FY2017-2018 INFRA GRANT APPLICATION

I-44 CORRIDOR IMPROVEMENTS
CITY OF TULSA, OKLAHOMA

Supporting information can be found at:

Tulsa County I-44 INFRA

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This project was submitted for FASTLANE funding in FY 2016 and FY 2017 under the project name: Reconstruction of I-44/US-75 Interchange Bridges and Related Improvements on I-44, City of Tulsa, Oklahoma

Previously Incurred Project Cost:	**$2,025,800**
Future Eligible Project Cost:	$107,744,810
Total Project Cost:	$109,770,610
INFRA Request:	$63,829,200
Total Federal Funds (including INFRA)	$86,195,850
▪ Matching funds restricted to specific project component?	NO

▪ Project on NHFN?	YES
▪ Project on NHS?	YES
▪ Project to add Interstate capacity?	YES
▪ Project in national scenic area?	NO
▪ Rail grade crossing or separation included?	NO
▪ Intermodal or freight rail project, or freight project within freight rail, water, or intermodal facility?	NO
▪ If yes, specify:	NA
▪ INFRA $ to be spent on above two items:	NA

State: Oklahoma

Begin: Lat/Long: 36˚5'20.40"N / 96˚01'50.17"W	
End: Lat/Long: 36˚5'23.40"N/ 95˚59'36.12"W	
Size of project:	Large
Submitting TIGER project?	No
Urbanized Area (UA):	Tulsa, OK
UA population, 2015	686,033

Inclusion in Planning Documents:

▪ TIP:	YES*
▪ STIP:	YES*
▪ MPO LRTP:	YES
▪ State LRTP:	YES
▪ State Freight Plan:	YES*
▪ Interested in new environmental review/permitting approach?	NO

*elements of this project are included in the current STIP and TIP documents and Draft State Freight Plan

Submitted by: Oklahoma Department of Transportation

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1.0 PROJECT DESCRIPTION

Currently, I-44 between I-244 and the Arkansas River in Tulsa, Oklahoma is a four-lane divided highway. This portion of I-44 is one of the oldest sections of interstate in Oklahoma and has not been upgraded since it was constructed in the Eisenhower years. The pavement has deteriorated over time and is currently rated Fair to Poor by ODOT. Due to increasing congestion levels, substantially elevated accident rates, and the state of repair of the related infrastructure, the Oklahoma Department of Transportation (ODOT) is requesting $63,829,200 in INFRA funds to assist with construction of a network of projects within this corridor.

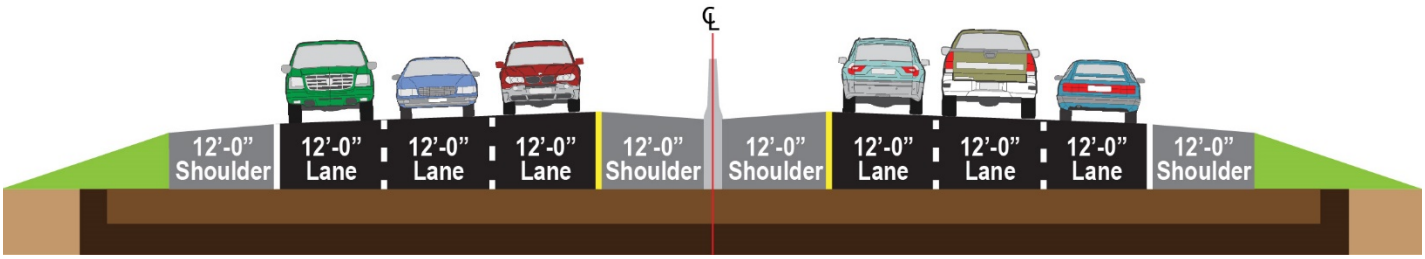
FIGURE 1: I-44 INFRA Project Map, Tulsa County, Oklahoma

The subject of this grant application encompasses the **replacement of the bridges** on I-44 over 33rd W. Avenue, at Union Avenue over I-44, and on US-75 over I-44, and **reconstruction and widening** of approximately one mile of I-44 from Union Avenue to the Arkansas River from four to six lanes (see **Figures 1 and 2**). The total project cost is $109,770,610 and ODOT has incurred over $2,000,000 of this cost to date in completing a corridor-wide Preliminary Engineering Study as well as design and NEPA documentation for the 33rd W. Avenue and Union Avenue bridges. All of this work is anticipated to be constructed **within existing right-of-way**, except for some minor acquisitions at the I-44 and Union Avenue bridge, which have been authorized by FHWA and are currently underway. The project will include **a new median barrier with pier protection for safety** where I-44 runs under Union Avenue and US-75. Currently, there is no shoulder and the barrier walls are insufficient. All bridge replacements will include new bridge rail. **Barrier walls will be installed** in lieu of guardrail and cable barriers.

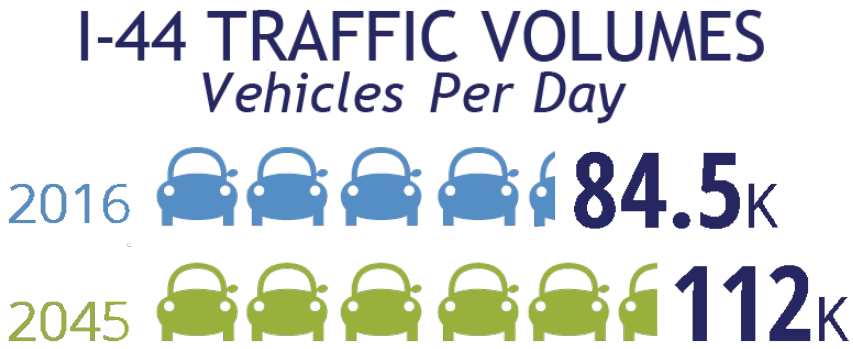
The INFRA project scope includes the replacement of two bridges at 33rd W. Avenue, one bridge at Union Avenue, and two bridges at the US-75/I-44 interchange - all are rated ***STRUCTURALLY DEFICIENT*** *or* ***FUNCTIONALLY OBSOLETE****. The one-mile segment between Union Avenue and the Arkansas River will be widened to six lanes.*

This particular project is part of a longer-term, larger effort to improve the I-44 corridor in west Tulsa. The entire two and one-half mile segment from I-244 to the Arkansas River will eventually be completely reconstructed to meet the demands of growing intra- and interstate freight demands, address significant safety issues, and upgrade to current interstate standards. However, it is necessary to proceed in phases. The project described in this application is a critical first step.

FIGURE 2: Proposed Typical Section for I-44



Tulsa County – in particular, the cities of Tulsa, Jenks, and Glenpool – is experiencing tremendous growth through residential and commercial development. This growth has resulted in traffic congestion, impaired accessibility to the transportation system, and limited mobility of motorists. The Arkansas River, while initially serving the area as a primary means to move refined oil via river barges, has increasingly become a barrier to the transportation system as oil and gas products are predominantly carried by tanker trucks; and there are a limited number of suitable highway crossings as the river traverses the Tulsa metropolitan area. I-44 currently carries **84,500** vehicles per day, with approximately 14% trucks. Future (2045) traffic volumes are anticipated to reach over **112,000** vehicles per day (see Traffic Data at Tulsa County I-44 INFRA.) Given the current typical section on I-44, the system of adjacent collector/distributor roads, and US-75 ramps that all have access to I-44 in the project limits, congestion is related to capacity as well as to the operations of all of these closely spaced access points (see **Figure 3** and **Figure 4** on the next page).



The I-44 corridor provides access to important industrial and manufacturing facilities, large employment centers, schools and education facilities, and recreation. Congestion and frequent accidents in the corridor pose a regionally significant transportation challenge, affecting the reliability of movement of freight and people. As the only remaining four-lane piece of interstate in the Tulsa metropolitan area, the proposed improvements will relieve a significant bottleneck and contribute to a safer, continuous six-lane interstate corridor through the city. The project will also enhance personal mobility and accessibility, not only for regional users accessing jobs and services, but to the residents in the immediate project area. The new bridge on Union Avenue over I-44 will include bicycle lanes, consistent with the City of Tulsa's plan to extend these lanes on Union Avenue to the north and south (see the Existing and Planned Multi-Use Trails and Bikeways Map in Maps and Graphics at Tulsa County I-44 INFRA.)

FIGURE 3: Existing Queuing on I-44 Westbound Collector/Distributor Road in PM Peak

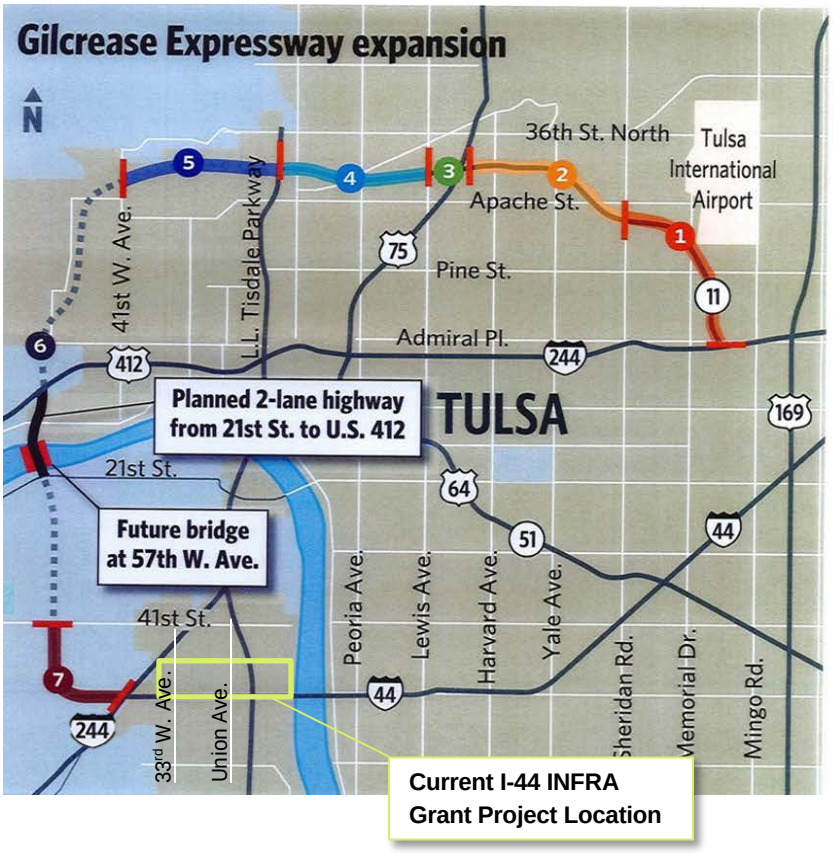
FIGURE 4: Trucks Stopped at I-44 Westbound Collector/Distributor On-Ramp at 51st Street

The project included in this application is a first piece of the improvements planned for the I-44 corridor. Ultimately, ODOT intends to reconstruct the I-44/US-75 interchange to provide directional ramps and improve operations. ODOT recently completed a Preliminary Engineering (PE) Study of the ultimate improvements in this corridor (see the Reports and Technical Information at Tulsa County I-44 INFRA). Eventual improvements will also include improved local street connections, including extending W. 51st Street under US-75 north of I-44, helping to reconnect the historic neighborhoods of Carbondale and Winnetka Heights that were separated when US-75 was constructed. The project that is the subject of this INFRA grant request is a critical first step and will allow ODOT to accelerate delivery of the remainder of the corridor improvements.

Since this project was submitted for FASTLANE funding in FY 2016 and FY 2017, there has been a significant development in transportation infrastructure in Tulsa, heightening the urgency for improvements to I-44. The Oklahoma Turnpike Authority (OTA) recently announced that it intends to complete the extension of the Gilcrease Expressway from I-44 north to Edison Street (north of US-412, see http://www.drivingforwardok.com/gilcrease-expressway). The Gilcrease Expressway is part of the region's long-term plan to complete an outer highway loop around Tulsa's central business district. The Gilcrease Expressway has been represented in area planning documents since the 1960s, and over the years the City of Tulsa and Tulsa County have been completing portions of the loop on the north side of downtown Tulsa as well as just west of the I-44/I-244 interchange (see **Figure 5**). However, transportation funding for these agencies is limited, and without the participation of the OTA and the ability to toll the facility, completion of the Gilcrease Expressway would have taken many more decades.

The OTA is pursuing a private partner to assist with the construction of the project, in addition to contributions from FHWA, ODOT, the City of Tulsa, Tulsa County, and the Indian Nations Council of Governments (INCOG), the regional metropolitan planning organization. By leveraging the federal dollars being invested in the Gilcrease Expressway, the OTA is maximizing contributions from the state and private sector while raising revenue through tolling to invest in future infrastructure.

FIGURE 5: Gilcrease Expressway, Tulsa County, Oklahoma



History of Gilcrease Expressway Construction

1. From I-244 to Sheridan Road. **2.4 miles. Completed 1970.**
2. Sheridan Road to US 75. **2.7 miles. Completed 1988.**
3. Full interchange reconstruction to Lewis Avenue. **0.5 miles. Completed 2001**
4. Lewis Avenue to L.L. Tisdale Parkway. **2.3 miles. Completed 2008.**
5. From L.L. Tisdale Parkway to 41st West Avenue. **2.3 miles. Construction started in early 2010 and will be completed by spring of 2013.**
6. From 41st West Avenue to 41st St. South. **6.7 miles.**
7. From 41st St. South to I-44 at 51st St. South. Now consists of two-lane road on a four-lane right-of-way. **2 miles. Completed by late 1980s**

The Oklahoma Turnpike Authority intends to construct 5.6 miles of the Gilcrease Expressway from I-44 north to US-412 as a 4-lane divided, limited access tollway with grade-separated interchanges, a continuous multi-purpose trail, and a new bridge across the Arkansas River.

The OTA plans to construct approximately half of the remaining portion of the Gilcrease Expressway in west Tulsa, denoted with the colored numbers 6 and 7 on **Figure 5.** This project will consist of approximately 5.6 miles of a 4-

lane, new alignment limited access expressway with grade-separated interchanges and a new bridge across the Arkansas River. Much of the right-of-way for this corridor has already been purchased by the City of Tulsa, construction is anticipated to begin as early as 2018.

The effect of the Gilcrease Expressway expansion on the I-44 corridor is an increase in traffic on the order of approximately 10,000 trips per day when it opens in 2020. Many of these trips are expected to be commercial trucks, as the Gilcrease Expressway will serve the industrial and refinery businesses located in west Tulsa. This anticipated increase in trips will add to the burden on I-44 and increase the need to reduce the existing bottleneck for freight and passenger traffic on this congested corridor.

2.0 PROJECT LOCATION

The proposed project is within the Tulsa urbanized area and the Tulsa Transportation Management Area (TMA) as shown in **Figure 6**. It is located within the I-44 corridor, a portion of the National Highway System and the Primary Highway Freight Network, from the interchange with I-244 and extending east approximately two and one-half miles to the Arkansas River (see **Figure 6**). The extent of the proposed INFRA improvements are between 33rd W. Avenue and the Arkansas River (see **Figure 7**).

Project Beginning:
36° 5'20.11"N; 96° 1'46.43"W

Project Ending Point:
36° 5'23.53"N; 95° 59'34.83"W

Urbanized Area:
Tulsa, OK (2015 pop. 686,033)

FIGURE 6: Tulsa Transportation Management Area (TMA)

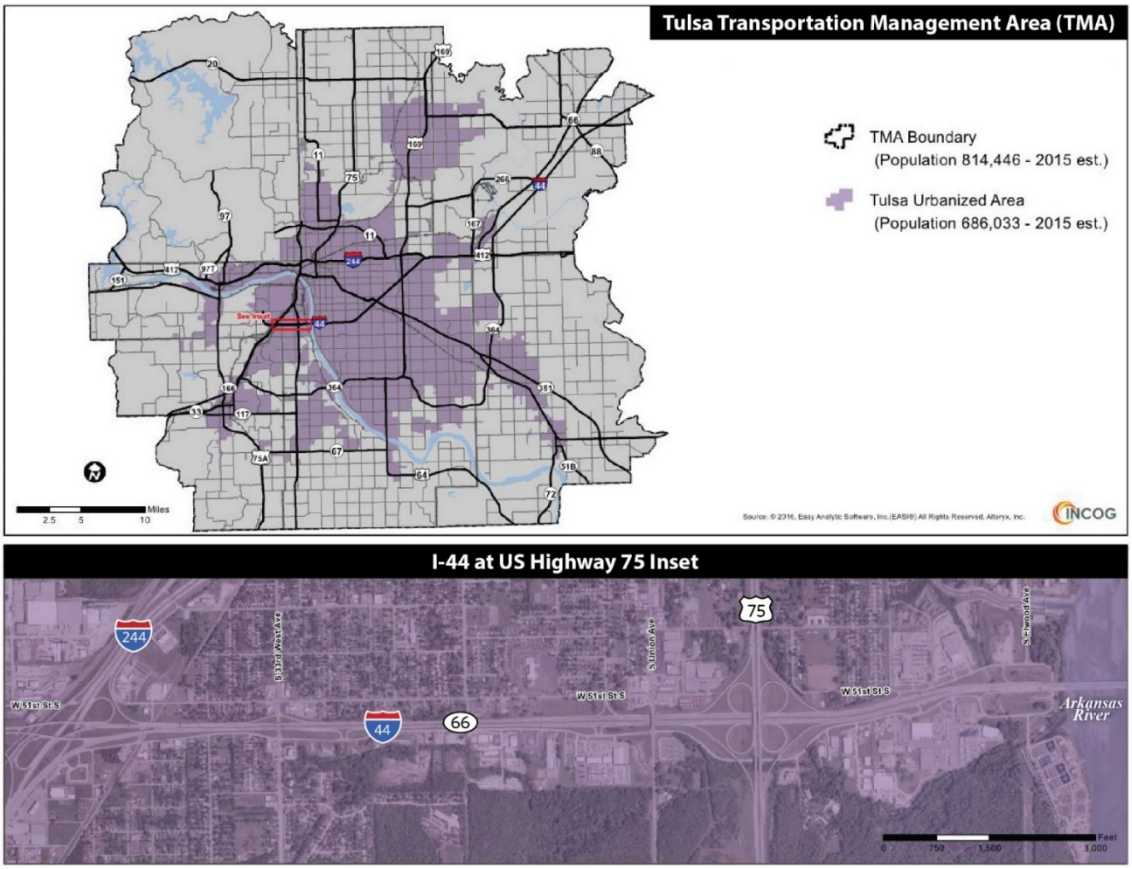
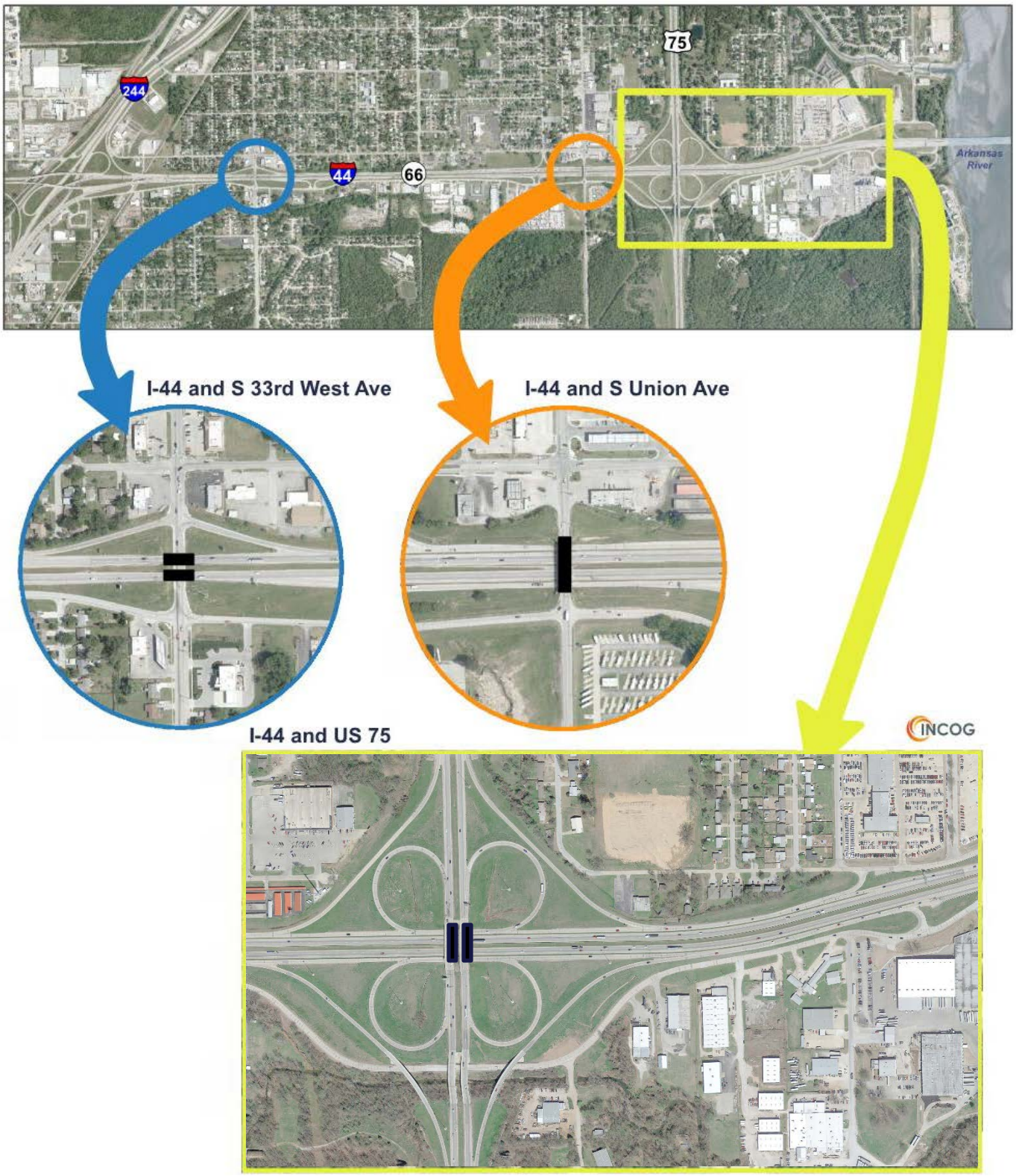


FIGURE 7: Project Elements Map



3.0 PROJECT PARTIES

The Oklahoma Department of Transportation (ODOT) is the project sponsor. ODOT is coordinating the project with FHWA, INCOG, the City of Tulsa, and Tulsa County.

4.0 GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

The I-44 Improvements project is a true partnership, using State and Federal funds as shown in **Table 1** below. The previously incurred funds total $2,025,800. The future eligible cost for the I-44 Improvements project is $107,744,810. A project of this magnitude is beyond the capabilities of ODOT to fund with state and federal appropriations alone. Without INFRA funding, ODOT would be forced to build the project in multiple phases over many decades. Therefore ODOT is requesting $63,829,000 of INFRA funds for construction of this project.

Cost estimates were developed by the project engineer based on estimated quantities and recent similar projects constructed in the State of Oklahoma. A pre-construction and construction schedule and detailed cost estimate are included as a part of the application attachments (Tulsa County I-44 INFRA Reports and Technical Information). The budget and schedule includes the cost of each project component, and how non-federal (state), INFRA, and other federal funds will be allocated to each component. A summary of the future costs of the different project components and the anticipated cost share is presented in **Table 2**. Design, environmental, and right-of-way costs will be covered 100% by ODOT's state transportation funds and federal-aid allocation. Construction funds are anticipated to be 60% INFRA funds, 20% other federal funds, and 20% state funds. The cost estimate also includes a 6% contingency. ODOT's 8-Year Construction Work Plan (also included in Tulsa County I-44 INFRA Reports and Technical Information) outlines the Department's commitment to allocate future state funds to the projects in the I-44 corridor. ODOT has traditionally used state funding sources for all of its maintenance activities, and funding for the future maintenance of the I-44 improvements would be no different. ODOT is committed to building and maintaining the I-44 improvements for decades to come.

TABLE 1: Sources and Uses of Funds

USES OF FUNDS	SOURCES OF FUNDS (IN $1,000S)						
	STATE FUNDS		FEDERAL FUNDS		INFRA FUNDS	FUTURE ELIGIBLE COSTS	TOTAL PROJECT COST
	Previously Incurred	Future	Previously Incurred	Future			
Environmental and Engineering	405.16	228.96	1620.64	915.85		1,144.81	3,170.61
ROW and Utilities		43.60		174.40		218.00	218.00
Construction		20,000.00		20,000.00	60,000.00	100,000.00	100,000.00
Contingency and Other		1,276.40		1,276.40	3,829.20	6,382.00	6,382.00
TOTAL	405.16	21,548.96	1,620.64	22,366.65	63,829.20	107,744.81	109,770.61

ODOT currently has over $30 million in improvements programmed for the corridor, including portions of this proposed INFRA project. An INFRA funding award would allow for use of a portion of these funds on other corridor improvements and would accelerate the delivery of the ultimate solution for the I-44 corridor, including the I-44 and US-75 interchange. ODOT is requesting $63,829,200 in INFRA grant funds for the construction of this project. ODOT is matching these requested funds with $21,548,960 in state funds, or 20% of the total future project cost.

TABLE 2: Summary of Future Project Costs

PROJECT COMPONENT	COST SHARE	COST ($1,000S)
Engineering and Environmental	20% ODOT 80% Other Federal **SUBTOTAL**	223 916 **1,145**
Right-of-Way and Utilities	20% ODOT 80% Other Federal **SUBTOTAL**	44 174 **218**
Construction		
▪ Bridges at 33rd Avenue West	60% INFRA 20% ODOT 20% Other Federal **SUBTOTAL**	9,000 3,000 3,000 **15,000**
▪ Bridge at Union Avenue	60% INFRA 20% ODOT 20% Other Federal **SUBTOTAL**	6,000 2,000 2,000 **10,000**
▪ Bridges at I-44/US-75 Interchanges	60% INFRA 20% ODOT 20% Other Federal **SUBTOTAL**	30,000 10,000 10,000 **50,000**
▪ Widening I-44, Union Avenue to River	60% INFRA 20% ODOT 20% Other Federal **SUBTOTAL**	15,000 5,000 5,000 **25,000**
▪ Contingency	60% INFRA 20% ODOT 20% Other Federal **SUBTOTAL**	3,829 1,277 1,276 **6,382**
TOTAL	60% INFRA 20% ODOT 20% Other Federal **TOTAL**	**63,829** **21,549** **22,367** **107,745**

5.0 MERIT CRITERIA

This section describes how the I-44 project meets the merit criteria defined in the INFRA grant program.

5.1 Support for National or Regional Economic Vitality

The I-44 corridor is an important link for both regional and national economic vitality. The project aligns with many of the USDOT's assessment measures of this criterion, both quantitatively and qualitatively. The cost effectiveness of the improvements described in this application was measured through a complete Benefit-Cost Analysis (BCA) to monetize, as thoroughly as possible, benefits generated under this criterion (See the Reports and Technical Information section at Tulsa County I-44 INFRA for the BCA analysis tables and memo).

5.1.1 Cost-Benefit Analysis

A 30-year period of analysis was used in the estimation of the project's benefits and costs. The analysis shows that the project is net beneficial to the nation's economy and achieves the following outcomes:

- Significant travel time savings for private and commercial drivers along the corridor;
- Improvement in movement of people along the corridor by reducing congestion;
- Achievement of significant reduction in traffic fatalities and serious injuries by virtue of providing more miles of safer highway infrastructure;
- Reduction in emissions of pollutants such as volatile organic compounds (VOC), nitrogen oxides (NOx), fine particulate matter (PM2.5), Sulfur Dioxide (SOx), Carbon Monoxide (CO), and Carbon Dioxide (CO2); and
- Reduce ongoing maintenance costs of current infrastructure.

Table 3 below summarizes the monetization of the main benefits for the proposed improvements.

TABLE 3: Benefit Estimates by Category, 30-year Analysis Period (2023-2052) for Local Impacts

MERIT CRITERIA	BENEFIT CATEGORIES	7% DISCOUNT RATE	3% DISCOUNT RATE
▪ Economic	Travel Time Savings	$100,443,163	$198,586,081
	Vehicle Operating Cost Savings	-$53,139,892	-$103,601,407
	Maintenance Cost Savings	$62,672	$124,418
	Residual Value of Assets	$3,939,096	$15,526,459
▪ Safety	Accident Cost Reduction	$37,294,581	$73,174,678
▪ Community and Environmental	Emissions Cost Reduction	$233,616	$378,430
▪ TOTAL BENEFIT ESTIMATES		**$88,833,235**	**$184,188,659**

The largest benefits accrue in the travel-time category, totaling over $100 million when discounted at 7 percent. Safety benefits are the second largest category of benefits, totaling nearly $37 million when discounted at 7 percent. Net vehicle operating costs increase due to the additional roadway traffic induced due to the additional available capacity. Net over the 30-year period of the analysis, there are additional maintenance and emission cost savings, as well as a residual value of new infrastructure.

Considering all monetized benefits and costs, the estimated internal rate of return of the project is 6.0 percent. With a 7 percent real discount rate, the $82.3 million investment would result in $88.8 million in total benefits, a Net Present Value of $6.5 million, and a Benefit/Cost ratio of approximately 1.08. With a 3 percent real discount rate, the Net Present Value of the project would increase to $87.5 million, for a Benefit/Cost ratio of 1.90. **Table 4** summarizes these results.

TABLE 4: Overall Results of the Benefit-Cost Analysis (Local Impacts), Millions of 2016 Dollars

PROJECT EVALUATION METRIC	7% DISCOUNT RATE ($M)	3% DISCOUNT RATE ($M)
Total Discounted Benefits	88.8	184.2
Total Discounted Costs	82.3	96.7
Net Present Value	6.5	87.5
Benefit / Cost Ratio	1.08	1.90
Internal Rate of Return (%)	6.0%	
Payback Period (years)	11 years	

$100 M

In travel time savings

LOCAL BENEFIT COST ANALYSIS RESULTS

1.08 *Local Benefit / Cost Ratio*

at the 7% *Discount Rate*

1.90 *Local Benefit / Cost Ratio*

at the 3% *Discount Rate*

5.1.2 Regional Benefits

All results for the Benefit Cost Analysis are estimated for the local segments in the immediate vicinity of the project which will be the most directly impacted. However, in addition to these localized benefits, a select link analysis of the Project's impacts has demonstrated significant benefits to the broader transportation network in the region. For example, the Gilcrease Expressway, once built, is expected to add approximately 10,000 vehicles per day to I-44 and in turn significantly enhance the overall benefits of this project. Given the strategic importance of this segment for the region and the state in general, the estimated regional benefits are briefly summarized in **Table 5** below.

TABLE 5: Merit Criteria and Cost-Effectiveness - Summary of Infrastructure Improvements and Associated Benefits (Regional Impacts)

CURRENT STATUS OR BASELINE and problems to be addressed	CHANGES TO BASELINE / ALTERNATIVES	TYPE OF IMPACTS	POPULATION AFFECTED by impacts	ECONOMIC BENEFIT	SUMMARY OF RESULTS ($M discounted at 7%)
Existing infrastructure within the I-44 Corridor remains in poor condition and becomes increasingly expensive to maintain, creating traffic growth constraints, and hindering connectivity in the region. Travel Delays for Passenger Vehicles and Trucks due to congestion on the I-44 persist and worsen over the study period.	Increase the capacity of I-44 by widening I-44 from four through lanes to six through lanes from the I-44/ Union Avenue grade separation to the Arkansas River. The project will also incorporate the following bridge improvements within this I-44 highway segment: on I-44 over 33rd W. Avenue, on Union Avenue over I-44, and US-75 over I-44.	Improved travel speeds, reduced long-term congestion, fuel savings	Passenger vehicles, trucks	Travel Time and Vehicle Operating Cost Savings	$351.53
		Emission Savings	Passenger vehicles, trucks	Emissions Cost Reduction	$2.12
		Improved Safety	Passenger vehicles, trucks	Accident Cost Reduction	$50.43

TABLE 6: Overall Results of the Benefit Cost Analysis (Regional Impacts), Millions of 2016 Dollars

PROJECT EVALUATION METRIC	7% DISCOUNT RATE ($M)	3% DISCOUNT RATE ($M)
Total Discounted Benefits	**$366.5**	**$754.5**
Total Discounted Costs	**$82.3**	**$96.7**
Net Present Value	**$284.2**	**$657.7**
Benefit / Cost Ratio	**4.45**	**7.80**
Internal Rate of Return (%)	24.4%	
Payback Period (years)	3 years	

As shown in **Table 5** and **Table 6**, considering all monetized benefits and costs for the regional impacts, the estimated internal rate of return of the project is 24.4 percent. With a 7 percent real discount rate, the $82.3 million investment would result in $366.5 million in total benefits, a Net Present Value of $284.2 million, and a Benefit/Cost ratio of approximately 4.45. With a 3 percent real discount rate, the Net Present Value of the project would increase to $657.7 million, for a Benefit/Cost ratio of 7.80.

REGIONAL BENEFIT COST ANALYSIS RESULTS

4.45 *Regional Benefit / Cost Ratio*

at the **7%** *Discount Rate*

7.80 *Regional Benefit / Cost Ratio*

at the **3%** *Discount Rate*

5.1.3 Economic Vitality Benefits

Results of the Benefit Cost Analysis show that the I-44 Improvements Project will have both local and regional benefits that contribute to economic vitality. This leads to a number of beneficial outcomes, some of which are monetized as part of the BCA and others which are more qualitative.

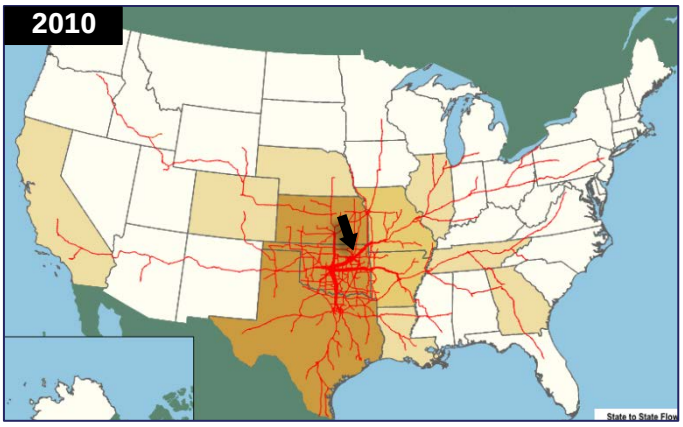
1 *ADVANCES national and regional economic development.*

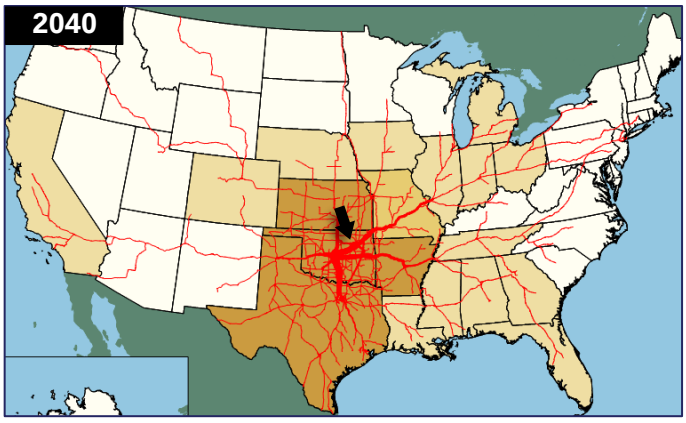
2 *ELIMINATES bottlenecks separating workers from employment.*

3 *ACHIEVES a significant reduction in traffic fatalities.*

Sustain or Advance National or Regional Economic Development: Figure 8 illustrates that I-44, and the project corridor in particular, plays a key role in the freight network of Oklahoma and the south central U.S. I-44 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 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.

FIGURE 8: Major Truck Flows To, From, and Within Oklahoma

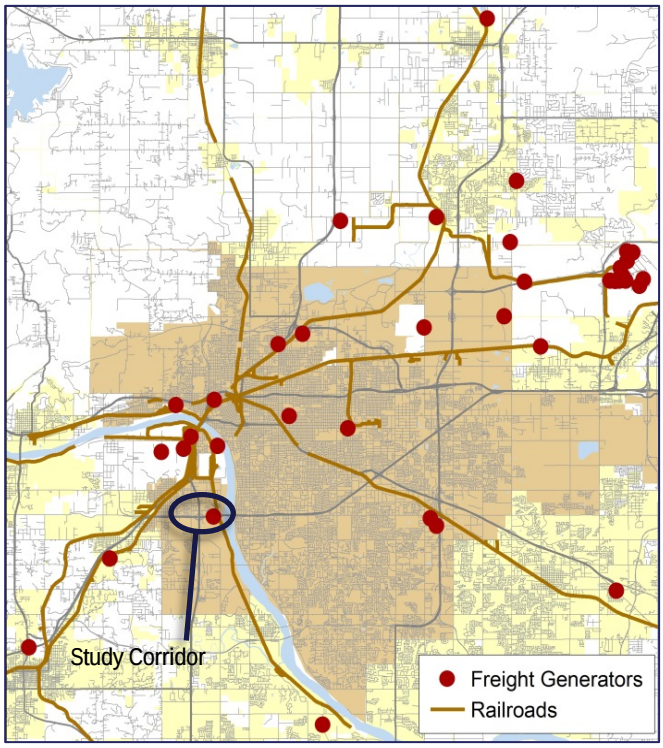




The economic outcomes generated by the different project components improve the connectivity between home and work places and between production and consumption sites. At the same time, they increase the competitiveness of the United States by increasing efficiency in the movement of goods along the I-44 corridor. Travel time savings will be realized by passenger vehicles, which will be able to take advantage of higher average speeds compared to those experienced in the no-build scenario, in which the project does not occur. Truck drivers will also benefit and save time as well. It is estimated that 14 percent of traffic on I-44 in the study corridor is composed of trucks.

As **Figure 9** indicates, Tulsa is home to a number of significant freight-generating businesses. Several, including a large beverage bottling plant and a major oil refinery, are located adjacent to or within just a few miles of the project corridor. For many more, the corridor is a significant route to and from the south and west. As the figure also indicates, many of these generators are along rail lines, and in some cases, intermodal freight transfers occur between rail and truck. The Tulsa Port of Catoosa, located to the east and north of the project corridor, supports barge, rail, and truck freight modes. Improvements to the project corridor support local, regional and national freight movements to and from these vital centers.

FIGURE 9: Major Freight Generators and Rail Lines



Projected increases in area population support the need for the project. Table 7 summarizes forecasted population growth trends for the region and study area, which are in the 25 to 30-percent range between 2010 and 2040. These population growth assumptions underlie the travel-demand forecasting that supports the need for the project. **To accommodate the anticipated population growth, improvements must be made along this portion of I-44**.

TABLE 7: Forecasted Population Growth Trends

	2010	2040	% Increase
Tulsa MSA	937,478	1,195,666	27.5%
Tulsa County	605,127	754,740	24.7%
Project Area	8,489	10,967	29.1%

Eliminating Bottlenecks in the Freight Supply Chain: The project will increase the base capacity of I-44 by one lane in each direction, and will thus address a substantial portion of the last remaining four-lane segment of I-44 in the Tulsa region. More broadly, this project is a key first step to facilitate the ultimate reconstruction of the I-44/US-75 interchange, which will address both east-west and north-south congestion bottlenecks and provide major regional mobility benefits for both passengers and freight. 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. The **corridor currently carries over 84,000 vehicles per day, over 10,000 of which are trucks**, and, as **Figure 8** previously illustrated, plays a key and growing role in carrying freight within Oklahoma and the southern central U.S.

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. US DOT is developing a methodology to estimate inventory cost savings but that methodology is not yet available.

Achieve a Significant Reduction in Fatalities: Crash rates along the study corridor are notably higher than the statewide average for similar facilities, as shown in **Figure 10 below.** The **overall crash rate is just over 4 times the statewide average, and the fatal crash rate is over 3.5 times the statewide average**. As the graph in **Figure 10** illustrates, the most prevalent type of crash on the corridor is the rear-end collision, accounting for nearly half of all crashes. In addition, nearly half of all crashes on the corridor occurred during the peak commute periods, when congestion is at its maximum. **Figure 11** illustrates the location and severity of crashes on I-44 in the last five years. The portion of the corridor between Union Avenue and the Arkansas River sees the highest concentration of crashes. The I-44 Improvement project is anticipated to relieve congestion near and through the interchange – an improvement which is known to correlate to reduced occurrence of rear-end collisions. Data from the Crash Modification Factors Clearinghouse suggests that **just increasing shoulder width from ten to twelve feet on an urban freeway can reduce crashes by up to 23%** (Haleem et al. 2013, cited at www.cmfclearinghouse.org).

*The corridor's overall crash rate is just over **4 times** the statewide average, and the fatal crash rate is over 3.5 times the statewide average.*

FIGURE 10: Selected Corridor Crash Statistics

SEVERITY	CRASH RATE (2010-2014) Within the Project Limits	CRASH RATE (2010-2014) Statewide Average	RATIO TO STATEWIDE AVERAGE
Visible Injury	66.8	11.37	**5.88**
Fatal	2.3	0.63	**3.65**
All Crashes	254.7	63.55	**4.01**

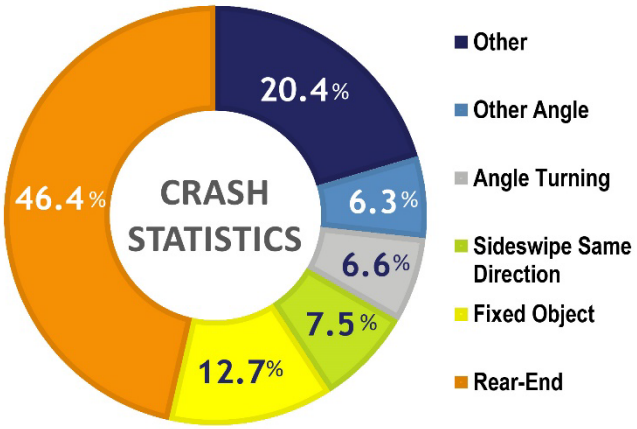
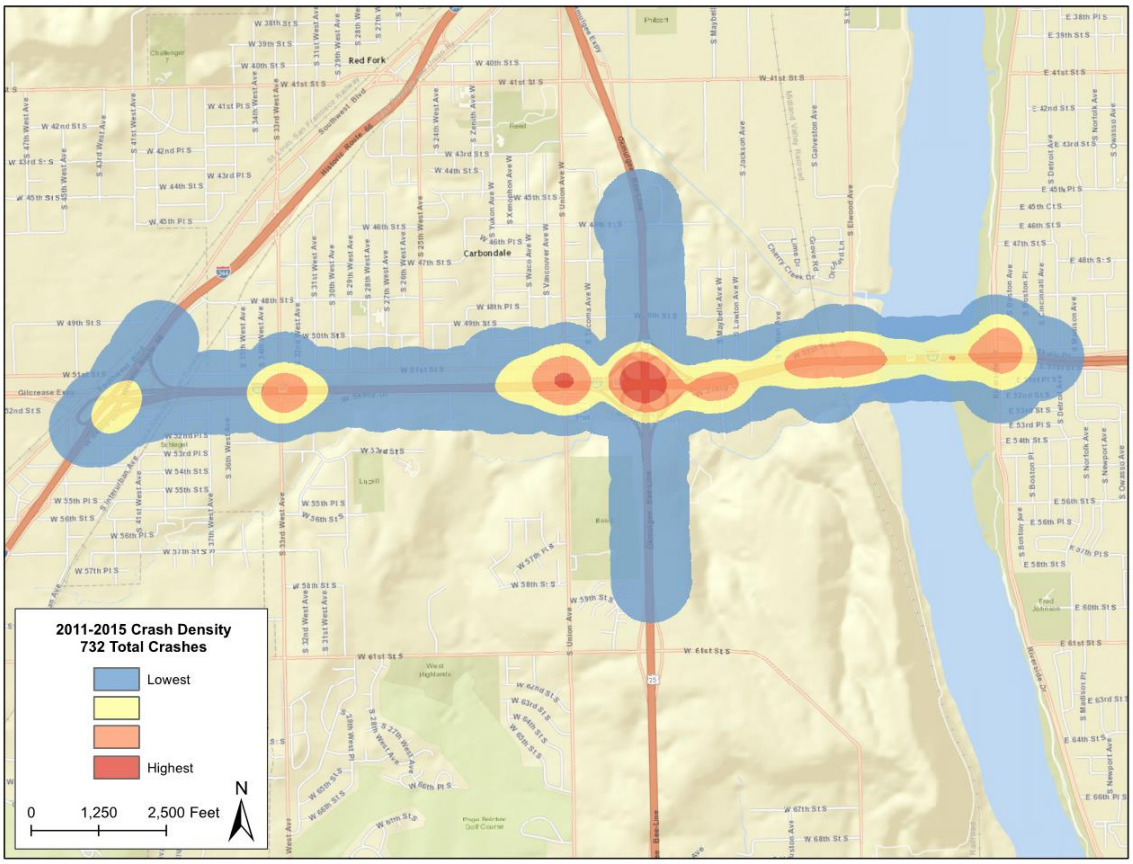


FIGURE 11: I-44 Crash Severity Cluster Map (2010-2014)



The second most prevalent crash type on the corridor, accounting for one-eighth of the total crashes, relates to collisions with fixed objects. More than half of these collisions involved injuries, and one was fatal. As part of the modernization of the corridor, the facility will be designed to current standards – with new median barrier protecting both directions (median barrier exists only for westbound traffic today), pier protection on I-44 under the US-75 and Union Avenue bridges, new bridge rail on all the replaced bridges, new barrier wall and impact attenuators on bridge approaches, and new barrier wall on bridge departures. Mainline I-44 will have standard 12-foot inside and outside shoulders (increased from four feet and ten feet today). In addition, it is anticipated that concrete barriers will be installed rather than guardrail and/or cable barrier. All of these improvements will contribute to a safer facility – in some instances protecting fixed objects (piers) that are currently unprotected, and in some instances mitigating the severity of fixed-object collisions (through strategies such as impact attenuation and modern barrier design).

HollyFrontier's Tulsa refinery, serving the Mid-Continent Region of the U.S. with a crude oil capacity of 125,000 barrels per day, sits less than two miles from the project corridor, (see **Figure 12**). A portion of the refinery's product is shipped by trucks through the I-44 corridor. Improving safety on the facility will reduce the likelihood of a crash involving oil tanker trucks, which can have catastrophic results. More generally, **I-44 is an important link in Oklahoma's freight network, and 7.5 percent of the vehicles involved in crashes within the corridor are heavy commercial vehicles.** Thus, the safety benefits described above will also accrue to regional and national freight movements as well.

FIGURE 12: HollyFrontier's Tulsa Refinery

In general, the modern design standards to be applied to the project are expected to result in a safer system, and should improve safety performance related to many other collision types as well. **The Project is anticipated to generate substantial safety outcomes as represented by more than $37 million (discounted at 7%) in accident cost reduction.**

$37.3 M *in accident cost reduction*

Environmental Sustainability: The Project will contribute to economic vitality by reducing congestion within the project vicinity and improving access and air quality for some of the traditionally underserved populations in the region. The addition of bicycle lanes and sidewalks on Union Avenue will provide enhanced mobility and access across I-44 for non-vehicular modes. In addition, public health and safety and water quality would be improved by any hazardous waste clean-up performed prior to construction. While increased VMT's from induced traffic flows generate additional emissions, the improved traffic flows result in an overall net reduction in greenhouse gas emissions and air pollutants. Overall, lifecycle emission reduction **savings total to $0.23 million**, discounted at 7 percent.

I-44 and US-75 were also recently nominated by INCOG, the Association of Central Oklahoma Governments (ACOG), and ODOT as **Alternative Fuel Corridors**. There are currently 12 compressed natural gas (CNG) fueling stations and four electric vehicle (EV) charging stations along I-44 in Oklahoma. By adding to the existing alternative fuel infrastructure and encouraging use of alternative fuel vehicles, ODOT and its partners will further reduce emissions and protect public health. As part of a national network of Alternative Fuel Corridors designated by FHWA, safety and mobility on I-44 and US-75 is paramount.

Ensure or Restore the Good Condition of Infrastructure: The project will replace five bridges (listed in **Table 8**) all of which are over 50 years old and have sufficiency ratings of 64 or less. **The US-75 bridges over I-44 have the poorest ratings and are structurally deficient, while the remaining three bridges are functionally obsolete**. The bridge inspection reports are available in the Tulsa County I-44 INFRA Reports and Technical Information. 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 project will also update some of the oldest pavement on Oklahoma's interstate system, which is currently in fair to poor condition.

TABLE 8: Bridge Condition

BRIDGE	AGE (YEARS)	SUFFICIENCY RATING
US-75 NB over I-44	53	49.4 | Structurally Deficient
US-75 SB over I-44	53	50.4 | Structurally Deficient
Union Ave over I-44	51	62.8 | Functionally Obsolete
I-44 EB over 33rd W Ave	64	63.7 | Functionally Obsolete
I-44 WB over 33rd W Ave	64	63.6 | Functionally Obsolete

Reduce Barriers Separating Workers from Employment: I-44 is also a critical link in the Tulsa intercity transportation network. I-44 carries twice as much traffic over the Arkansas River as the next highest volume river crossing. In a network with limited river crossings, I-44 carries local and regional traffic to work, school, and other important destinations. The project will provide additional capacity and improved mobility for the citizens of Tulsa. The addition of bicycle lanes and improved sidewalks on Union Avenue will provide a safer facility for non-vehicular modes, which are especially important in low-income areas such as the I-44 corridor. Ultimately, ODOT's plan for improvements to the I-44 corridor will provide better circulation and access to I-44, nearby community facilities such as churches, schools, and the city library, and to the surrounding neighborhoods.

*The corridor carries **twice** as much traffic as the next highest volume river crossing in Tulsa*

5.2 Leveraging of Federal Funding

ODOT understands the importance of leveraging federal funding with non-federal contributions. As federal and state transportation budgets face increasing challenges and uncertainty, we must turn to investment from the private sector to support our nation's infrastructure. The state of Oklahoma, in particular, has experienced budget deficits for three consecutive years, each one resulting in reductions to ODOT's budget. This downturn is in large part due to the volatility of the oil and gas industry, which is the largest direct revenue source for the state. Gross production taxes on oil and gas extraction have steadily declined since 2014. As discussed, the oil and gas industry will realize benefit from the I-44 project through increased economic vitality eliminating bottlenecks in the supply chain, improving safety, restoring the good condition of infrastructure, and reducing congestion and removing barriers separating workers from those places of employment. These improvements are much needed, given that roughly one quarter of all jobs in Oklahoma are tied to the energy industry. However, as a result of the current economic climate, the oil and gas partners that would be most logical to assist with the I-44 Improvement project are experiencing the same economic struggles as ODOT and other state agencies.

It is the practice of ODOT to consolidate its federal-aid allocation into a smaller number of projects, not only to simplify compliance with federal administrative requirements, but to ensure that federal dollars are available to assist ODOT with large and complex projects that could not be completed otherwise, such as the I-44 corridor. ODOT completes an 8-Year Construction Work Plan (CWP) every year, the first four years of which are incorporated into the Statewide Transportation Improvement Program (STIP). The federal share of ODOT's roughly $6.36 billion CWP is 55%, much lower than the 80% share on federal aid projects. In addition to the CWP, ODOT administers the $916 million, 5-Year County Improvements for Roads and Bridges (CIRB) program, intended to improve off-system roads and bridges in Oklahoma's cities and counties. The federal share of the CIRB program is only 14%, with 83% coming from the state CIRB fund and the remaining 3% from tribes and other sources. Therefore, the **overall federal share of ODOT's total program expenditures is roughly 50%, equivalent to the state's contribution. Table 9** summarizes these programs. Copies of the FY 2017-2024 CWP and FY 2016-2020 CIRB Plan are included in the Reports and Technical Information section at Tulsa County I-44 INFRA.

ODOT leverages federal funding in its overall transportation program, with a federal share of 50%

TABLE 9: ODOT's Transportation Program (in millions)

PROGRAM	FEDERAL	STATE	TRIBAL	OTHER	TOTAL
8-Year Construction Work Plan (FY 2017-2024)	$3500	$2864	-	-	$6364
5-Year County Improvements for Roads and Bridges Construction Work Plan (FY 2016-2020)	$126	$760	$25	$5	$916
Total	$3626	$3624	$25	$5	$7280
Overall % Allocation	**49.8%**	**49.8%**	.003%	.001%	100%

ODOT also conducts all routine maintenance activities using state funds and this would be no different for the I-44 improvement project. ODOT is prepared to assume the future operations and maintenance costs of the INFRA-funded improvements without the need for federal assistance.

For the I-44 Improvements project, ODOT is requesting 60% of the project cost from the INFRA program, with 20% coming from ODOT's federal-aid allocation, and 20% from ODOT's state transportation funds. While public-private partnerships (P3) are commonplace in many states, ODOT has limited experience with these arrangements. The OTA's intent to leverage private funds on the adjacent Gilcrease Expressway project will be one of the first projects of this type in Oklahoma. The project will serve as a model and provide lessons learned should ODOT elect to pursue private partners on future projects in the I-44 or other corridors.

5.3 Potential for Innovation

There are three areas of innovation considered in the evaluation of an INFRA project. This section addresses the potential for innovation for the I-44 Improvement project under each area.

5.3.1 Environmental Review and Permitting

Achieving timely and consistent environmental reviews and permitting decisions is key to delivering projects within a reasonable timeframe. This becomes particularly important for INFRA projects that must complete these activities to meet funding obligation deadlines. Large, complex projects may benefit from a coordinated program of risk identification and review among multiple federal agencies. Because the I-44 project consists of a network of relatively small, simple projects, environmental review and permitting is not anticipated to be a critical path item. ODOT has already completed the NEPA document for the Union Avenue over I-44 project (see Reports and Technical Information at Tulsa County I-44 INFRA), and is currently preparing the document for the 33rd W. Avenue bridges. Both of these projects are covered under Categorical Exclusions for NEPA and the remaining elements of the I-44 Improvements project are anticipated to be authorized as Categorical Exclusions as well. Permitting for these projects is expected to be minimal, limited to a Section 404 Nationwide permit. Coordination with the US Army Corps of Engineers (USACE) has already begun and the USACE has indicated no issues. ODOT has agency liaisons in place at the USACE as well as the US Fish and Wildlife Service, which greatly accelerate and improve the consistency of permitting reviews. ODOT expects to complete the environmental review and permitting process for the I-44 Improvements project under its traditional process.

NEPA is complete for the Union Avenue over I-44 Bridge and is in progress for the 33rd W. Avenue Bridges.

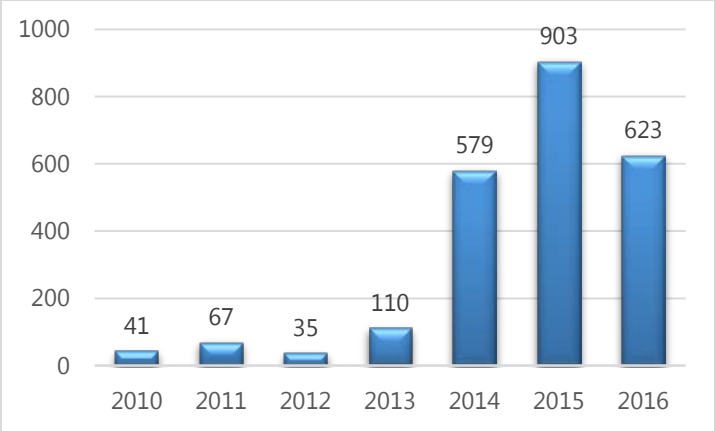
5.3.2 Special Experimental Authorities

This criterion does not apply to the I-44 Improvements project. Oklahoma was at the forefront of evaluating experimental project delivery techniques such as Cost+Time Bidding and Lane Rental, originally part of the SEP-14 program but now considered operational (non-experimental) by FHWA. Oklahoma statute currently prohibits Design-Build contracting. As discussed previously, public private partnerships encouraged by the SEP-15 program are not applicable to this project.

5.3.3 Safety and Technology

ODOT has developed innovative approaches to transportation safety in several areas. The agency recently released a new software program called ShakeCast to address the increased seismic activity in Oklahoma over the last several years. Previously, 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. As shown in **Figure 13,** the potential for an earthquake in the vicinity of the I-44 corridor is significant and increasing.

FIGURE 13: Oklahoma Earthquakes, 2010-2016



ODOT has also recently updated and added functionality to its on-line crash database, called SAFE-T. Previously, crash data was available only through request at ODOT's Traffic Engineering Branch, and only static hard copy output was available. With SAFE-T, approved users can access ODOT's entire collision database and query under a number of functions (location, facility type, accident type, etc.). Data can then be exported into tabular and graphical formats. The SAFE-T system is centralized at the University of Oklahoma and automatically updates as information from the Oklahoma State Highway Patrol and other local law enforcement agencies are entered. The system will generate accident rates for different roadway types to facilitate comparisons and identify problem areas. Future plans for the system include pattern recognition and predictive analysis, moving towards true Data Driven Safety Analysis (DDSA) as highlighted under FHWA's Every Day Counts (EDC-4) initiative. With this capability, SAFE-T will be able to identify sites with the greatest potential for improvement and quantify the safety benefits.

5.4 Performance and Accountability

To demonstrate its commitment to performance and accountability, ODOT is willing to condition the use of INFRA funds on specific project delivery milestones. Specifically, ODOT will commit to:

- Completion of all necessary NEPA Documents by the end of 2018
- Completion of Right of-Way Acquisition by the end of 2018

2018

Completion of NEPA and Right-of-Way

Conditioning INFRA funds on these activities will ensure that planning activities do not delay construction, currently scheduled to begin in 2019 assuming an INFRA award.

6.0 PROJECT READINESS

ODOT has extensive experience with large capital projects of many types carried out by its Roadway and Bridge Divisions and subcontracted engineering firms. ODOT has been completing similar improvement projects along other sections of I-44 over the past 10 years. Specifically, ODOT recently completed improvements to I-44 east of the currently proposed project, representing an investment of over $300 million dollars spanning eight years and including five interchanges. The project was completed on schedule and within budget, without the need for major interstate closures. The success of this project demonstrates that ODOT has the knowledge and experience to complete the proposed INFRA project.

6.1 Technical Feasibility

The technical feasibility of the I-44 improvements is demonstrated in the Preliminary Engineering Study completed for the corridor in March 2017 (see Tulsa County I-44 INFRA Reports and Technical Information.) This study was performed using relevant ODOT and AASHTO design criteria for the I-44 and US-75 mainlines, bridges, ramps, and local roads. This study and the plans developed for the Union Avenue and 33rd Avenue Bridges informed the cost estimate presented in **Section 4.0** of this document. Contingency amounts of 6% were included in the estimates.

ODOT has been making continual progress in the corridor. Design and environmental clearance is complete for the Union Avenue over I-44 bridge. Design and environmental clearance of the 33rd Avenue and US-75 bridges are underway. ODOT intends to use internal forces to design the approximately one mile of widening of I-44 from Union Avenue to the Arkansas River, which can be accomplished in an accelerated timeframe. Other projects in the corridor include bridge rehabilitation at the I-44/I-244 interchange, currently under construction, and bridge

rehabilitation of the US-75 bridges over I-44, awarded in October of this year. The progress ODOT has made in both planning and construction projects demonstrates the agency's commitment to improving safety and mobility in the I-44 corridor.

The following activities have been completed in the corridor:

- ***Design and NEPA for the Union Bridge over I-44***,
  - Stakeholder Coordination
  - Environmental Studies and NEPA Categorical Exclusion
  - Final Construction Plans for Right-of-Way
- ***Preliminary Design for I-44 over 33rd Avenue***
  - Preliminary Plans
  - Environmental Data Collection
  - NEPA Documentation is Underway
- ***Preliminary Engineering Study for the I-44 Corridor***
  - Updated Traffic Volumes
  - Environmental Data Collection
  - Development of Alternatives
  - Identification of the Preferred Alternative at the I-44/US-75 Interchange
  - Public Meeting (Held November 2, 2017)

ODOT intends to complete the Construction Plans and NEPA for the 33rd W. Avenue Bridges at the end of 2018. All right-of-way acquisition will also be complete by the end of 2018. As discussed in Section 5.1.4 above, ODOT is willing to condition the use of INFRA funds on achieving these important milestones.

6.2 Project Schedule

A summary of schedule highlights is shown in **Figure 14**. A detailed schedule is available in the Reports and Technical Information section at Tulsa County I-44 INFRA**.** The project schedule shows that grant funds can be obligated by December 2018, well before the statutory deadline. Even if there are unexpected delays, the funds will not be at risk of expiring before they are obligated. Similarly, the project will be able to begin construction by September 2019 and estimated completion date is December 2022, again meeting the deadlines with plenty of margin. All property and right-of-way acquisition will be completed in a timely manner and in accordance with 49 CFR 24 and other federal regulations. Funding for right-of-way acquisition and utility relocations associated with the I-44 over 33rd West Avenue and Union Avenue over I-44 projects is already programmed in Statewide Transportation Improvement Program (STIP).

6.3 Required Approvals

6.3.1 Environmental Studies and NEPA

The NEPA process for the I-44 Improvements project is being completed in phases for the different components of the project. NEPA approval for the Union Avenue over I-44 bridge was completed as a Categorical Exclusion (CE) in September of 2017 (see Reports and Technical Information at Tulsa County I-44 INFRA)**.** NEPA approvals for the remaining components (33rd W. Avenue bridges, US-75 bridges, and I-44 widening) are anticipated by the end of 2018. All of these projects are anticipated to be processed under ODOT's Programmatic CEs, which by agreement do not require FHWA review or signature. Programmatic CE's streamline the NEPA process and lead to faster project approvals.

FIGURE 14: Summary of Schedule Highlights

The environmental studies (research including but not limited to topics such as air quality, biology, cultural resources, hazardous materials, noise, socioeconomic data, and wetlands) were initiated by ODOT in March 2016. A Reconnaissance Data Collection report is available for the I-44 Corridor (see Tulsa County I-44 INFRA Reports and Technical Information). Reconnaissance level environmental information has been collected and applied to the analysis of alternatives for all of the proposed project components and results do not suggest any significant environmental impacts.

6.3.1.1 Permitting

The only permitting anticipated for the project is a Nationwide Section 404 permit for the Union Avenue over I-44 bridge. This project requires culvert extensions over tributaries to Mooser Creek. The permit application has been submitted and coordination with the USACE is underway. Permit approvals are anticipated in mid-2018.

6.3.1.2 Public Engagement

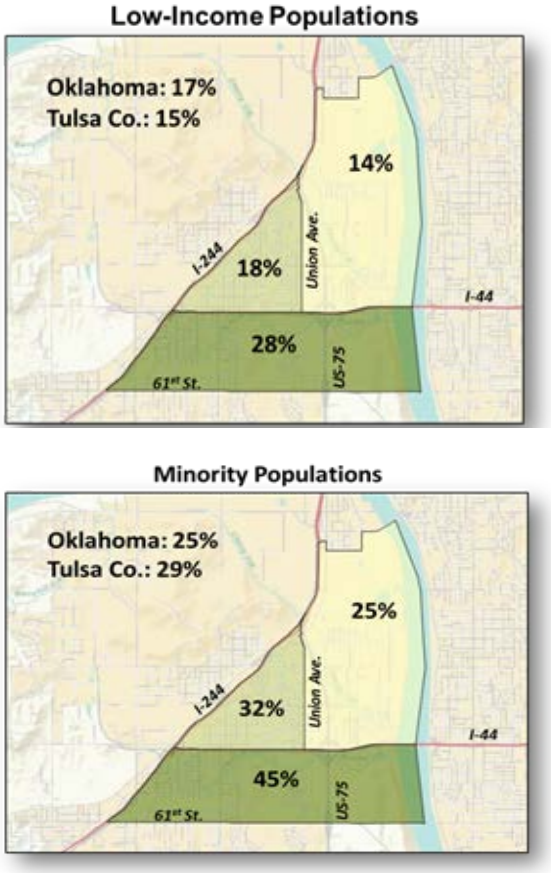
This project has been in the public eye since at least 2002, when it was a major component of the US-75 Environmental Assessment (EA) from State Highway 67 to I-44. That document described a preferred alternative for the US-75/I-44 interchange that would include directional ramps while preserving local established traffic patterns to the extent possible and minimizing local disruption. The EA, and its predecessor, Major Investment Study (MIS), included coordination with tribal, local, state and federal agencies; as well as meetings with the public and City officials. A public hearing was held, and comments received from the public were addressed in the EA.

Since that time, ODOT has moved forward with the Preliminary Engineering of two alternatives for the I-44 corridor, including the original I-44/US-75 interchange concept as well as a new configuration. These alternatives will be presented to stakeholders and the public at a public meeting to be held on November 2, 2017. ODOT met with the City of Tulsa in October 2016 to discuss the Union Avenue over I-44 bridge improvements. This meeting resulted in the identification of a preferred alternative for the project, which includes the addition of bicycle lanes on Union Avenue to match the City's proposed plan for Union Avenue to the north and south of I-44. ODOT held a separate meeting with a broader group of stakeholders specifically affected by the Union Avenue project. A summary of that

meeting and the comments received can be found with the NEPA document for that project at Tulsa County I-44 INFRA Reports and Technical Information.

Public outreach for the I-44 project has been specifically designed to be inclusive of the different communities present in the corridor. **Figure 15** illustrates key population groups by Census tract in the project vicinity. As the maps show, there are especially high concentrations of low-income and minority populations in the vicinity of the project corridor. Public outreach activities have included contacting local churches that serve the minority communities to help spread the word about the project. Flyers with project and public meeting information were hand delivered to all of the homes and businesses in the study area, to make sure the people physically living and working in the area have the opportunity to provide input. This includes renters, which are typically higher in low-income areas. A local community center that provides social services to low-income individuals was also engaged to assist with notification.

FIGURE 15: Key Demographic Groups



Reducing congestion within the project corridor will improve access for these traditionally underserved populations. Improvements also include the addition of bicycle lanes on Union Avenue which will provide a safer facility for non-vehicular travel to destinations north and south of I-44, including Daniel Webster High School, the Westside YMCA, the Cornerstone Community Center, and two public housing developments. As lower income individuals are more likely to use non-vehicular modes of travel, these improvements will be particularly important to the local community.

6.3.2 State and Local Approvals

Support for the project by state and local entities is indicated by the letters of support available at Tulsa County I-44 INFRA. Any required state and local approvals are expected to be quickly and easily obtained. Portions of the project, including the bridges on Union Avenue and 33rd W. Avenue, are currently included in the STIP and TIP. Right-of-way and utility relocation funding is also currently programmed for these two projects. The Metropolitan Planning Organization (MPO) for the Tulsa area, the Indian Nations Council of Governments (INCOG), has committed to including the entire project in the TIP upon receipt of funding, which will then be incorporated by ODOT into the STIP. The Tulsa Regional Chamber has also prepared a letter of support for the project, citing improved access to heavy industrial complexes, allowing safer and simpler transport of goods and materials. The project is especially important for the numerous manufacturing companies who use I-44 to ship their heavy haul equipment and products to market, and for the fuel and other refinery-related investments in the area.

6.3.3 State and Local Planning

The project to reconstruct I-44/US-75 interchange bridges and related improvements on I-44 addresses two state planning 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. The Project is also consistent with the 2015-2040 Oklahoma Long Range Transportation Plan (LRTP) and Connected2045, the LRTP for the Tulsa Metropolitan Area. The INCOG Transportation Improvement Program is a financially constrained document and will be amended when funding is made available (see INCOG letter of support in Tulsa County I-44 INFRA Letters of Support).

The project addresses 2 state planning policies:

Highway Bridge Policy #2 — *Preserve and improve the condition of highways and bridges*

Highway Bridge Policy #5 — *Provide for a safe, efficient, and effective National Highway System to improve commercial motor vehicle mobility and connectivity*

6.3.4 Assessment of Project Risks and Mitigation Strategies

ODOT staff have presented the project concept to the Oklahoma Division of FHWA, and communication and coordination is ongoing. Main project risks identified include possible risk of contamination due to the primarily industrial land use along the corridor. Several sites that store hazardous materials are located in the corridor, including a metal fabrication shop, a machine repair location, and a bottling plant. ODOT has conducted research into these sites, including obtaining available records from the Oklahoma Corporation Commission and Oklahoma Department of Environmental Quality. Two former Leaking Underground Storage Tank (LUST) sites have been identified in the corridor. While previous clean-up efforts have been completed; ODOT will perform additional testing in advance of construction to mitigate any risk associated with unknown contamination. This testing, and any resulting clean-up activities, will reduce the risk of adverse health effects on the people that live and work in the area. ODOT maintains a number of on-call consultants qualified to do this work, if needed. These consultants can be mobilized quickly and this work would be completed well before the funding obligation deadline. Testing at one former service station in the vicinity of Union Avenue is included as a commitment in the NEPA document for that project. This testing will occur prior to any utility relocation or construction in the area.

7.0 LARGE/SMALL PROJECT REQUIREMENTS

The I-44 Improvements project is a large project that generates national and regional economic, mobility, and safety benefits, is based on preliminary engineering results, has identified stable funding sources for construction, maintenance and operations, but cannot be easily and efficiently completed without other federal funding or financial assistance, as requested in this INFRA Grant Application. **Table 10** below provides specific evidence on how this project addresses these requirements.

TABLE 10: Large Project Requirements

Does the project generate national or regional economic, mobility, safety benefits?	SEE SECTION 5.0
▪ Is the project cost effective?	YES - see Section 5.0
▪ Does the project contribute to one or more of the Goals listed under 23 USC 150?	YES - see Section 5.0
▪ Is the project based on the results of preliminary engineering?	YES - see Section 8.0
▪ 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 Section 6.0
▪ Are contingency amounts available to cover unanticipated cost increases?	YES = see Section 4.0
▪ Is it possible that project cannot be easily and efficiently completed without other federal funding or financial assistance available to the project?	YES - see Section 4.0
▪ 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 6.0

8.0 SUMMARY

The I-44 Improvements project will address a critical link in the interstate network within the Tulsa metropolitan area. This portion of I-44 currently carries over 84,000 vehicles per day, with a significant percentage of trucks carrying freight. These volumes are anticipated to increase in the future, particularly with the construction of the Gilcrease Expressway by the OTA. With current funding challenges, ODOT is unable to complete the project without INFRA assistance. ODOT has shown its commitment to leveraging federal funds by contributing state funds to cover 50% of its overall program, and using 100% state funds for maintenance. ODOT is also committed to improving the I-44 corridor, as shown by the progress made in preliminary engineering and environmental documentation of various projects. ODOT is willing to condition INFRA funding on completion of all environmental documentation and right-of-way acquisition by 2019, well in advance of the funding obligation date. As demonstrated in this application, the project is cost-effective and aligns with the merit criteria of importance to USDOT.