

I-40 Douglas Boulevard Interchange Reconstruction and Related Widening Oklahoma County, Oklahoma

Submitted Previously (for FASTLANE)?	YES	Project on NHFN?	YES
Name in Previous Application	Same Project Name	Project on NHS?	YES
Previously Incurred Project Cost:	\$5,363,422	Project to add Interstate capacity?	YES
Future Eligible Project Cost:	\$107,100,000	Project in national scenic area?	NO
Total Project Cost:	\$112,463,422	Rail grade crossing or separation included?	NO
INFRA Request:	\$53,550,000	Intermodal or freight rail project, or freight project	
Total Federal Funding (incl. INFRA)	\$53,550,000	within freight rail, water, or intermodal facility?	NO
Matching funds restricted?	NO		



Oklahoma Department of Transportation

Due: November 2, 2017

Supporting information can be found at: https://www.ok.gov/odot/Progress_and_Performance/Federal_Grant_Awards/INFRA_Grants/Oklahoma_County_I-40_and_Douglas.html

ODOT Contact: Laura Chaney, Planning and Performance Branch Manager
Oklahoma Department of Transportation (405) 521-2705 LChaney@odot.org

State	Oklahoma	Inclusion in Planning Documents:	
Begin Lat/Long:	35.404N, 97.2915W	TIP:	YES*
End Lat/Long:	35.434N, 97.379W	STIP:	NO*
Size of project:	Large	MPO LRTP:	YES*
Urbanized Area ("UA"):	Oklahoma City	State LRTP:	YES
UA population, 2014	919,230	State Freight Plan:	NO*

Interest in participating in a new environmental review and permitting approach? No, Project's environmental process is nearly completed.

* Most elements of this project are included in current MPO's TIP and LRTP. Components of this project were included in past STIP and State Freight Plan documents, but were removed due to fiscal constraints.

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Supporting Materials

Supporting documentation can be found at the project website, https://www.ok.gov/odot/Progress_and_Performance/Federal_Grant_Awards/INFRA_Grants/Oklahoma_County_I-40_and_Douglas.html, and include:

- Certifications and Assurances
- Letters of Support
- Maps and Graphics
- Reports and Technical Information

EXECUTIVE SUMMARY

The I-40 Douglas Boulevard Interchange Reconstruction and Related Widening Project (“the Project”) in southeastern Oklahoma County takes 5.5 miles of outdated Interstate, and brings it up to 21st century standards. The Project addresses the long deferred need to reconstruct the increasingly problematic I-40 Douglas Interchange, widens the Interstate from four through-lanes to six, and updates bridges and other infrastructure elements along the highway.

This vintage section of the Eisenhower Interstate Highway System is critical to operations at Tinker Air Force Base (“Tinker”), where our servicemen and women keep our nation safe by maintaining the world’s most advanced aircraft. Tinker is Oklahoma’s largest single-site employer, requiring thousands of daily trips on an already strained section of I-40. When accidents occur during peak hours, the resulting backups can bring traffic to a near-standstill for hours.

The I-40 Douglas Project is essential: constant high volumes of traffic approach and frequently surpass the capacity of this section of the Interstate. In addition to carrying tens of thousands of commuter trips every weekday, this key freight corridor also carries thousands of trucks. It is estimated that I-40 in Oklahoma carries 572 million truck-miles annually. Much of that – 435 million truck miles – is through-traffic, originating outside the state and destined elsewhere.

Traffic on the Project is expected to grow 55% between 2015 and 2045. The frequent crashes on this congested corridor result in secondary collisions, loss of life, serious injuries, and massive delays.

Design updates include widening the inside paved shoulder from four feet to ten feet, and replacing the Douglas Interchange, which sees an average of 13 accidents annually, with a modern Single Point Urban Interchange (“SPUI”) design. Some of the bridges over I-40 are in poor condition, or have inadequate clearance (less than the 17-foot standard). Indeed, truck and other commercial vehicle traffic is a high percentage of total traffic on this part of the National Highway System (“NHS”) and National Highway Freight Network (“NHFN”); but businesses can no longer count on this highway as a safe and reliable corridor across Oklahoma.

While I-40 struggles to handle current traffic, a Turnpike project to the east will bring thousands of new trips daily starting in 2020, increasing the burden on this highway. In addition, the widening of a segment of I-40 to the immediate east of this project is underway, and there are plans to widen the segments to the west, creating an inevitable bottleneck in this area without the Project.



Because of the pressing need for the I-40 Douglas Project, the imminent harm that will come from waiting, and a project scale and scope that make federal involvement essential, the Oklahoma Department of Transportation (“ODOT”) – together with partners including Oklahoma City, Midwest City, Oklahoma County, the Association of Central Oklahoma Governments, Tinker, Oklahoma Trucking Association, Oklahoma Turnpike Authority, and the Greater Oklahoma City Chamber of Commerce – proudly submits this request for an INFRA grant.

The benefits of the Project include:

- Modernizing and bringing into a state of good repair an important Interstate highway
- Providing improved access and mobility for freight
- Supporting a network critical to the economy and national defense
- Reducing collisions, thereby saving lives
- Location on an FHWA Alternative Fuel Corridor
- Benefit cost ratio of 1.11 to 1.00

The Project's environmental process is nearing completion, engineering and design work is underway and the Project can be obligated and let for construction in January 2019.

Economic Vitality at the National and Regional Level

National significance: I-40 is part of the NHS and NHFN. Of the 529 million truck miles travelled on I-40 in Oklahoma, 76% are for through-travel¹, clearly demonstrating the Project's wider importance.

Local significance: This particular segment of I-40 carries substantial commuter traffic, particularly to Tinker, Oklahoma's largest single-site employer. Tinker is surrounded by substantial supporting businesses, such as Boeing, which employ thousands of additional workers. There is also a hospital campus at the Douglas Interchange, making congestion reduction a potentially life-saving measure.

Regional/State significance: The Oklahoma Turnpike Authority is beginning construction on an extension in eastern Oklahoma County, which terminates at I-40, approximately five miles east of the I-40 Douglas Project.² This is expected to open in 2020, and will provide an important link to Tulsa and other cities and towns to the north and east.

Leverage

ODOT has committed to funding 50% of the future project costs with state funds, \$32 million more than the required 20% non-Federal contribution.

Innovation

In Oklahoma, I-40 is a federally-designated Alternative Fuel Corridor. This designation was awarded by Federal Highway Administration ("FHWA") in 2016.

The Project design is innovative because of the selection of a Single Point Urban Interchange ("SPUI") design for the troubled Douglas Boulevard Interchange. This relatively new design accommodates large traffic volumes safely and efficiently with minimal right of way ("ROW") impacts.

The Project's construction includes raising the slab span bridge over I-40 carrying Westminster Road. This type of bridge rehabilitation has not previously been used in Oklahoma, but has been tried successfully in neighboring states and will allow ODOT to preserve much of the existing structure while bringing vertical clearances up to modern standards.

¹ Source: 2014 Transearch

² Letting schedule is posted on the Turnpike website at <https://www.pikepass.com/PDF/LETTING%20SCHEDULE.pdf>; a map of the alignment is attached to the Oklahoma Turnpike Authority support letter, on the application website.

1. PROJECT DESCRIPTION

The I-40 Douglas Project widens 5.5 miles of Interstate 40 (“I-40”), and reconstructs the I-40 and Douglas Boulevard Interchange. The Project provides access improvements to Tinker, and to the cities of Oklahoma City, Midwest City, and Del City, and also accommodates traffic flow throughout the metropolitan area, state and nation.



Figure 1: I-40 Douglas Project Location

1.1. Project Elements

This Project includes the following specific improvements:

- Widens 5.5 miles of I-40 from four lanes to six lanes between Industrial Boulevard and the intersection with I-240
- Reconstructs Douglas Boulevard Interchange using a SPUI design that maintains a similar footprint, but with enhanced functionality and improved safety
- Corrects the substandard vertical clearance at Post Road and Westminster Boulevard bridges
- Reconstructs the I-40 bridges over Anderson Road to increase vertical clearances
- 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 to accommodate six through-lanes

In sum, the Project modernizes and widens this segment of I-40, correcting substandard geometry, and utilizing an urban interchange design at Douglas Boulevard.

1.2. Challenges and How the Project will Address Them

The current state of the highway is inadequate to the task of providing high quality transportation for the 44,000 cars and trucks that traverse it each day. By 2045, daily traffic is expected to exceed 66,000 with the new traffic from the Turnpike extension. Without improvement, severe congestion is expected to occur along multiple segments of I-40, as well as at ramps during peak hours.

Reliability is a major problem along this corridor. High levels of accidents cause multiple-lane shutdowns, or ramp closures, often at late night hours. 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, which impacts reliability, and (3) inadequate capacity, leading to congestion and delay.

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 four years beyond its design life. The Douglas Boulevard Interchange is an outdated and dangerous design for the level of traffic it now carries, and its bridge structure is approaching structural deficiency and needs to be replaced. Other bridges on the Project are too narrow, and most have minimal clearance for semi-trucks to pass safely underneath. For example, the bridges over Anderson Road require repairs approximately every five years due to damage from trucks with tall loads hitting the bridge as they pass underneath.



Figure 2: Substandard Truck Clearance under I-40 on Anderson Road

In addition, the inside shoulders are only paved for a four-foot width, and the acceleration and deceleration lanes near the Anderson Road Interchange are inadequate for the current levels of traffic, making it difficult for traffic to safely enter and exit I-40.

The Project addresses these concerns by widening the inside shoulders, replacing the Douglas Interchange, correcting the vertical clearances at Westminster Road, Post Road, and the I-40 bridges over Anderson Road, and by lengthening the acceleration and deceleration lanes at the Anderson Road Interchange.

Safety

Collision rates on the existing highway are twice the state average for a similar Interstate facility, averaging 2.4 collisions per week, with 11 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 and the need for merge lanes at the Douglas Boulevard Interchange, as well as congestion throughout the Project caused by inadequate capacity.

The Project lengthens the acceleration and deceleration lanes, replaces the Douglas Boulevard Interchange with a new design, and adds one through lane in each direction on I-40 to reduce congestion-related accidents.

Capacity, Congestion, and Delay

Congestion and delay are a problem today, and are projected to worsen with traffic expected to grow by 1.3% 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. On top of this growth, the Turnpike project is expected to add over 2,000 vehicles per day to this segment of I-40 when it opens in 2020, and 3,400 vehicles by 2045.

Inadequate capacity causes two key problems: routine delays during peak hours, and severe delay when a lane-blocking accident occurs during peak travel hours. The engineering analysis shows that under normal peak hour traffic, the I-40 corridor has segments that operate at Level of Service (“LOS”) grade D (i.e., speeds below posted speed limit) or worse at peak hour today. Without improvement, LOS F conditions (i.e., traffic flow is irregular and speeds vary substantially because of congestion) will result along multiple segments, and at some ramps, during peak hours.

The accident-related delay occurs approximately once every three weeks, causing hours of delay – an unacceptable situation for a major freight thoroughfare. This severe congestion results in additional vehicle emissions, and occasionally causes secondary accidents.

With the Project’s additional through-lanes, this segment should handle the daily traffic load without LOS F conditions. The problems related to accident-caused delay will be dramatically reduced, as a blocked lane would mean two lanes still open for traffic, and not just a single lane as today.

1.3. Project History and Related Projects

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

Previously incurred expenses include environmental work, engineering and utility relocation. The previously incurred costs for this INFRA request were expanded to include all costs through 2018, including final engineering. This request is only for the construction phase, set to begin in 2019.

This Project is part of a long-term strategy to widen I-40 through downtown and east to the new Turnpike interchange, and was included in the 2005 Long-Range Transportation Plan for the Oklahoma City Metropolitan Planning Organization (“MPO”). 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 (construction started)
- From Indian-Meridian Road to Luther Road (project awarded in October 2017)
- Luther Road to the Harrah-Newalla Interchange (funded in FY2021, to be coordinated with construction of the interchange with the new Turnpike, which terminates in this segment)

ODOT and the local municipalities lack the funding to widen all segments of I-40 simultaneously, so the effort was divided. With the funding of this INFRA grant request, much of the construction for this segment can be completed by the end of 2020 – before the new Turnpike’s traffic reaches its full potential. Without the Project, each year of delay would worsen construction-related traffic impacts, as traffic volumes would be 4 to 6% higher after the Turnpike, on top of yearly background growth of 1.3%.

Eastern Oklahoma County Turnpike Construction

The need for this Project is made more pressing given the traffic that will be added by the Eastern Oklahoma County (“EOC”) Turnpike extension, which is currently being bid for construction, and is expected to be completed in 2020. Utility and ROW work are currently underway.

This 21-mile Turnpike extension³, identified in the Turnpike Authority’s *Driving Forward OK* plan (<http://www.drivingforwardok.com/>), links I-44 to I-40 five miles east of the I-40 Douglas Project (**Figure 4**). This toll road project will improve connections between the state’s two largest cities (Tulsa and Oklahoma City), relieve traffic on I-35 and parallel state and local roads in eastern Oklahoma County, and provide a reliable, access-controlled, high-speed connection between I-44 and I-40.

1.4. Project Significance

Locally

This segment of I-40 currently carries 38,000 to 42,500 vehicles a day⁴. The Oklahoma City region is growing, with population expected to increase nearly 20% between 2015 and 2040. Development is also expanding eastward, contributing to growth in traffic carried on the Project. Traffic on Douglas Boulevard in the vicinity of I-40 is expected to grow from 22,400 in 2015 to 40,365 vehicles per day in 2045, an increase of 80%.

Tinker, which employs 26,000, is located near the Douglas Boulevard Interchange, as is a medical complex including Saint Anthony Hospital and the Oklahoma Heart Hospital. Further east are additional employers as I-40 approaches downtown Oklahoma City. I-40 is an important route bringing freight, customers, and commuters to businesses in this area.

Regionally

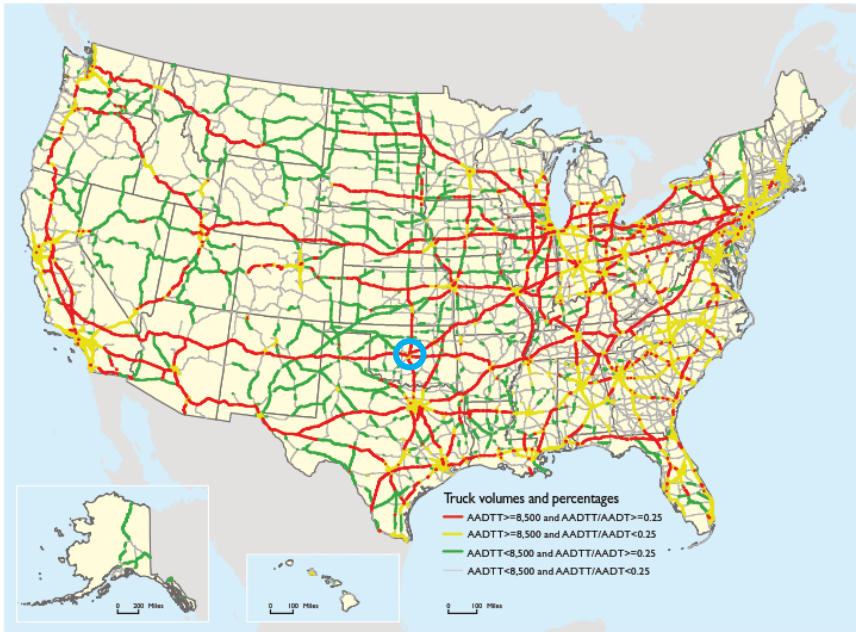
The Project’s regional significance is two-fold. First, it is part of I-40, one of the state’s busiest corridors for both freight and passenger traffic. Second, this Project is vital to the success of the EOC.

Nationally

The Project is located on I-40, part of the NHS and NHFN. I-40 is a key Interstate, running through the south-central portion of the United States, beginning in California and ending in North Carolina. The highway travels through Amarillo, TX; Albuquerque, NM; Oklahoma City, OK; and Memphis, TN. The Project’s national and regional significance is illustrated in **Figure 3**, which projects the average daily freight traffic across the nation in 2040.

³ A map of the alignment is attached to the OTA support letter on the Application website.

⁴ East of Anderson, daily 2015 traffic was 37,960; west of Anderson, traffic volumes are estimated to be 42,500.



NOTES: Average annual daily truck traffic (AADTT) includes all freight-hauling and other trucks with six or more tires and includes all motor vehicles.
 SOURCE: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.5, 2015.

Blue circle shows Project location. Source “*Freight Facts and Figures 2015*” USDOT BTS
 Figure 3: Project along 2040 Major Trucking Routes

I-40 moves almost 8,000 trucks each day across the state, including 6,600 through the Project segment. The Oklahoma Freight 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 part of trips 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%.

Maintaining Interstate roadways and bridges to support heavy truck traffic, without requiring re-routing due to height restrictions or delays, is vital to our national transportation system. Furthermore, key industries that accounted for more than half of the state’s 2013 GDP [Agriculture, Energy and Mining, Manufacturing, Transportation and Distribution, and Other Industry (e.g., retail and construction)] are particularly reliant on dependable freight transportation. The competitiveness of these industries in the global marketplace requires an integrated freight transportation system that can handle bulk shipments and intermodal containers and, relevant to this Project, reliable highways that can serve distribution centers and warehouses.

2. PROJECT LOCATION

The Project is situated in southeastern Oklahoma County, ten miles east of downtown Oklahoma City (Figure 1). It begins one-half mile west of the I-40 Douglas Boulevard Interchange in Midwest City, and continues 5.5 miles east to the I-240 Interchange. The majority of the Project lies within Oklahoma City. Latitude and Longitude for the Project are from approximately 35.404N, 97.2915W to 35.434N, 97.379W.

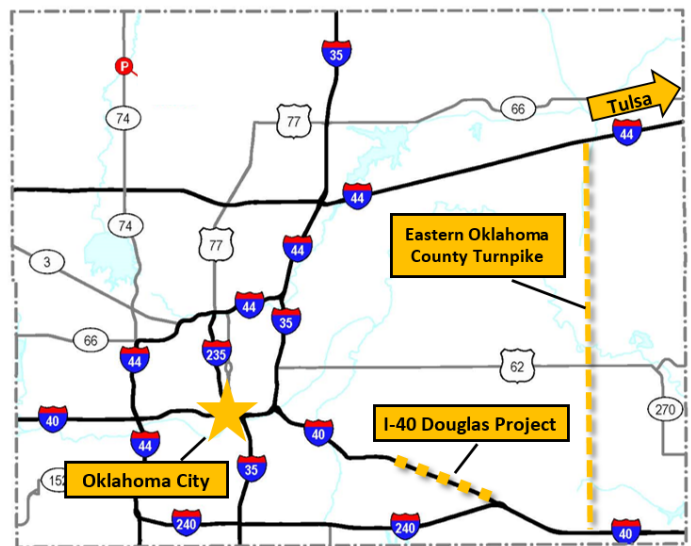


Figure 4: Eastern Oklahoma County Turnpike Project

2.1. Local Economy

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 job opportunities. Its sustained population growth through the Great Recession and into recovery sets it apart as one of the nation's fastest growing cities. The Oklahoma City Metropolitan Statistical Area population grew nearly 1.6% per year from 2007 to 2015⁵, and it is poised to continue (Table 1 and Table 2).

I-40's Douglas Boulevard exit provides access to Tinker, 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.

Since it was founded in the 1940s, Tinker has provided continuous repair, logistics, and communications support to the Air Force. In 1942, Major General Clarence Tinker, an Oklahoma native and part Osage Indian, gave his life while leading a group of bombers on a desperate mission against the Japanese near Wake Island. In his honor, the new military base was named Tinker Field, and later Tinker Air Force Base.



Figure 5: Members of the 565th Aircraft Maintenance Squadron work on a B-52H (USAF, 2016)



Figure 6: Shipping US Marine Corps F153 engines by truck from Tinker AFB after retrofit

Tinker's largest operation is the Oklahoma City Air Logistics Complex, the US Air Force's largest repair complex, serving 92 Air Force Bases and 46 foreign nations.⁶ While many planes are flown to Tinker for maintenance, the base ships and receives the bulk of its goods and supplies by truck (**Figure 6**).

Tinker is growing. An aircraft maintenance facility was recently built, and 1,300 more jobs are anticipated for a new center that will maintain the KC 46 Pegasus aerial refueling aircraft.

The Boeing Company is another major employer that benefits from the Project. The world's largest aerospace company, Boeing has long had a presence in Oklahoma City. In 2016, they opened

⁵ <http://www.greateroklahomacity.com/clientuploads/pdf/EconomicIndicators/GOKCEconomicForecast2015-web.pdf>

⁶ <http://journalrecord.com/tinkertakeoff/2002/08/30/labor-of-love-workers-responsible-for-tinker8217s-success/>

an \$80 million Global Services and Support facility to service aging aircraft. This is the third Boeing facility on their campus, and will house an additional 800 workers.

2.2. Surrounding Cities

The I-40 Douglas Project is surrounded by Oklahoma City, Midwest City, and Del City, and a second tier of suburban municipalities including Choctaw and Nicoma Park (**Figure 1**). Surrounding land use ranges from urban on the west, to mostly suburban areas on the east. Near the Douglas Interchange, the Project provides access to a densely developed residential, commercial, and industrial area, anchored by Tinker and the aviation-related businesses that border it.

2.3. Oklahoma City, the Capital City

I-40 is a direct route into downtown Oklahoma City. Traffic on the Project segment is generated by commuter traffic to the Tinker area, and travel to and from other parts of the Oklahoma City metropolitan area, including destinations such as the University of Oklahoma Medical Center, state government offices, the Oklahoma City Thunder NBA team, equestrian shows, and a convention center. In addition, the Oklahoma City metropolitan area is home to four two-year colleges, 14 four-year colleges and universities, and 12 vocational/career technical schools. These attractions, coupled with the fact that Oklahoma City is at the crossroads of three major Interstate highways, generate substantial traffic on I-40 in the Project area.



Figure 7: Westbound morning traffic on I-40

Table 1: Population Growth

Area	Population					Growth 2010-2035	Growth 2010-2040
	2000	2010	2015	2035	2040		
Oklahoma City	506,080	581,688	631,281	726,556	810,883	24.9%	39.4%
Del City	22,128	21,332	22,022	23,905	23,905	12.1%	12.1%
Midwest City	54,088	54,371	57,249	65,318	66,411	20.1%	22.1%
Nicoma Park	2,415	2,393	2,469	2,692	2,692	12.5%	12.5%
Choctaw	9,377	11,146	12,179	16,715	16,715	50.0%	50.0%
Oklahoma County	660,448	720,386	776,864	888,866	931,131	23.4%	29.3%

As seen in **Tables 1 and 2**, population and employment are expected to grow substantially over the next 25 years in this area⁷. 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** above) are also growing in terms of both population and employment.

⁷ Source: Association of Central Oklahoma Government's (ACOG) *Encompass 2040* Metropolitan Area Plan, 2016.

With more commuters driving from eastern Oklahoma County to the growing number of jobs and other opportunities in Del City, Midwest City, and Oklahoma City, the I-40 corridor needs to be able to handle the growing demand.

Table 2: Employment Growth

Area	Employment			Growth 2010-2035	Growth 2010-2040
	2010	2035	2040		
Oklahoma City	394,665	502,760	527,739	27.4%	33.7%
Del City	5,606	7,950	9,304	41.8%	66.0%
Midwest City	20,746	28,434	33,278	37.1%	60.4%
Oklahoma County	464,249	574,113	625,276	23.7%	34.7%

Unfortunately, the region’s infrastructure is not keeping up with travel demand. This negatively impacts business location decision-making⁸, 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 Oklahoma City.

2.4. Connections to Existing Infrastructure

The Project’s connection to the NHS and the NHFN as part of I-40 is discussed above, as is the future connection to the EOC Thruway extension. Douglas Boulevard is a major thoroughfare, connecting residential areas to the north (e.g., Midwest City) to Tinker, and to I-40 into downtown. Douglas Boulevard carries 22,400 vehicles per day, a number expected to nearly double by 2045.

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’s mission is to provide a safe, economical and effective transportation network for the people, commerce and communities of Oklahoma. ODOT will sponsor, manage and provide oversight for this Project.

Project Sponsor



Project Supporters



3.2. Key Supporting Stakeholders

The Association of Central Oklahoma Governments (“ACOG”) supports the I-40 Douglas Project. As the region’s metropolitan 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*, and the short range Transportation Improvement Plan (“TIP”). Most components of the I-40 Douglas Project are included in both

⁸ <http://newsok.com/article/5490047>

documents. ACOG has committed to include the remainder of the Project in the TIP when sufficient funds become available (see [Oklahoma I-40 INFRA](#)).

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 Turnpike Authority (“OTA”) is the organization responsible for constructing and managing the EOC Turnpike, which will bring traffic from Tulsa onto I-40. OTA supports this project, recognizing the benefits an upgraded interchange and highway will provide to the users of their planned Turnpike project.

Oklahoma County encompasses both the I-40 Douglas Project and the EOC project. In addition, Oklahoma County is the sole owner of the only right of way needed for the I-40 Douglas Project. The County and ODOT are negotiating an agreement to allow ODOT to perform preconstruction activities, while working to transfer the property permanently to ODOT.

Support letters for the project have been received from the following entities and can be found in the [Application website](#) :

- Association of Central Oklahoma Governments (MPO)
- City of Midwest City
- City of Oklahoma City
- Greater Oklahoma City Chamber of Commerce
- Oklahoma Trucking Association
- Oklahoma Turnpike Authority
- Tinker Air Force Base
- Oklahoma County

4. SOURCES/USES OF PROJECT FUNDS

In view of the importance of the Project, ODOT is submitting this request for \$53,550,000 million in INFRA funds for the \$112.5 million I-40 Douglas Project. Nearly \$5.4 million will have been expended by the end of 2018, leaving \$107.1 million in future eligible Project costs.

The total cost for the I-40 Douglas Project is estimated at \$112,463,422 including environmental review, design, and construction. The Project cost has dropped since previous applications due to newly-available cost information for a current I-40 widening project east of the I-40 Douglas Project.

4.1. Future Eligible Costs (Proposed Uses of Funds)

To date, \$5,363,422 has been expended, the remaining \$107,100,000 in eligible future costs are shown below in **Table 3**.

No elements of the Project are subject to the \$500 million maximum for non-highway projects. Further, there are no restrictions on funding. Both the state funding and any INFRA funding can be used to fund any and all components of the Project.

4.2. Sources of Funds

The \$107.1 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 (2018-2025), the remaining cost of this Project would amount to approximately 66% of the yearly budget for ODOT Division Four (which averages \$162 million annually, and is responsible for nine counties). Even spread out over two or three years, it would consume, respectively, 33% and 22% of the Division’s budget.

ODOT’s match percentage has increased since the two previous FASTLANE applications. Division 4 of ODOT has decided to set aside a portion of their allotted funding in recognition of the importance of this Project. ODOT is therefore requesting 50% of future eligible project costs, in the amount of \$53,550,000, in INFRA funding for the project. ODOT’s 50% share is state funding, and does not include federal funding sources. A certification statement from ODOT assuring that the state has the local match funding available is online at [Oklahoma I-40 INFRA](#), Certifications and Assurances.

Table 3: Sources and Uses of Project Funds

Uses	Cost Estimate	INFRA Funds (50%)	Other Federal	State Funds (50%)
Engineering, Environmental, Design	\$5,263,422	<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	\$5,363,422	<i>Pre-incurred (not part of grant application)</i>		
Reconstruct I-40 Douglas Interchange	\$46,000,000	\$23,000,000	\$0	\$23,000,000
Raise Westminster Road	\$500,000	\$250,000	\$0	\$250,000
Anderson Road bridges and interchange	\$10,000,000	\$5,000,000	\$0	\$5,000,000
Widening	\$45,500,000	\$22,750,000	\$0	\$22,750,000
Contingency (5%)	\$5,100,000	\$2,550,000	\$0	\$2,550,000
Total Eligible Costs	\$107,100,000	\$53,550,000	\$0	\$53,550,000
Total Project Costs	\$112,463,422			

4.3. Contingency

ODOT knows cost overruns are its responsibility, and is fully prepared to assume that responsibility. Note that the cost estimates in **Table 3** are based on nearly-complete preliminary engineering and recent experience with similar nearby projects, and include a 5% (\$5.1 million) contingency.

4.4. Ongoing Operating and Maintenance Costs

Ongoing operating and maintenance costs will be paid for by ODOT. A \$5 million maintenance investment in this project is slated to be incurred in the initial 20 years after opening, and again 20 years after that. 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, reducing congestion and travel time delay, and increasing travel time reliability. Travel time reliability benefits local 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, accidents 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 accidents.

The sections below detail the following Project benefits:

- 1) State of Good Repair and Geometrics
- 2) Safety
- 3) Travel Time

5.1.1. State of Good Repair and Geometrics

I-40’s substandard geometry and inadequate capacity in the Project area cause delays and accidents. Problems include a paved median 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 the Anderson Interchange 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 must cross traffic exiting the highway. The SPUI separates these two movements. The safety benefits of these improvements and their impact on reliability is discussed in the Safety Section (5.1.2) below.

Bridge Structure Deficiencies

The Douglas Boulevard Interchange bridge is at risk of becoming structurally deficient (sufficiency rating of 77.0), and needs to be replaced or undergo major rehabilitation. Several other bridges are too low for today’s semi-trucks to pass safely underneath.

The Project will replace the Douglas Boulevard Bridge. The bridges on I-40 over Anderson Road will be reconstructed at a greater height over the newly widened Anderson Road, and the bridge that carries Westminster Road will be raised. I-40 lanes under the Post Road Bridge will be lowered to meet the vertical clearance standard.



Figure 9: Douglas Boulevard Bridge - Deck repairs needed



Figure 9: Anderson Road Bridge -Beam repairs needed

5.1.2. Safety

Increasing roadway safety is an important priority for ODOT. The Project introduces several roadway enhancements that increase safety and mobility.

Accidents along this stretch of I-40 (outside of the interchanges) occur at a high rate, with over 1,200 collisions over the past ten years, an average of more than two crashes each week. This crash rate is more than twice the average for all four-lane Interstates in Oklahoma (135.70 vs 63.55 crashes per 100 million vehicle miles traveled, as shown in **Table 4**).

Evidence points to high traffic volumes and congestion as a factor in the high crash rate along the mainline lanes. According to ODOT’s safety analysis:

- During peak hours, the most-commonly listed cause of accidents (25%) was “following too closely” which correlates with congested conditions
- In each year 2009-2015, the most common accident type was rear end collisions
- Most accidents occur during normal conditions: dry pavement (77%), clear or cloudy weather (82%), and during daylight (68%)

Relieving peak hour congestion by increasing capacity will reduce many of these accidents. The crash mitigation factor (“CMF”) for adding an additional 12-foot lane suggests a 74% drop in the accident rate. Accidents at the interchanges will also be reduced by the Project improvements. The CMFs used for each interchange are discussed in the Benefit-Cost Analysis Tech Memo⁹.



Figure 10: Acceleration and Deceleration Lanes

Correcting geometric deficiencies reduces accidents, particularly widening the paved inside shoulder, and eliminating the short weave, tight curves, and other problems at the outdated cloverleaf interchange design at Douglas Boulevard. The bridge over Anderson Road will be widened to allow for a dedicated turn lane that will reduce rear end accidents.

In addition, the acceleration and deceleration lanes (**Figure 10**) will be lengthened along I-40 at Anderson

Table 4: Collision Statistics 2006-2015

Crashes, I-40 mainline between Douglas Boulevard and I-240	
Fatal crashes	11
Total fatalities (persons)	12
Incapacitating injury crashes	57
Other injury crashes (incl. Possible injury)	306
Property damage only crashes	865
Total Crashes	1,239
Average annual crashes	123.9
Crash Rate (per 100 million vehicle miles)	135.70
Statewide Rates for similar roadways (for comparison)	63.55

Source: Oklahoma Department of Transportation

⁹ CMF #8336. Crash Modification Factors for the interchanges include #474 and #475 for Anderson Road, and #478 for Douglas Boulevard. Additional details are available in the BCA Tech Memo on the Application website.

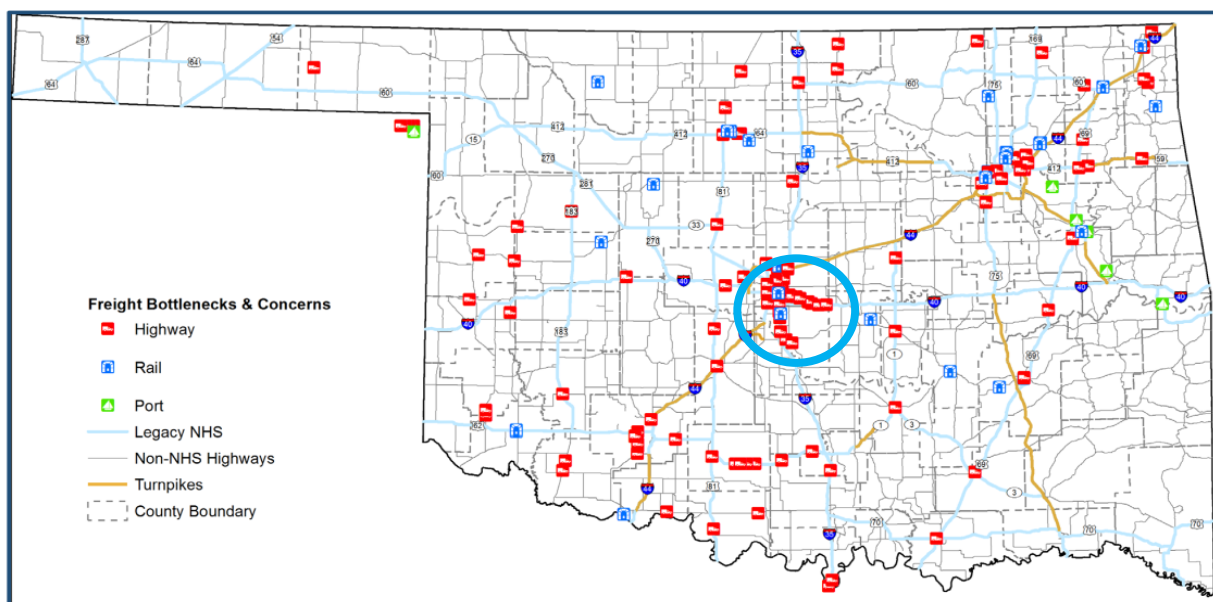
Road to enhance safety while merging. These lanes promote a more seamless traffic flow when drivers enter and exit the Interstate by providing the opportunity to speed up before merging with high-speed traffic on the Interstate, or to begin exiting the Interstate without interrupting the speed of drivers behind them. The ability for drivers to safely position themselves to either enter or exit the Interstate greatly decreases the risk of collisions. These lanes also enhance an Interstate's capacity and traffic efficiency, helping to reduce congestion.

Secondary Accidents

Accidents on the four-lane Interstate, particularly during congested hours, present a real risk of secondary accidents. The Project's widening of the inside shoulder from four feet (and only two feet in some areas) to ten feet paved allows broken down vehicles to pull over away from moving traffic.

Congestion and Reliability Impacts

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 the I-40's reliability east of Oklahoma City, as indicated by the map of freight stakeholders' top concerns (Figure 11).



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

Figure 11: Stakeholder-Identified Freight Concerns 2016, showing the Project Area

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 for 2045 indicate that the additional lane should greatly diminish accident-related delay.

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 are currently being widened to six lanes in anticipation of the coming Turnpike project. The Project would widen I-40 to six lanes to tie in with the six-lane section to the east.

5.1.3. Emissions Impacts

One environmental benefit of the Project derives from improvements in network efficiency. Allowing more vehicles to utilize the new EOC Turnpike Extension, and avoid congested I-35 in the more densely developed parts of Oklahoma City, reduces emissions from congested stop-and-go traffic.

Another benefit is that when accidents occur on I-40 that result in a lane closure during peak hours, having a third lane available in each direction will significantly decrease the situation that is common today, where thousands of vehicles are idling or traveling at very slow speeds (with correspondingly high emissions per mile), for an hour or more.

5.1.4. Travel Time

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, as substantial increases to average speed are possible with the Project, with travel speeds projected to increase by 18-21 miles per hour (above No Build speeds) in the peak hours.

Currently, this section of I-40 experiences average daily traffic (“ADT”) ranging from 37,900 to 42,500, with truck movements contributing 15% of daily traffic (5,700-6,400 trucks per day). During peak hours the Project section of I-40 experiences delay, and during evening peak hours segments near the Douglas Boulevard Interchange experience a substantial decrease in speed¹⁰.

An analysis of 2045 conditions without turnpike traffic indicates LOS F conditions at peak hours on some segments of I-40 in the project area, including along ramps. The addition of traffic from the EOC Turnpike extension will worsen service levels.

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 3,250 cars per hour. Current peak hour traffic is close to that level (3,035 in the morning rush, and 3,140 in the evening peak). By 2045, traffic will exceed 4,000 in the highest volume peak hours, and will exceed the 3,250 threshold at other times as well.

Under the six-lane build condition, an accident that closes a lane of traffic will leave two lanes open, and traffic can still be able to travel over 40 mph even during the highest peak hour (projected to be 4,732 vehicles per hour in the PM Peak eastbound in 2045).

5.1.5. Other Benefits Supporting Economic Vitality

There are a number of additional benefits of the Project, including:

Pavement Condition: Vehicles driving in the Project area experience increased wear and tear from the deteriorated pavement condition on this aging roadway. By reconstructing and widening this section of I-40, the Project enhances travel and improves safety.

¹⁰ Source: NPMRDS Congestion Data

Access for Shippers: Freight tonnage is steadily increasing in the US. Work done for the Oklahoma State Freight Plan¹¹ expects a 45% increase in truck tonnage between 2015 and 2045, including a 75% increase in pass-through traffic in Oklahoma. Proactive planning for the heightened presence and movement of freight trucks is critical for the region to remain economically competitive. Improvements to I-40 are important for freight trucking companies to maintain their current activities and increase capacity. In addition to improving reliability and reducing delay, the Project will bring vertical clearance under bridges up to the 17-foot standard to ensure that oversize loads are accommodated on this segment of I-40.

5.1.6. Cost Effectiveness (Benefit Cost Analysis)

A formal benefit-cost analysis (“BCA”) was conducted following the latest USDOT BCA guidance. 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:

1. Savings in "No Build" operating and maintenance costs, and residual value of the facility
2. Travel time savings along the 5.5-mile segment of I-40 at peak hours
3. Accident-related travel time savings resulting from widening I-40
4. Accident reduction
5. Emissions savings from reduced accident-related delay

BCA Assumptions

The analysis was performed for a period beginning in 2019 and ending in 2061. The first year of full benefits is expected to be 2022, with some benefits in 2021 after the Project’s expected completion in the third quarter of 2021, so that 40 full years of discounted benefits are considered in the BCA.

Table 5: Benefit Cost Analysis Summary (\$2016)

Category	Present Value at 7%	Present Value at 3%
Total Capital and O&M Costs	\$ 83,899,304	\$ 99,365,041
Saved Maintenance Costs of No Build	\$ 12,772,128	\$ 24,910,208
Travel Time Savings (Daily)	\$ 8,471,818	\$ 22,081,945
Travel Time Savings (Accident-Related)	\$ 1,463,065	\$ 3,828,348
Accident reduction	\$ 67,420,037	\$ 145,996,269
Emissions Savings	\$ 56,264	\$ 103,654
Residual Value	\$ 2,549,702	\$ 14,160,688
Total Benefits	\$ 92,733,014	\$ 211,081,113
Net Present Value	\$ 8,833,710	\$ 111,7116,071
Benefit Cost Ratio	1.11	2.12

Results

Table 5 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 2016 present values

¹¹ Source: Technical Report 4: Modal Profiles, Freight Trends, Opportunities and Need, 2107, available at: <http://www.okstatefreightplan.com/>

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 on the Application website ([Oklahoma I-40 INFRA](#)). As shown in **Table 5**, the present value of the Project's cost is \$83.9 million (using the 7% discount rate), and the benefits have an estimated present value of \$92.7 million. The resulting benefit cost ratio and net present value ("NPV") are 1.11 and \$8.8 million respectively. With a 3% discount rate, the benefit cost ratio and NPV are 2.12 and \$111.7 million.

The largest benefit category is accident reduction resulting from improvements to the corridor and the two interchanges.

Non-Quantified Benefits

Some benefits are difficult to quantify, items that were not included in this BCA are the value of reliability, damage to vehicles from rough pavement, and the delay reduction from lane-blocking accidents that occur during non-peak hours.

5.1.7. Employment Benefits

In the long-term, this Project enhances access to existing regional jobs and helps 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.

In the short term (over the 2019-2021 construction period), it gives local residents an opportunity to participate in the three-year construction Project, providing an estimated 1,392 person-years of employment¹². At the peak in 2020, over 600 people are estimated to be working on the Project.

5.2. Criterion #2: Leveraging of Federal Funding

As shown in Section 4, this Project will be completed using 50% state funds and 50% federal INFRA funds. ODOT has provided a Certification Statement (posted on [Oklahoma I-40 INFRA](#)) that the Department has the funds available to provide the promised local match, of 100% state funds.

This Project leverages federal funds in additional ways, beyond the match requirements. First, by widening this facility as part of the needed reconstruction and rehabilitation work (versus simply rebuilding it as a four-lane facility), the benefit-to-cost ratio is much higher, providing a highway that provides needed mobility, safety, and reliability for Oklahoma and the nation for decades to come.

In addition, the Project amplifies the benefit of the EOC project. EOC is one of a number of Turnpike projects underway in Oklahoma, all of which are funded 100% by toll revenues

Activities to maximize Non-Federal Share: ODOT District 4 increased the share of costs compared to the two previous (FASTLANE) applications. In the first and second rounds, ODOT pledged the required 40% match using 20% state funds, and 20% "other federal" funds. For this application, the match is 50% state-only funding, with no use of "other federal" funds, more than doubling both the

¹² Based on \$76,900 per job; source: USDOT Benefit-Cost Analysis (BCA) Resource Guide, November 2016.

share and the amount of non-federal funding. This was done in recognition of the importance of widening I-40 east of downtown, and the increasing need as the EOC project begins construction.

Private Funding: The State of Oklahoma utilizes private funding (tolls) to maintain and expand its Turnpike system. A plan, “Driving Forward OK” was finalized in 2015, and is underway, completely funded by tolls (or toll-backed bonds). The total six-project plan will cost \$892 million. I-40 in the Project area is not a toll road, and will not be using private funding or tolls.

Non-Federal Share Across Program: The overall federal share of ODOT’s total program expenditures is roughly 50%. This does not count spending on the Turnpike.

Fiscal Constraints: As described in Section 4.2, the cost of this project is more than half of the annual budget for the nine-county ODOT Division in which it is located.

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 the BCA, \$5 million in maintenance work is expected every 20 years or so after construction (that is, 2041 and 2061). ODOT considers it a priority to maintain a state of good repair on existing assets before funding other activities, and includes maintenance in all budgets.



Figure 12: Crews hang beam for I-235 off-ramp to OKC Boulevard for the I-40 Crosstown Relocation in 2015

5.3. Criterion #3: Potential for Innovation

This Project will raise the slab span bridge over I-40 carrying Westminster Road. This type of bridge rehabilitation has not been done before in Oklahoma. Raising the bridge will accommodate six lanes of traffic 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, while improving the vertical clearance.

Another innovative aspect is the selection of a SPUI for the Douglas Interchange reconstruction. The SPUI is comparatively new, designed to handle large volumes of traffic using minimal right of way. By removing the weave in this busy interchange, safety should be substantially improved.

Importantly, this Project is one of the nation’s newly-designated Alternative Fuel Corridors (“AFC”). In 2016 the FHWA established the first pieces in a national network of alternative fuel corridors, along which drivers are assured a consistent supply 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, including parts of the Oklahoma Turnpike) is now recognized by FHWA as a compressed natural gas (“CNG”) corridor.

By providing an alternative to gasoline and diesel, known for harmful emissions and sensitivity to global price shocks, the use of CNG vehicles helps improve energy security, economic stability, and air quality. States such as Oklahoma are extracting vast quantities of natural gas domestically, and it is typically lower in cost (per unit of energy produced) than gasoline and diesel.



Leading the nation in CNG fueling stations per capita, Oklahoma was uniquely qualified for AFC recognition. Indeed, Oklahoma recently achieved its goal of having at least one CNG fueling station for every 100 miles of Interstate. On I-40, there are now 20 CNG stations along the 331 miles of I-40 in Oklahoma. This is the result of Governor Fallin’s long range vision that took years to achieve and required the cooperation of local governments, tribal governments, and private industry. The Governor’s efforts date back to a multi-state initiative begun with the governor of Colorado in 2012 to promote the use of CNG fuel with a two-pronged approach: encouraging infrastructure development (CNG stations) and simultaneously promoting the sale of alternatively-fueled vehicles.

I-40 is also planned to be a future Electric Vehicle corridor. I-40 has eight electric charging stations today, including two existing Tesla “Superchargers.” Most of these facilities are near Oklahoma City, and more are planned elsewhere along I-40. The Project segment is close to both an electrical charging station and a CNG fueling station; both located east of the Project.

FHWA supports the expansion of the AFC network across the nation. Reducing congestion and improving safety along these corridors is important for ensuring that alternative-fueled cars and trucks can travel safely and efficiently across the country. With congestion on this segment of I-40 already causing known diversions, failure to modernize it threatens to undermine the value of its AFC designation. With the backbone of a well-preserved Interstate system and a CNG refueling network across the states of Texas, Oklahoma, and much of Missouri, commercial and passenger vehicles have the option to access clean fuels for long hauls, without worrying about where their next fill up will be.

5.4. Criterion #4: 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.

6. PROJECT READINESS

6.1. Technical Feasibility

ODOT has extensive experience completing projects of similar scope on time, on budget, and without incident. Specifically, ODOT has:

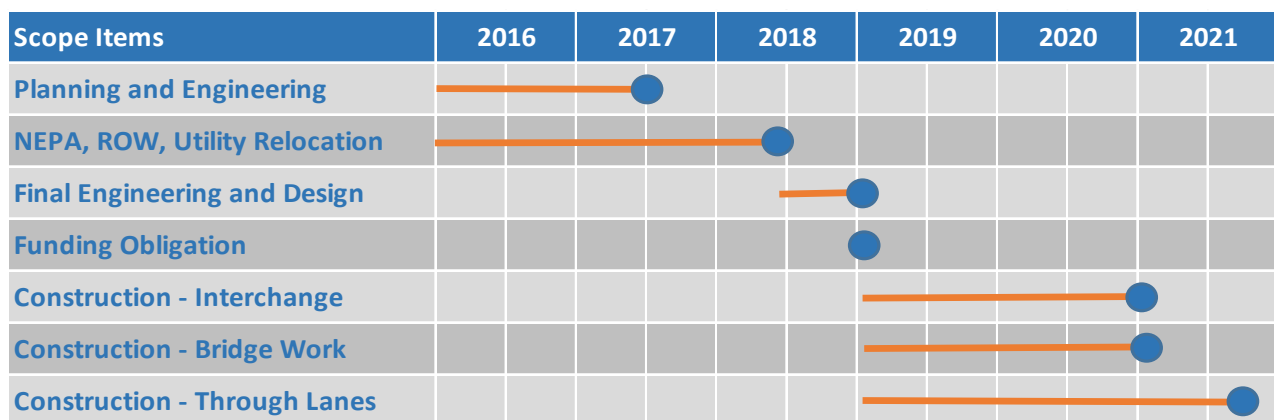
- Awarded 18 similar interchange projects with a construction total of \$188.1 million
- Widened portions of I-40 from four to six lanes in Oklahoma and Canadian counties for 12 miles, with an additional three miles scheduled in the Eight-Year Construction Work Plan
- Completed the \$720 million I-40 Crosstown Relocation which increased capacity of I-40 from six lanes to ten lanes through the heart of Oklahoma City

The detailed plans for the Project are posed on the Application website, along with the budget and schedule. Contingency and basis of cost are discussed in Section 4.

6.2. Schedule

With preliminary engineering 80% complete and environmental work to be submitted in December, all pre-construction activities, including utility work, should be completed by June 2018. ROW is expected by the end of 2017. ODOT’s timeline assumes an award for the I-40 Douglas Project to be obligated in early 2019, well before the September 30, 2020 deadline, so that it can utilize either the FY2017 or the FY2018 INFRA funding.

The Project is scheduled to begin construction in early 2019, with completion of all components by August 2021. The schedule chart shows major milestones; a detailed Project schedule can be found on the application website, [Oklahoma I-40 INFRA](#), along with preliminary Project plans.



6.3. Project Approvals and Coordination

6.3.1 Environmental Approvals

For NEPA purposes, the Project consists of two distinct components, each with a separate NEPA document: the Douglas Boulevard Interchange reconstruction, and the widening of I-40. Both are eligible for a Documented Categorical Exclusion (“DCE”). The environmental studies were initiated by ODOT in 2016. Conceptual alternative analysis for the Douglas Interchange began in 2015. The DCE documents are expected to be approved in December 2017.

The Douglas Interchange replacement component qualifies for a DCE because it is necessary as a part of the needed bridge replacement, the environmental impacts are minimal and there is no public controversy. The Project is entirely within publicly-held ROW. ODOT is working on finalizing the environmental documents for the Interchange component. Based on preliminary research, surveys, and ODOT’s past experience with similar projects, this Project should not have any problems in receiving approval for the DCE document. A similar project utilizing an Individual Categorical Exemption was approved by the Oklahoma Division of the Federal Highway Administration.

The widening of I-40 is the second separate component of this Project. The road widening is within ODOT’s existing ROW and is therefore also eligible for a DCE, providing ODOT demonstrates that there is minimal environmental impact and public controversy. The NEPA process was already completed for a similar portion of the I-40 East project; that project also widened I-40 primarily within

existing ROW with minimal access changes, and it was approved to receive a DCE. An ODOT consultant is currently finalizing the environmental documentation for this component of the Project, and the document will be posted to the Application website as soon as it is available.

In April 2016, ODOT conducted a stakeholder meeting to discuss the Project with agencies and local governments in the area. The Department received constructive feedback and comments. Two public meetings were held this year, one on January 17 regarding the I-40/Douglas Interchange, and one on February 21 for the roadway work. No controversy is expected based on the comments received at these meetings. In fact, support was noted for the Douglas Interchange component of the Project.

Coordination with FHWA

ODOT staff presented the Project concept to the Oklahoma Division of FHWA in 2016. Communication and coordination is ongoing. The required Access Justification Report (“AJR”) for the I-40/Douglas Interchange is still in development and is expected to be completed in December 2017.

Input from Other Agencies

Comments on the Project are summarized in the DCE documents available on the website ([Oklahoma I-40 INFRA](#)). No comments were received that would impact the delivery schedule of this Project.

Right of Way

Most of the Project will be built within ODOT ROW, with some land acquisition required near the Douglas Interchange. This new ROW is currently owned by Oklahoma County. No privately-held land is required for the Project. Oklahoma County supports the Project (see Letters of Support), and will provide ODOT access to the property during design and construction. ODOT has a draft agreement with Oklahoma County (see [Oklahoma I-40 INFRA](#)), and is working with the County to permanently transfer the appropriate ROW. This transfer is expected to be complete by December 2017.

Permits

Environmental work to date notes that part of the Project is in a floodplain, but that no change to the floodplain mapping is required by the Project. In addition, with the widening primarily to the inside, there are no expected issues regarding adding fill into waterways or wetlands. Any Section 404 permit, if needed, is expected to be handled under a nationwide permit with no mitigation requirements. Work has begun on permit applications, which are expected to be completed and approved in the Summer of 2018.

Local Support and Approvals

The support for this Project is indicated by the wide range of letters available on the Application website. 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. As noted in Section 3, ACOG has committed to moving remaining portions of the Project into the TIP (portions are in the TIP currently) upon notice of award. The Project is also being coordinated with the Oklahoma Turnpike Authority.

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, or for the Project as a whole. Public input at the meeting for the roadway part of the Project expressed concern for safety, and requests to add a lane to the Anderson Boulevard on-ramps, but no controversy was noted. As the Project progresses into construction, ODOT will be proactive in keeping the public informed of road closures or other changes in traffic patterns.

6.3.1. State and Local Planning Documents

Most Project elements are already included in the current Metropolitan Transportation Plan, Encompass 2040. The Project is consistent with the 2015-2040 Oklahoma Long Range Transportation Plan (“LRTP”). The LRTP, adopted in August 2015, is a policy document. The Project addresses two policies in particular: Highway/Bridge Policy #2: Preserve and improve the condition of highways and bridges, and Highway/Bridge Policy #5: Provide for a safe, efficient, and effective National Highway System to improve commercial motor vehicle mobility and connectivity. For Policy #2, the Project addresses vertical clearance issues at Post, Westminster and Anderson Roads. Policy #5 is addressed by improved commercial vehicle mobility and connectivity, and reduced collisions.

The Project supports the Oklahoma Freight Plan, currently available in draft form at <http://www.okstatefreightplan.com/>. The Project complies with the Plan’s goals, which are consistent with the 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.

6.4. Risks and Mitigation Strategies

A description of possible Project risks and mitigation strategies are described below.

Construction Cost and Schedule

A risk to any project is construction cost and schedule. ODOT has strong experience with completing work on budget and ahead of schedule, including:

- Widening I-40 from El Reno to the west side of Yukon, completed in 80% of the projected time
- Widening from the west side of Yukon to Morgan Road, on budget and 30% ahead of schedule

ODOT also has experience with similar project scope. Two examples of similar bridge projects are:

- Reconstruction of US 77 bridge over Memorial R in OKCy, completed 8% ahead of schedule
- Redecking of I-40 bridges over the North Canadian River in OKC, done 15% ahead of schedule

To mitigate construction 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.

Eastern Oklahoma County Turnpike Construction

While highly unlikely, it is possible that the EOC project would experience delays in construction. This project is fully paid for by bonds, and is not affected by the state budget process. The bond issuance process began in September 2016, with ROW acquisition and utility work underway. OTA has put the I-40/EOC Interchange project construction out for bid, with selection expected by the end of 2017.

The OTA has been constructing, operating and maintaining turnpikes for 80 years. In the 1990s, toll roads including the John Kilpatrick Turnpike in Oklahoma City were built. The OTA has a “cross-pledge” turnpike system. Thus, tolls collected on all turnpikes pay the debt service, maintenance and expansion for the entire turnpike system, not each individual road, thus guaranteeing a reliable revenue source for the EOC project.

Independent Utility

Even without the EOC traffic, the Project has independent utility. A BCA was run assuming no additional Turnpike traffic, and the resulting NPV was \$2.0 million, with a benefit-cost ratio of 1.02. This is less than the 1.11 ratio with the Turnpike traffic, but still shows that the safety, travel time and other benefits exceed Project costs.

Earthquakes

A 5.8-magnitude earthquake occurred at 7:02 a.m. on September 3, 2016 near Pawnee, the largest earthquake ever recorded in the state. ODOT immediately responded, dispatching inspection teams to examine bridges within 30-miles of the epicenter, as per the state’s updated guidance (**Table 6**). This same mitigation would be performed for the I-40 Douglas Project, both during construction and after.

Table 6: Earthquake Inspection Policy, ODOT 2016

Magnitude	Inspection Radius
4.7 to 4.8	5-mile
4.9 to 5.3	15-mile
5.4 to 5.8	30-mile
5.9 to 6.2	60-mile
6.3 - plus	120-mile

Considering the Pawnee earthquake, and smaller earthquakes occurring recently in central Oklahoma, there is a risk of an earthquake affecting this Project. To mitigate this concern, ODOT has consulted with the California DOT in addressing appropriate bridge design, maintenance and inspections. According to the USGS, no earthquakes greater than a 2.6 magnitude have been recorded in the last ten years within three miles of the Project site. Pawnee is 72 miles from the Project site.

Possibility of Tinker Air Force Base Reduction

Part of the need for this project stems from the overwhelming activity at Tinker, driving both freight-related and commuter traffic. The Defense Base Realignment and Closure Commission (“BRAC”) reviews military installation recommendations issued by the Department of Defense. Tinker Air Force Base has cooperated fully in previous BRAC reviews with no reductions occurring as a result.

The state, the Chamber of Commerce, and the communities of Oklahoma have worked diligently with Tinker to make it BRAC-proof. Given the history and success of this effort, as well as the investment in facilities on the recently-expanded base, it is unlikely that BRAC would decrease the mission and employment at Tinker, but if such did occur, it would lower traffic and reduce the need for the Project.

7. LARGE PROJECT REQUIREMENTS

Information regarding the INFRA Large Project Requirements is summarized in **Table 7**. The I-40 Douglas Project supports economic vitality and national defense. President Eisenhower championed the formation of the Interstate Highway System to provide critical ground transport routes for military supplies and troop deployments in case of national necessity. 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 is moving ahead with environmental approvals, public engagement, and engineering design work so that it can be implemented as soon as funding becomes available. Waiting to implement this Project will only cause further deterioration in service, reliability and safety on this critical piece of America’s National Highway Freight Network, National Highway System, and now the emerging network of Alternative Fuel Corridors. Time is also critical because of two connecting projects that are currently underway – a widening of I-40 immediately east of the Project, and the Turnpike extension.

Table 7: Large Project Requirements

Does the project generate national or regional economic, mobility, safety benefits	Yes, see Executive Summary, and Sections 1.2, 1.4 & 5.1
Is the project cost effective?	Yes, see Section 5.1.6 on BCA
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, see Section 5.1, including: <ul style="list-style-type: none"> • 5.1.2 • 1.2 & 5.1.1 • 1.2, 5.1.2 & 5.1.4 • 1.2 & 5.1.2 • 5.1 • 5.1.3 • 6.3 & 6.4
Is the project based on the results of preliminary engineering?	Yes, PE is 80% complete. (Plans are on website)
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 & 5.2
Are contingency amounts available to cover unanticipated cost increases?	Yes, see Section 4
Is it the case that the project cannot be easily and efficiently completed without other federal funding or financial assistance available to the project sponsor?	Yes, see Sections 4 & 5.2
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