projects. All federally funded projects are subject to Disadvantaged Business Enterprise (DBE) goals to provide full and meaningful participation in the process of transportation design construction. ODOT hosts ongoing training sessions for DBE firms to provide guidance and opportunity, including an annual DBE & Contractors’ Conference. ODOT offers community outreach to encourage individuals from underrepresented groups to apply for training in the construction industry.

ODOT’s public involvement program is also equity-focused. All projects are investigated for the potential to affect low-income and minority populations. For those projects where these communities are identified, specific targeted methods are

***ODOT’s Public Involvement Program
is Equity-Focused***

identified to ensure they have enhanced opportunity to participate in the project. These methods may include the formation of advisory committees representing these communities, and special meetings at minority churches or other facilities. ODOT endeavors to make project materials widely available through all media, including door to door, mail, internet, community facilities, and local businesses. In part as a response to the COVID-19 pandemic when door to door delivery of materials became impossible, ODOT turned to the US Postal Service’s Every Day Direct Mail to deliver project pamphlets to surrounding neighborhoods. Translated materials are provided when limited English proficiency is identified.

***Proposed sidewalk will enhance
safety and connectivity for non-
vehicular transportation***

The Project will provide a pedestrian/bicycle/wheelchair accessible sidewalk across the physical barrier of I-40. This sidewalk will provide increased mobility for individuals without access to vehicular transportation. A trail along Douglas Boulevard is on the City of Midwest City’s Master Trail Plan to provide additional connectivity within the city. The sidewalk will

provide a safe, protected crossing for pedestrians, bicycles, and wheelchairs, whereas the current cloverleaf layout precludes these movements. This will assist in reversing the disproportionate impacts of crashes on people of color, and mitigation neighborhood bifurcation. Finally, the Project will enhance mobility and access freight access to Tinker AFB and the surrounding area, potentially enhancing economic development and job opportunities for the local community.

5.4. Criterion #4: Leveraging of Federal Funding

As shown in Section 4, this Project will be completed using 40% state funds and 60% federal INFRA funds. ODOT has provided a Certification Statement that the Department has the funds available to provide the promised local match. No other federal funding will be used. This amounts to **double the minimum required non-federal match**

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for this Project. As described in Section 4.2, the cost of this project is almost three-quarters of the annual budget for the nine-county ODOT District in which it is located, and the Project cannot be easily and efficiently completed without other Federal funding or financial assistance. ODOT’s 8-Year Work Plan is a fiscally constrained plan that allocates federal and state funds to projects statewide. ODOT updates its 8-Year Work Plan annually to ensure that state funds are responsibly and realistically allocated so that they will remain a stable, dependable source.

5.5. Criterion #5: Potential for Innovation

5.5.1. Innovation Area #1: Technology

The Project corridor already carries fiber optic cable for broadband access and ITS infrastructure in the form of dynamic message boards. The potential for additional technological innovation lies in the use of existing infrastructure. The existing dynamic message boards will be available for use during construction to provide motorists **real-time information regarding lane and/or bridge closures and congestion** (see **Figure 12**). Use of these systems as well as variable speed limit systems can increase driver compliance with displayed speed limits and improve work zone safety. Dynamic message signs are also used to **warn travelers of adverse weather conditions**.

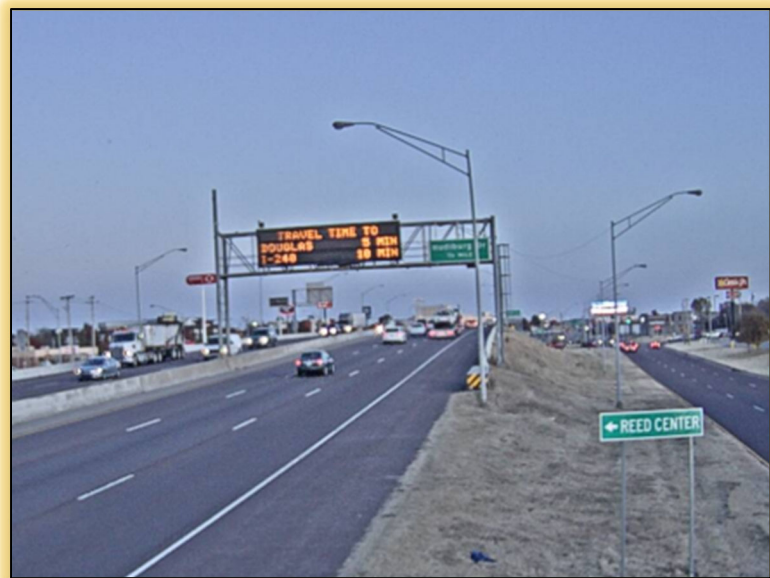


Figure 12: Dynamic Messaging Sign on Eastbound I-40

5.5.2. Innovation Area #2: Project Delivery

Agency Liaisons: ODOT has designated representatives at the US Fish and Wildlife Service and at the US Army Corps of Engineers that process only ODOT projects. ODOT can direct these liaisons to prioritize projects as needed. ODOT also utilizes a Programmatic Agreement with FHWA and the Oklahoma State Historic Preservation Officer to process Section 106 reviews on behalf of FHWA for certain projects. ODOT completed the NEPA and Section 404 permitting for the Project using these agency liaisons.

Warm Mix Asphalt: ODOT plans to use warm-mix asphalt (WMA) on this Project, a method described in FHWA’s **Every Day Counts initiative**. WMA can be successfully placed in cooler weather, extending the paving season and making night work more feasible. WMA is also a compaction tool, improving pavement performance and reducing time and labor spent compacting the mix. WMA also reduces worker exposure to fuel emissions, fumes, and odors both at the production plant and on the construction site.

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Environmentally Friendly Design: ODOT supports recycling of old pavement into new base material. Depending on the contractor, this can be accomplished on site and would reduce both the amount of waste material and the associated transportation costs of removing it.

Safety-Oriented Design: The AJR for the Douglas Blvd. interchange utilized FHWA's **Interactive Highway Safety Design Model (IHSDM)**, part of the agency's Data-Driven Safety Analysis initiative, as a tool for collision prediction. The IHSDM showed that the interchange improvements will decrease collisions by 25%, supporting one of the primary goals of the Project to increase safety. With a SPUI design, vehicles will cross Douglas Blvd. at only one location, and will not have the multiple weaves and diverges without sufficient acceleration distances associated with the existing cloverleaf design. Combined with the separated and protected sidewalk, the new interchange geometrics will improve safety for all users and will provide an ADA-compliant crossing of I-40.

IHSDM analysis predicts the Douglas Boulevard interchange improvements will reduce collisions by 25%

5.5.3. Innovation Area #3: Financing

ODOT has a practice described in State statute (Oklahoma Statutes, [Title 69, O.S. 2016 § 1001-1004](#)) from the **sale of excess or unused publicly owned land or assets** through authorization by the State Transportation Commission and managed through ODOT's Facilities Management Division. By statute the recycled funds from the sale of land or equipment is deposited in the State Highway Construction and Maintenance Fund. These funds remain dedicated to being used toward design, permitting, construction or maintenance of authorized and programmed highway and bridge projects, and cannot be reallocated by the State legislature. Should the INFRA grant be awarded these recycled funds would be available for use as a portion of the State's matching funds.

In 2018, the Oklahoma State Legislature enacted House Bill 1010, which raised the state's motor fuel taxes on gasoline and diesel by three and six cents per gallon, respectively. According to the Oklahoma Tax Commission, the increased gasoline tax was estimated to generate \$52.0 million annually and the increased diesel tax was estimated to generate \$53.0 million annually. A combined 95.5% of these revenues are credited to the Rebuilding Oklahoma Access and Driver Safety (ROADS) Fund created under Title 69, Section 1521, Oklahoma Statutes (Oklahoma Tax Commission, 2018).

House Bill 1014 of 2018 reduced general-purpose tax revenue to ODOT by the amounts attributable to the House Bill 1010 tax increases and redirected certain Oklahoma Vehicle License and Registration Act revenues from the General Revenue Fund to the ROADS Fund. The net impact of House Bills 1010 and 1014 was to increase state revenue to ODOT generated from the ownership or operation of a motor vehicle by \$194.0 million per year, and to reduce transfers of general purpose state revenue to ODOT by the same amount. (Oklahoma Tax Commission, 2018).

5.6. Criterion #6: Performance and Accountability

ODOT uses incentives in contracts to achieve project milestones and will use these on the Project to reduce construction time and stay within Project timelines.

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Life Cycle Costs

INFRA funding is only sought for Project construction. ODOT is responsible for operations (mowing, pot-hole patching, etc.), as well as for future maintenance and rehabilitation of the project. As shown in **Table 5**, if the Project is not implemented, the costs of maintenance, rehabilitation, and repair that will be required are estimated at \$32 million over the next 20 years. This is compared to just under \$124 million for the Project, including capital and maintenance costs. ODOT has considered the impact of climate change on the plan, with potential increased maintenance costs due to extreme weather events. ODOT has an approved **Transportation Asset Management Plan (TAMP)** that also considers the risk of climate change impacts such as extreme weather. The TAMP dedicates funding to improving surface conditions, rehabilitating bridges, and providing access improvements. This Plan is in addition to budgeted routine maintenance funds.

Accountability: ODOT is willing to agree to meet the specific construction start and completion dates of November 30, 2022 and December 31, 2025 as described in this application. Completion is defined as open to traffic. ODOT understands that if these dates are not met the Project will be **subject to forfeit or return of up to 10% of the awarded funds.**

***ODOT will be Accountable for the
Construction Schedule of the I-40/Douglas
Interchange Project***

Table 5: Lifecycle Costs, No-Build and Build Alternatives (\$2020)

Year	No-Build				BUILD		
	Maint & Rehab Costs for I-40	Bridge Rehab Costs	Bridge Damage repair	TOTAL	Capital Costs	Maintenance	TOTAL
2020							
2021							
2022							
2023					19,420,998		\$20,277,880
2024					31,123,598		\$33,530,880
2025					35,636,598		\$39,173,380
2026	5,500,000	2,000,000	100,000	7,600,000	22,576,998	1,000,000	\$25,563,380
2030	5,500,000	1,000,000	100,000	6,600,000			
2035	5,500,000	1,000,000	100,000	6,600,000			
2040	5,500,000		100,000	5,600,000			
2045	5,413,422		100,000	5,513,422		5,413,422	\$5,413,422
TOTAL	\$27,413,422	\$4,000,000	\$500,000	\$31,913,422	\$108,758,192	\$6,413,422	\$123,958,942

6. PROJECT READINESS

6.1. Technical Feasibility

This project has been in development since 2015 and has been extensively studied. Design plans are now 90% complete, and the NEPA documents and Access Justification Report (AJR) have been approved by FHWA. All right-of-way needed for the project has been acquired and utility relocations have begun. The detailed statement of work is as follows:

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- Widen 6.3 miles of I-40 from four lanes to six lanes between Industrial Boulevard and the I-240 interchange. The existing pavement will be replaced with new asphalt, and inside shoulders will be widened to 10-foot per current standards. Median barrier will be used to separate the east and westbound lanes.
- Reconstruct Douglas Boulevard Interchange using a single point urban interchange (SPUI) design that maintains a similar footprint, but with enhanced functionality and improved safety. This includes removal of the existing out-of-service bridge at Engle Road, and removal of the east side ramps and associated short distance weaves at Industrial Blvd.
- Adds 6-foot separated sidewalks on both sides of Douglas Boulevard over I-40.
- Raises the existing bridge at Westminster Road approximately one foot to correct the substandard vertical clearance. This innovate technique will allow for widening of I-40 under the existing bridge.
- Lowers the profile of I-40 under Post Road to achieve sufficient vertical clearance.
- Reconstructs the I-40 bridges over Anderson Road with a single 117-foot-wide prestressed concrete beam bridge to accommodate the widened interstate and to increase vertical clearance.
- Adds acceleration and deceleration lanes in the vicinity of Anderson Road Interchange.
- Widens the bridges on mainline I-40 over the westbound I-240 ramps at the I-40/I-240 Interchange with a single 117-foot-wide prestressed concrete beam bridge to accommodate six through-lanes on I-40.

Detailed plans for the Project have been provided, along with the detailed budget and schedule. Contingency and basis of cost are discussed in Section 4.

6.2. Schedule

With environmental approvals and permits in place and preliminary engineering 90% complete, **all pre-construction activities, including final PS&E plans and utility relocations, will be completed by June 2022.** All needed right-of-way has been acquired. ODOT’s timeline assumes an award for the I-40 Douglas Project to be **obligated in June of 2022**, well before the September 30, 2024 deadline. The Project is scheduled to **begin construction in November 2022**, within 4 months of INFRA obligation, with completion of all construction by December 2025. The schedule chart shows major milestones; a detailed Project schedule has been provided, along with 90% Project plans, and approved environmental documents and AJR. A summary of that schedule is shown in **Figure 13**.

Activity	2020	2021	2022	2023	2024	2025
NEPA	■ ●					
Utility Relocation		■ ●				
Final Engineering (PS&E)	■ ●					
Funding Obligation			●			
Construction - Douglas Interchange				■ ●		
Construction - Bridge Work				■ ●		
Construction - I-40 Mainline				■ ●		

Figure 13: Project Schedule

Given the advanced progress of the plans and the approved environmental documents and permits, risks to this schedule are low. Given that ODOT is two years ahead of the statutory schedule required for INFRA funding, even a

substantial delay would not put the funds at risk of expiring before they are obligated.

6.3. Project Approvals and Coordination

6.3.1. Environmental Permits and Reviews

NEPA Approval

For NEPA purposes, the Project consists of two distinct components, each with a separate, approved NEPA document: the Douglas Boulevard Interchange reconstruction (approved 9/22/2020), and the widening of I-40 (approved 1/12/2018). These documents have been provided with this application.

Reviews, Approvals, and Permits from Other Agencies

ODOT intends to use Section 404 Nationwide Permit 14 for the Project. The pre-construction notice (PCN) has been provided with this application. No other permits will be required.

Environmental Studies

Environmental studies for the project have been completed and approved by the relevant agencies. These studies do not indicate significant environmental impacts as a result of the Project.

Discussions with FHWA

Discussions with the Oklahoma Division of FHWA have resulted in approval of the project NEPA documents and AJR.

Public Engagement

ODOT began the stakeholder engagement process in 2015. The initial public meeting for the Interchange took place on January 17, 2017, and on February 21, 2017 for the roadway element. The public comments on the Interchange component generally expressed support for a particular alternative, and for the Project as a whole. The SPUI alternative received the most public support of the three alternatives presented. ODOT notified the public of the selected alternative for the I-40/Douglas interchange via mail and a website update in July 2020. This information can be found at: [20170117 \(oklahoma.gov\)](https://www.oklahoma.gov/20170117).

Public comment on the I-40 widening expressed concern for safety, and requests to add a lane to the Anderson Boulevard on-ramps, but no controversy was noted. Information on this public meeting and the comments received can be found at [20170221 \(oklahoma.gov\)](https://www.oklahoma.gov/20170221). As the Project progresses into construction, ODOT will be proactive in keeping the public informed of road closures or other changes in traffic patterns.

6.3.2. State and Local Approvals

The Project is included in the current ACOG Metropolitan Transportation Plan, *Encompass 2040*. The Project is also consistent with the 2015-2040 Oklahoma Long Range Transportation Plan (LRTP). The support for this Project is indicated by the wide range of letters, provided with this application, including Oklahoma's entire Congressional Delegation. The Greater Oklahoma City Chamber of Commerce particularly notes the vital importance of safety, mobility, and access to Tinker and the surrounding aerospace businesses. The corridor is of daily importance to employment, commerce, education, medical care, and safe travel. Any required state and local approvals are expected to be quickly and easily obtained. **ACOG supports the project and will add the Project into the TIP**

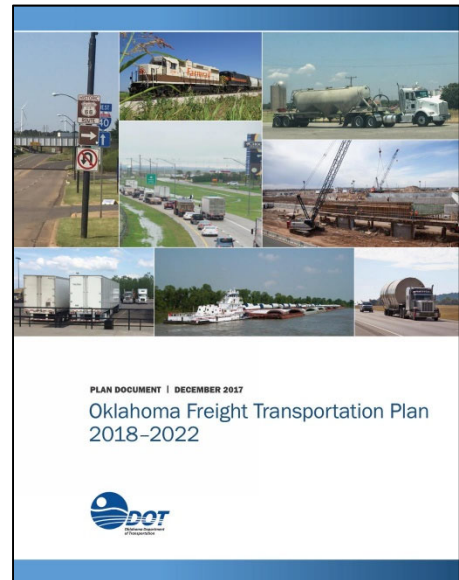
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upon notice of award. The Project is also supported by Tinker AFB, the Oklahoma Trucking Association, Oklahoma County, and the City of Midwest City.

6.3.3. Federal Transportation Requirements Affecting State and Local Approvals

As discussed in Section 6.3.2, the project will be included in the relevant state and metropolitan planning documents. The Project is included in the **Oklahoma Freight Transportation Plan**, adopted in 2017. The Project complies with the Plan's goals, which are consistent with national freight goals, including improving reliability, congestion and bottleneck reduction, safety, state of good repair, ensuring the competitive performance of the state's freight system, and promoting competitive access to domestic and international markets for its industries. I-40 is second only to I-35 in the volume of truck traffic it carries in the state.



6.4. Risks and Mitigation Strategies

Given the advanced state of design and the approved NEPA documents and permits, remaining risk to this project is low. Right-of-way acquisition is complete, and the majority of the utilities have been relocated. There is just one corner of the interchange where utilities still need to be relocated.

ODOT has awarded the contract for the remaining utilities and the schedule for the relocation has been set at 180 days, resulting in completion of utility relocations by the end of 2021. ODOT scheduled the utility relocations well in advance of funding obligation, to mitigate the risk of these encountering delay.

Risks related to procurement and construction management are mitigated through ODOT's extensive experience completing projects of similar scope on time, on budget, and without incident. Specifically, ODOT has:

- Awarded 14 similar interchange projects with a construction total of \$455.1 million statewide
- Widened portions of I-40 from four to six lanes in Oklahoma and Canadian counties for 12 miles
- Recently successfully completed construction on the \$71 million I-40/Choctaw Road Interchange project just east of the Douglas Blvd. project.
- Currently completing major interchange reconstruction projects at I-235/I-44 and I-240/I-35 in Oklahoma City.
- Completed the \$720 million I-40 Crosstown Relocation which increased capacity of I-40 from six lanes to ten lanes through the heart of Oklahoma City

ODOT has committed to matching 40% of the project costs with state funds. See Section 6.2 above for a discussion of the risks to ODOT's matching funds. To mitigate construction schedule risks, ODOT uses contract incentives for project milestones, and will use these on the I-40 Douglas Project to reduce construction time and stay within Project timelines.

7. LARGE PROJECT REQUIREMENTS

Information regarding the INFRA Large Project Requirements is summarized in **Table 6**. The I-40 Douglas Project supports economic vitality and national defense. The I-40 Douglas Project is needed to improve safety and reduce delay on a facility which will continue to experience traffic growth arising from local population and employment growth and increases in local and long-distance freight movement. It is also critical for maintaining a State of Good Repair on a significant link in the national highway network. While the cost of this Project is substantial, ODOT has moved ahead with design plans, environmental approvals, and public engagement so that it can be implemented as soon as funding becomes available.

Table 6: Large Project Requirements

Does the project generate national or regional economic, mobility, safety benefits?	Yes, see Sections 1.2, 2.1, & 5.1
Is the project cost effective?	Yes, see Section 5.1.1
Does the project contribute to one or more of the Goals listed under 23 USC 150? <ul style="list-style-type: none"> • Safety • Infrastructure condition • Congestion reduction • System reliability • Freight movement and economic vitality • Environmental sustainability • Reduced project delivery delays 	Yes, including: <ul style="list-style-type: none"> • 1.2 & 5.1.1 • 1.2 & 5.1.2 • 1.2, 5.1.1, & 5.1.2 • 1.2, 5.1.1 & 5.1.2 • 2.1, 5.1 • 5.1.1, 5.2 • 5.5.2 & 5.6
Is the project based on the results of preliminary engineering?	Yes, plans are 90% complete
With respect to non-federal financial commitments, does the project have one or more stable and dependable funding or financing sources to construct, maintain, and operate the project?	Yes, see Sections 4 & 5.4
Are contingency amounts available to cover unanticipated cost increases?	Yes, see Section 4
Is it the case the project cannot be easily and efficiently completed without other federal funding/financial assistance available to the project sponsor?	Yes, see Sections 4 & 5.4
Is the project reasonably expected to begin construction not later than 18 months after the date of the obligation of funds for the project?	Yes, see Section 6, especially Section 6.2