



OKLAHOMA
Transportation

MPDG Grant Application

I-35 Corridor
Priority Improvements

May 23, 2022



Project Name	I-35 Corridor Priority Improvements
Project Sponsor	Oklahoma Department of Transportation
Previously submitted for MPDG grant application?	No
Project Costs	
<i>MPDG Request</i>	\$61,263,500
<i>Federal Funds (excluding MPDG)</i>	\$30,631,750
<i>Non-federal Funds</i>	\$30,631,750
<i>Future Eligible Costs</i>	\$122,527,000
<i>Previously Incurred Costs</i>	\$17,110,000
<i>Total Project Cost</i>	\$139,637,000
Matching funds restricted to specific project component?	No
Future eligible costs spent on components of NHFN	100% - \$122,527,000
Future eligible costs spent on components on NHS	100% - \$122,527,000
Future eligible costs spent on components on NMFN (proposed not final)	100% - \$122,527,000
Future eligible costs spent on railway-highway grade crossings or grade separation projects.	\$0
Future eligible costs spend on intermodal or freight rail projects, or within public or private freight, rail, water, or intermodal facility	\$0
Project Location	Interstate 35 (I-35) from Mile Marker 3 in Love County to Mile Marker 108 in McClain County with 13 miles prioritized for construction.
State	Oklahoma
Size of Project	Large
Urbanized Area (UA)	N/A
Located partially in Area of Persistent Poverty or Historically Disadvantaged Community?	Yes
Included in or Consistent with Planning Documents?	
<i>TIP</i>	No
<i>STIP</i>	Yes (Project Components)
<i>MPO LRTP</i>	Yes (Project Components)
<i>State LRTP</i>	Yes (Consistent with LRTP)
<i>State Freight Plan</i>	Yes

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1 Project Summary

1.1 Project Description

The Oklahoma Department of Transportation (ODOT) is seeking \$61.3 million from the Multimodal Project Discretionary Grant Program (MPDG) for the Interstate 35 (I-35) Corridor Priority Improvements project. The project is located on I-35 which is a critical corridor connecting Texas through Oklahoma city centers to Kansas and provides freight

connections supporting Oklahoma’s and the United States’ economic vitality. The project focuses on the critical part of the corridor from Mile Marker 3 in Love County to Mile Marker 108 in McClain County and prioritizes approximately 13 miles of this corridor for widening with interchange replacements at State Highway 153 (SH-153) and State Highway 9 West (SH-9W). The first prioritized segment, South Segment, is in Love County from Mile Marker 3 (Rogers Road) to Mile Marker 8 (US-77) which would widen the mainline from 4-lanes to 6-lanes and improve the interchange at SH-153. The second prioritized segment, North Segment, is in McClain County from Mile Marker 100 (Ladd Road) to Mile Marker 108 (SH-9W) which would widen the mainline from 4-lanes to 6-lanes and replace the interchange at SH-9W.

The \$61.3 million investment would complete the construction funding package for the \$139.6 million (in 2022 dollars) project. The I-35 Corridor Priority Segments project Benefit-Cost Analysis is expected to achieve a benefit-cost ratio (BCR) of 3.6 with a net present value (NPV) of \$256.8 million (Table 1-1)

Benefit Cost Ratio

With a BCA of greater than 3.0, the project is competitive for an MPDG Grant.

Table 1-1. Benefit Cost Analysis Summary (in millions of 2020 Dollars)

Description	Estimate	Discounted (at 7%)
Total Benefits	\$1,121.9	\$357.1
Total Capital Costs	\$128.4	\$100.3
Benefit Cost Ratio (BCR)		3.6
Net Present Value (NPV)		\$256.8

The I-35 project corridor is integral to the nation’s freight movement and features an approximate 20% truck share while serving commuters in major metropolitan areas. I-35 facilitates national and international freight movement and is a primary artery for Oklahoma connecting the Oklahoma City area through multiple attractions and work centers (including existing and proposed development by the Chickasaw Nation) to the Dallas/Fort Worth area. The corridor is an economic engine for the economies of Oklahoma, the Chickasaw Nation, Texas, and the United States. I-35 is on the National Highway Freight Network (NHFN) and serves as one of the principal freight corridors

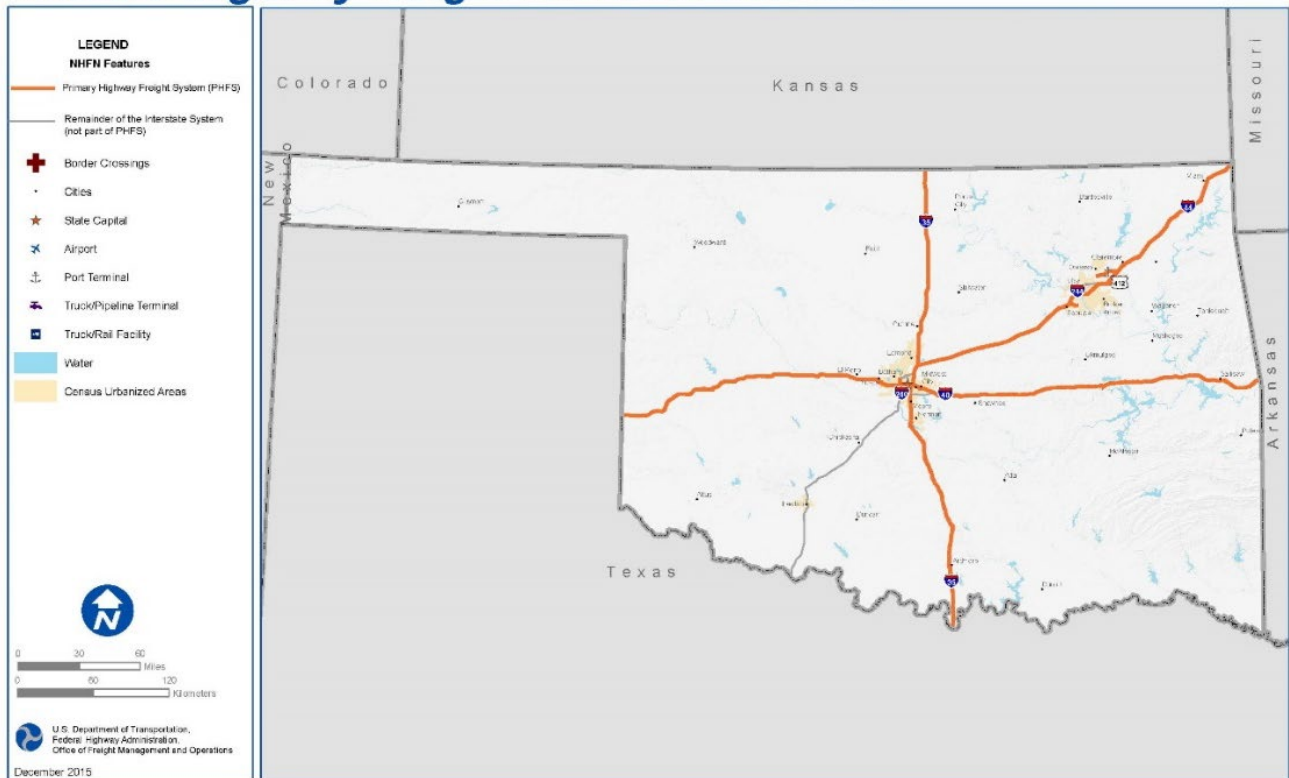
between the United States and Mexico terminating at the Port of Laredo in Texas. The I-35 corridor project limits and prioritized segments are in a rural area (population centers less than 200,000) as defined by the USDOT Notice of Funding Opportunities (NOFO) and per ODOT 2010-2035 Long Range Transportation Plan that classifies counties of 50,000 or less with no urban clusters as rural.

The project would provide additional capacity on the congested corridor which is expected to reduce travel times and increase reliability for all users. Fewer stopped and idling vehicles would also reduce vehicle emissions. A less congested corridor along with the wider inside shoulder is also expected to reduce the number of collisions.

1.2 Project Background

I-35 serves as the backbone of the state’s economy, moving people to work and goods to market while connecting Oklahoma with the nation and the world. I-35 is part of the NHFN and constitutes about 30% of all Primary Highway Freight System (PHFS) miles in Oklahoma. I-35 is also proposed to be part of the National Multimodal Freight Network (NMFN).

National Highway Freight Network: Oklahoma



ODOT has programmed components of the priority segments along I-35 as part of the Fiscal Year 2022-2029 Eight-year Construction Work Plan. The priority segments in the work plan were identified based on the surface condition, average annual daily traffic (AADT), percentage of truck traffic, collision history, local, regional, and national traffic

patterns, and capacity. Components of the project in the North Segment are also identified in the Statewide Transportation Improvement Program (STIP) for Fiscal Year 2022 and in the Oklahoma Freight Transportation Plan (OFTP) as a top-ranked highway freight mobility project (FY 2018-2022) and to pursue investment funds from federal or state sources. The OFTP also projects a growth between 2015 to 2045 of inbound truck freight tonnage by 40%, outbound by 32%, and through Oklahoma by 75%.

In Oklahoma, I-35 runs from the Red River at the Texas border for about 236 miles to the Kansas state line near Braman. The construction of I-35 began around 1950 with some sections being in place in Oklahoma City prior to the creation of the Interstate System. The BNSF Railway generally follows the I-35 alignment east of the study corridor.

The existing facility consists of two 12-foot mainline lanes in the northbound and southbound direction with 10-foot-wide outside shoulders and 4-foot wide inside shoulders. The center median, in the priority segments, consists of a grassy swale that is approximately 36 feet wide. The current speed limits vary between 70-75 miles per hour in the two priority segments.

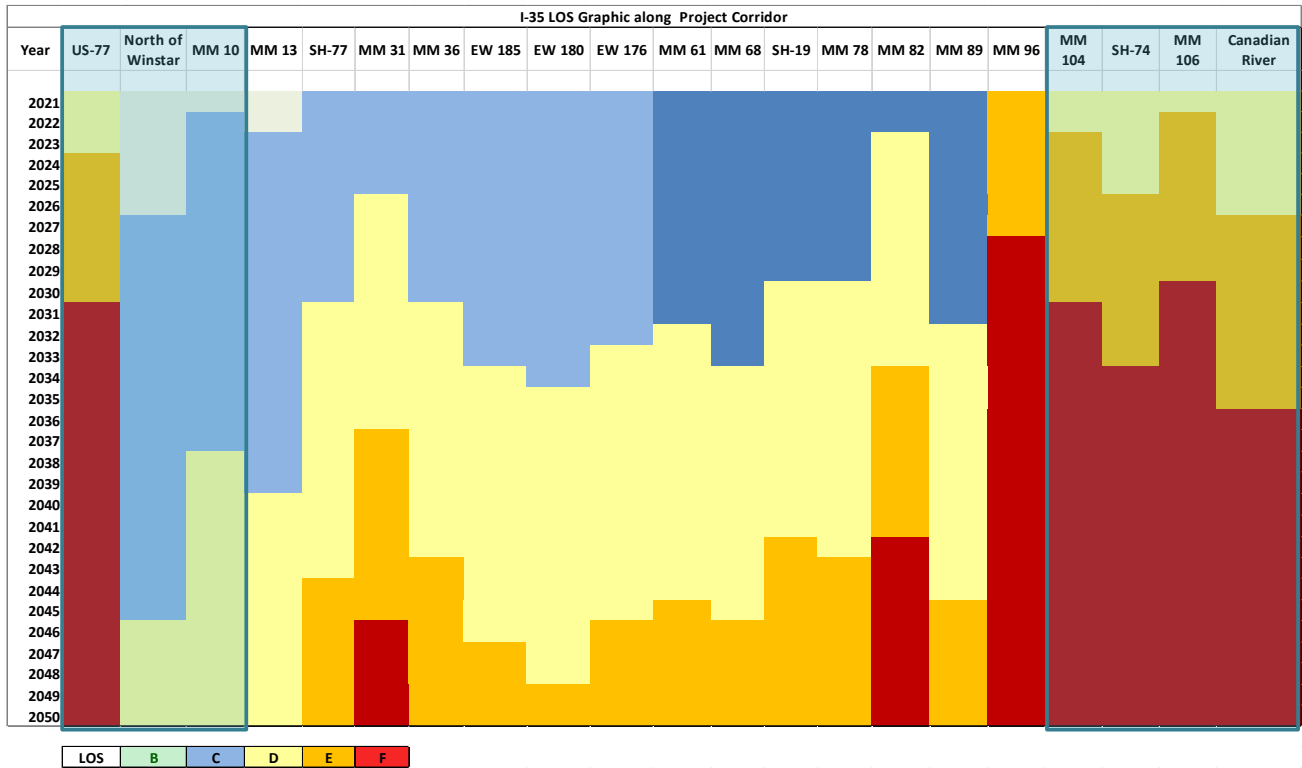
1.3 Transportation Challenges

The I-35 project corridor priority segments do not currently provide

adequate mobility for the over 63,000 cars and trucks that use it each day in the project areas. By 2050, daily traffic is expected to exceed 100,000 vehicles per day with 20% of this traffic being heavy trucks. Without improvement, severe congestion is expected to occur along the priority segments. In the North Segment, traffic analysis shows travel speeds of 35 mph or less for 2021 operations. Without the project, speeds are projected to be less than 20 mph with the current congestion area doubling in size.

The South and North Segments were prioritized due to their poor performance. The graphic below shows the LOS along the I-35 study corridor from 2021 to 2050 and highlights the priority segments which experience some of the worst delay. Under existing conditions, the I-35 priority segments operate at Level of Service (LOS) D (i.e., speeds below posted speed limit). Without improvement, LOS F conditions (i.e., traffic flow is irregular, and speeds vary substantially because of congestion) are projected for priority segments as early as 2030 with delay increasing through 2050. Delay increases travel time and more importantly, especially for freight traffic, reduces reliability. This severe congestion results in additional vehicle emissions and can cause secondary collisions.





With the projected traffic growth, additional congestion and friction with slowing/stopped vehicles, an increase in the number of collisions is expected. There have been over 706 recorded collisions in the priority segments in the last five years. High numbers of collisions cause multiple-lane shutdowns and ramp closures. Traffic incidents cause additional delay and affect travel time reliability which is a major problem along this corridor. In the last five years, the priority segments also recorded 115 injury and 6 fatality collisions.

With the proposed lane addition and the upgraded interchanges at SH-153 and SH-9W, the project would provide additional capacity to accommodate current and future traffic demand. With the lane widening, the priority segments LOS would be improved by one letter grade under existing and future conditions and interchange improvements at SH-9W would reduce interchange travel time by 20%. The additional capacity and a wider inside shoulder for stopped traffic would provide better reliability and help reduce the number of collisions, as well as reduce travel times and improve LOS. Fewer stopped and idling vehicles would also reduce vehicle emissions.

2 Project Location

I-35 is the only continuous north-south interstate that provides connection to Kansas and Texas connecting to the international border with Mexico. The project prioritizes two critical segments within ODOT's I-35 focus corridor from Mile Marker 3 in Love County to Mile Marker 108 in McClain County as shown in Figure 2-1. The project prioritizes approximately 13 miles of I-35 for widening including interchange replacements at SH-153 and SH-9W. The first prioritized segment, South Segment, is in Love County from Mile Marker 3 (Rogers Road) to Mile Marker 8 (US-77). The second prioritization segment, North Segment, is in McClain County from Mile Marker 100 (Ladd Road) to Mile Marker 108 (SH-9W).

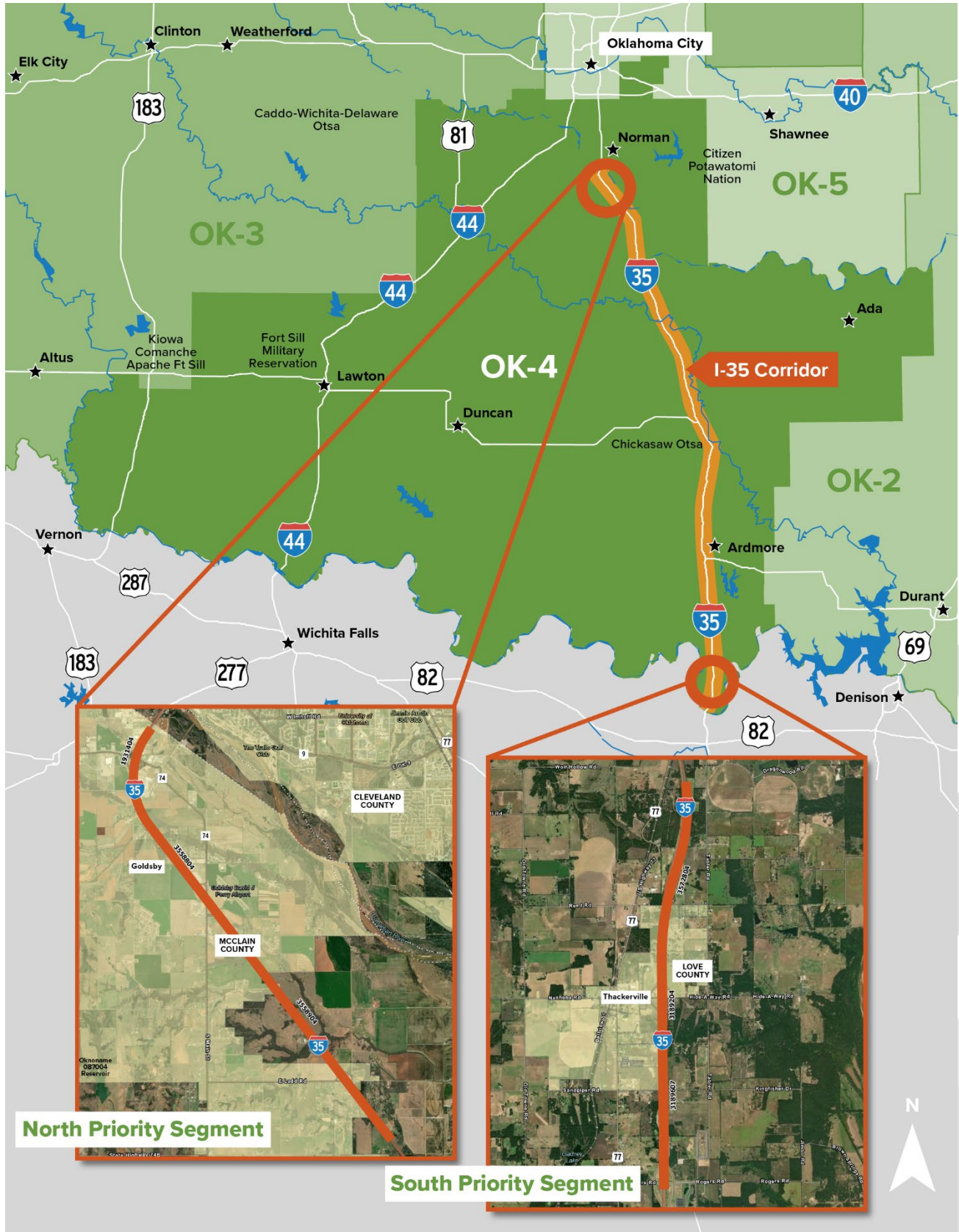


Per the NOFO and ODOT designation, the project area is rural. The I-35 corridor is the primary connector in the study area with rural two-lane highways providing parallel route alternatives (US-77 and SH-74). I-35 also provides the only interstate freight route and the improvements along the corridor would help reduce the need for freight traffic to re-route on rural roads.

A Port of Entry facility (northbound) is located approximately 5 miles north of the South Segment terminus and weigh stations (both directions) are located about halfway between the South and North segments. With the BNSF Railway running east of the I-35 study area, the project would not affect freight rail operations and would provide better access to the railway should any service or construction needs arise.



Figure 2-1. I-35 Project Corridor and Priority Improvements



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 in Oklahoma. ODOT will manage and provide oversight for this project.



3.2 Key Supporting Stakeholders



Oklahoma residents, businesses, and government officials are in support of this project which would foster economic development and improve the quality of life of its users and the surrounding communities.

The Chickasaw Nation is a key stakeholder in this project and encompasses 7,648 square miles of south-central Oklahoma and all or parts of 13 Oklahoma counties including Love, Carter, Murray, Garvin, and McClain Counties along I-35.

The project is expected to have a positive impact on the community in the priority areas, project corridor, and for all users traveling through the corridor. The new lanes and interchange improvements are expected to reduce congestion, provide safer travel, and provide increased economic opportunity, including for the Chickasaw Nation. The project has received letters of support from the following organization which are provided on the project [webpage](#)¹:

- > Oklahoma Delegation
- > Chickasaw Nation
- > Association of Central Oklahoma Governments

¹ https://oklahoma.gov/odot/progress-and-performance/federal-grant-awards/mpdg-grants/mpdg-2022/priority_improvements_on_the_i-35_corridor.html

- > Southwestern Oklahoma Transportation Planning Organization
- > South Central Transportation Planning Organization
- > Town of Thackerville
- > Additional letters listed on the project webpage

4 Grant Funds, Sources, and Uses

4.1 Cost Estimate

ODOT is seeking about \$61.3 million in MPDG grant funding from the USDOT for the construction of priority improvements on the I-35 corridor. The total estimated construction cost is \$122.5 million, where ODOT is committing to 50% of the cost. A funding commitment letter from ODOT is provided on the project [webpage](#)². The requested \$61.3 million is less than the 60% maximum grant threshold of future eligible project costs and the 80% maximum for total federal funding of future eligible project costs. The requested federal funding is primarily for construction and ODOT has provided funding for all pre-construction activities including NEPA, preliminary engineering, utilities, and most of the right-of-way acquisition that would help expedite the project.

Cost estimates were based on 60% design and engineering and recent experience with similar nearby projects. ODOT has also provided for a contingency of 15% as this cost estimate is based on preliminary engineering. The contingency would also help address the changing materials and labor costs and supply chain issues.

4.2 Previously Incurred Expenses

To date, multiple activities have been completed in preliminary engineering, utilities investigation and design, concept development, public outreach, and right of way acquisition. The cost incurred to date on the priority segments is approximately \$17.1 million.

4.3 Total Project Costs

The MPDG grant request would cover eligible costs of construction. Table 4-1 provides a summary of line-item costs and the amount requested from the MPDG grant. As shown in the table, ODOT would provide \$30,631,750 through state funding and \$30,631,750 from other federal funds. The grant requirements of 60% maximum grant threshold for future eligible project costs and the 80% maximum for future eligible project costs are met with this funding plan.

² https://oklahoma.gov/odot/progress-and-performance/federal-grant-awards/mpdg-grants/mpdg-2022/priority_improvements_on_the_i-35_corridor.html

Table 4-1. Total Estimated Project Costs (in 2022 dollars)

Uses	Cost Estimate	MPDG Funds (50%)	Other Federal (25%)	State Funds (25%)
Engineering, Environmental, Design	\$9,863,000	Pre-incurred (not part of grant application)		
ROW and Utilities	\$7,247,000	Pre-incurred (not part of grant application)		
Total Pre-Incurred Costs	\$17,110,000	Pre-incurred (not part of grant application)		
South Segment ¹	\$22,360,000	\$11,180,000	\$5,590,000	\$5,590,000
SH-153 Interchange ¹	\$16,416,000	\$8,208,000	\$4,104,000	\$4,104,000
North Segment ¹	\$43,953,000	\$21,976,500	\$10,988,250	\$10,988,250
SH-9W Interchange ¹	\$24,721,000	\$12,360,500	\$6,180,250	\$6,180,250
Contingency (15%) ²	\$15,077,000	\$7,538,500	\$3,769,250	\$3,769,250
Total Eligible Costs	\$122,527,000	\$61,263,500	\$30,631,750	\$30,631,750
Total Project Costs	\$139,637,000			

1: Includes engineering, construction, construction management, and inspection costs

2: 15% contingency applied to construction costs only.

4.4 Impact of Federal Funding

ODOT is committed to improving operations and safety along the I-35 corridor and set aside funds to improve the North and South priority segments in the study area. The funds identified by ODOT would not be able to take the priority segments through to construction, therefore this project could not be easily or efficiently completed without MPDG funding support.

Should MPDG funds not be awarded, ODOT would reduce the scope of the project to likely make interim improvements to the SH-9W interchange as this is the area forecasted for the largest growth in traffic and congestion. ODOT may be able to move SH-9W through the design process but would not be able to construct the project within the currently planned schedule. The remainder of the North Segment would not have enough funding to move past preliminary engineering. Similarly, for the South Segment, the SH-153 interchange could be advanced to design; however, construction would not be possible within the currently planned schedule and the mainline piece would likely remain in the preliminary engineering phase. The completion of the project in its entirety would likely not occur for 10 years as ODOT is unable to identify the funding in its current plans. With the delayed construction, the cost of the project would likely increase significantly. The overall cost of the project in 10 years versus in 18 months from the contract award are difficult to predict. With the current market, construction bids are

coming in 20-30% higher than pre-pandemic conditions. With ODOT unable to deliver this project sooner without MPDG grant support, individuals and businesses would continue to incur the cost of travel time delays and the quality of life for local communities would continue to be affected by congestion on the I-35 corridor and propagating onto their local streets. The project costs would continue to rise, potentially putting the improvements out of reach and the impact of increased vehicle emissions would continue to degrade air quality in the region.



5 Project Outcomes

5.1 Safety

The priority segments and interchanges experience a higher-than-normal collision rate relative to the rest of the I-35 corridor. The 105-mile segment of I-35 currently notes 3,437 collisions on the freeway mainline between 2016 and 2020. That equates to 688 collisions a year along the study corridor. The priority segments comprise only about 12% of the corridor but account for 20% of total collisions. In the South Segment, 19 people were injured between 2016 and 2020 with no fatalities. In the North Segment, 96 people were injured with 6 fatalities between 2016 and 2020.

The priority segments experience the highest congestion on the corridor, and the proposed lane addition would help alleviate congestion. A study by Maryland Department of Transportation³ showed that collision frequency on freeways increases with congestion levels and that collision rates tend to increase significantly with the volume per lane during peak-congestion periods. The project would also provide a wider inside shoulder, which would provide a refuge area and help maintain traffic flow and reduce potential for collisions with stopped vehicles in travel lanes.

³ Maryland Department of Transportation, State Highway Administration. The Relationship Between Congestion Levels and Accidents (MD03-SP 208B46). July 2003.

The National Roadway Safety Strategy⁴ identified that fatalities and fatal crashes occur disproportionately by both population and vehicle travel on rural roads. The study also notes that fatalities involving large trucks have been increasing faster than fatalities overall. With additional capacity on the I-35 corridor, freight traffic would not need to route onto rural highways reducing the number of large trucks on rural roads.

ODOT has put safety as a key priority for measuring performance and accountability, including eliminating fatal and injury collisions. Reduction of congestion would be the primary driver in reducing collisions in the priority segments as well as providing wider inside shoulders. The reduction in travel time along the corridor would benefit freight, commute, and recreation travelers.

5.2 State of Good Repair

The I-35 is generally classified as having good or fair pavement condition in the study area. For the South Segment, the construction plan would not replace existing driving lane pavement however shoulders would be expanded and paved. Pavement replacement would occur in portions of the North Segment where the pavement is rated fair or poor. In addition to pavement improvement, the project would replace the SH-153 bridge, which is classified by ODOT as at-risk of becoming structurally deficient.

Beyond state of good repair, the project would provide needed geometric improvement to accommodate traffic growth along the mainline, interchanges, and ramps as well improving ramp merge and diverge alignment and distances onto the I-35 corridor and onto SH-153 and SH-9W. The project would provide a 10-foot inside shoulder for the priority segments in compliance with American Association of State Highway and Transportation Officials (AASHTO) guidelines.

5.3 Economic Impacts, Freight Movement, and Job Creation

I-35 is integral to the United States transportation system, moving people to work and goods to market while connecting Oklahoma with the nation and the world. I-35 in Oklahoma comprises about 236 miles of the National Highway Freight Network (NHFN) and is designated as a Primary Highway Freight System (PHFS) and listed as one of the top 25 freight-significant corridors on the NHFN. I-35 is a key route for freight traveling from and to Mexico, through Texas, from / to locations beyond Oklahoma. In the study area, trucks account for 20% of the average daily traffic. The project aims to support national and regional economic health and growth by improving travel times and overall corridor operations in the project segment that carried a billion tons of freight in 2015⁵ (see map below for project segment in green). The Oklahoma Freight Transportation Plan (OKFT) projects a growth between 2015 to 2045 of inbound truck freight tonnage by 40%, outbound by 32%, and through Oklahoma by 75%. The OKFT also notes that

⁴ USDOT. National Roadway Safety Strategy. January 2022

⁵ USDOT. Status of the Nation's Highways, Bridges, and Transit Conditions and Performance: 23rd Edition: Part III: Highway Freight Transportation - Report to Congress. November 22, 2019

employment in the transportation and warehousing sector is expected to increase by 7.8% with the subcategory of warehousing and distribution center employment growing by 41.8% between 2014 and 2024.



The improvement in operations would help the movement of freight including the energy related traffic along the corridor. Oklahoma is in the heart of the U.S. Mid-Continent oil region, a vast oil- and natural gas-producing area that also encompasses Kansas, Texas, Arkansas, Louisiana, and New Mexico and is flanked by the Mississippi River to the east and the Rocky Mountain states to the west. Oklahoma has some of the largest natural gas and oil fields in the country⁶. The OKTP also shows the mining industry (which includes oil and gas extraction) growing by 17.5% between 2014 and 2024. In addition to oil and natural gas, Oklahoma produces a significant amount of wind energy which typically require the transport of oversized loads. This energy production and transportation relies on the major freight corridors such as I-35.

The project corridor features a diverse mix of industry, including agribusiness, the equine industry, manufacturing and distribution, and retail trade and tourism. The Chickasaw Nation has a strong business presence in the area including the Riverwind Entertainment Complex and WinStar World Casino and Resort which are some of the largest economic generators along the corridor.

⁶ US Energy Information Administration. Oklahoma State Profile and Energy Estimates. <https://www.eia.gov/state/analysis.php?sid=OK>. Updated: April 15, 2021.

5.4 Climate Change, Resiliency, and the Environment

The project would contribute to environmental sustainability by reducing congestion within the project area and improving access. Improved travel times, reliability, and safety within the corridor would contribute to a greater overall quality of life for users. In the priority segments, the daily traffic volume in 2050 is projected to be 58,000 for the South Segment which would operate at LOS D and 100,000 for the North Segment operating at LOS F. With these congested volumes the delay would cause significant emissions from stopped or slow-moving vehicles. Projected 2050 volumes along the study corridor vary between 55,000 and 137,000, the highest volumes are in current 6-lane sections. The highest traffic volumes for a 4-lane cross-section are projected on the priority segments.

In addition to reduced congestion, the project would also support the development of renewable energy in the state. Oklahoma is known for its substantial natural gas production, but the state also produces a significant amount of wind energy. Wind power accounted for more than one-third of the state's net generation for the second year in a row in 2020 and was the second-largest source of in-state generation. In 2020, the state accounted for almost one-tenth of the nation's wind-powered electricity generation.⁴ According to the US Wind Turbine Database, within I-35 project corridor, more than 300 turbines are already in operation. With the state's focus and investment on renewable energy, wind energy would continue to grow, and the I-35 freight corridor would be key to serving the manufacturing, construction, servicing, and transportation of turbine components which are logistically quite complex.

The Association of Central Oklahoma Governments (ACOG) regional transportation improvement program (TIP) and STIP are based on integrated land use and transportation planning and design that increases low-carbon mode travel, reduces greenhouse gases and vehicle miles traveled, and increases multimodal transportation choices and/or incorporates electrification or zero emission vehicle infrastructure. Both planning documents help guide the projects moved forward by the region and the state. The STIP includes the components of the proposed project (what can be constructed within a 4-year window) and will include the project in its entirety if additional grants funds are made available for it.

5.5 Equity, Multimodal Options, and Quality of Life

The proposed improvements are expected to significantly reduce congestion and ease travel through the corridor for the local community. Within a mile radius of the I-35 project corridor, 28.5% of the geographic study area can be defined as USDOT Disadvantaged Community or Areas of Persistent Poverty. About 28% of households also have disabled residents and 20% of the residents in the area are over 65 years old.

The journey to work analysis also shows that 94% of residents use a private vehicle for transportation to work with 1% walking to work and 3% working from home. About 40% of residents are also working blue collar or service jobs.

At Risk Population



Households with Disability



Population 65+



Households Below the Poverty Level

The project is expected to provide travel time savings and improved reliability on I-35 and is expected to provide safe and efficient travel to the community and better access to services.

With better, safer, and more reliable transportation, the project would help support the spurring economic growth in the area. The improvements would reduce spillover of traffic and the corresponding negative affects to local roads. The National Roadway Safety Strategy⁷ supports a comprehensive Complete Streets Initiative to provide technical assistance to communities of all sizes to implement policies that prioritize the safety of all users in transportation network planning, design, construction, and operations, including in small towns and rural areas. With additional capacity on the I-35 corridor, freight traffic would not need to route onto rural highways allowing local jurisdictions to design their roads to best serve the local community.

5.6 Innovation

The project would incorporate intelligent transportation systems (ITS) elements including dynamic messaging signs which would be connected to the communications infrastructure. The messaging sign would communicate with drivers and alert them to incidents, traffic congestion, or special roadway conditions. In addition, cameras would be provided with the message sign to help monitor traffic at the location.

The project also undertook alternative concept development looking into innovative intersections at the SH-9W interchange. Based on the traffic and concept studies, a diverging diamond interchange (DDI) was selected for the SH-9W interchange to provide the extra capacity needed to accommodate growth in the area and along the corridor.

In preparing for project delivery, ODOT has undertaken and programmed for early exploration of sub surface utility in the interchange areas. ODOT has moved beyond the exploration of as-built plans and visual investigation of surface access and is using ground penetrating radar and radiography to locate subsurface utility to better inform design and construction.

ODOT has also programmed construction activities for this project within ODOT right-of-way (ROW) to minimize impacts to adjacent uses for mainline construction activities.

⁷ USDOT. National Roadway Safety Strategy. January 2022

Early staging and construction planning will allow both existing travel lanes in each direction to maintain operation thereby minimizing impacts during construction. Lessons learned from recent ODOT mainline construction projects have moved ODOT to better plan to maintain existing operations as best as possible. Recent ODOT mainline widening projects have created significant bottlenecks with only one lane open in each direction and with this contract ODOT would leverage our large inside and outside shoulders to deliver the project with two lanes open.



ODOT has successfully delivered recent projects using the general A+B bidding method with projects coming in on-time and on-budget. ODOT has progressed the incentive program and has it dialed in specific to work within Oklahoma. ODOT will leverage that experience to deliver this project quickly and efficiently.

6 Economic Analysis

A benefit-cost analysis (BCA) was conducted following the latest USDOT BCA guidance (March 2022). It is important to note that the BCA can underrepresent a project's total economic benefits, as many benefits cannot be readily quantified or occur under conditions of uncertainty. For this project, the BCA quantification is restricted to the following benefits:

- > Reduction in the number of collisions and corresponding social collision costs
- > Reduction in travel times for autos and trucks
- > Reduction in vehicle environmental emissions due to improved speeds
- > Improvement in state of good repair with reduction in highway maintenance and repair costs

6.1 BCA Assumptions

The analysis was performed for a period beginning in 2022 and ending in 2045. The first year of full benefits is expected to be 2026, so that 20 full years of discounted benefits were considered in the BCA. The monetized benefits and costs were estimated in 2020 dollars with future dollars discounted in compliance with MPDG requirements using a 7% real discount rate (except for impacts related to greenhouse gas emissions which were discounted at a 3% discount rate).

6.2 Results

The cost and the quantifiable benefits of the project in terms of Present Value are summarized in Table 6-1. Federal guidance recommends that applicants discount future benefits and costs to present (2020) values using a real discount rate of 7%. USDOT guidance also allows for present value analysis using a 3% real discount rate as a sensitivity analysis.

Detailed analysis of costs and benefits, including data sources and methodology descriptions, are provided in Appendix A. As shown in Table 6-1, the present value of the project's cost is \$100.3 million (using the 7% discount rate), and the

benefits have an estimated present value of \$357.1 million. The resulting benefit cost ratio and net present value (NPV) are 3.6 and \$256.8 million, respectively. With a 3% discount rate, the benefit cost ratio and NPV are 5.8 and \$551.5 million, respectively.

Benefit Cost Analysis Results

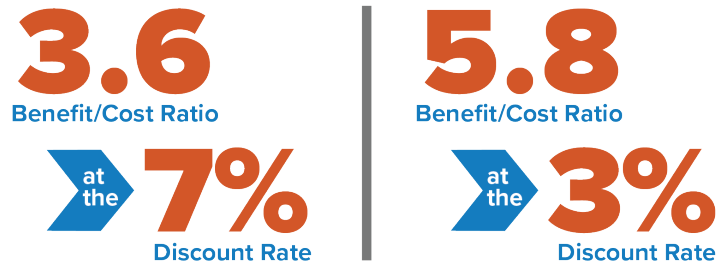


Table 6-1. Project Benefit Cost Analysis Summary (in millions of 2020 Dollars)

	7% Discount Rate	3% Discount Rate	Undiscounted
Benefits			
Improved Safety	\$32.7	\$56.6	\$89.5
Travel Time Savings	\$307.6	\$572.2	\$956.5
Environmental Benefits	\$2.2	\$2.8	\$5.3
Reduced O&M Costs	\$1.9	\$1.8	\$0.8
Residual Value of Assets	\$12.9	\$33.4	\$69.9
Total Benefits	\$357.1	\$666.7	\$1,121.9
Capital Costs	\$100.3	\$115.2	\$128.4
Net Present Value (NPV)	\$256.8	\$551.5	\$993.5
Benefit-Cost Ratio	3.6	5.8	8.7
Payback Period (Years)	11.7	10.8	10.3
Return on Investment (%)	255.9%	478.6%	773.5%
Internal Rate of Return (%)	21.2%		

Source: HDR Benefit-Cost Analysis

7 Project Readiness and Risk

7.1 Technical Assessment

ODOT has prepared project initiation documents for all components of the project. Initiation documents and discussions include identifying:

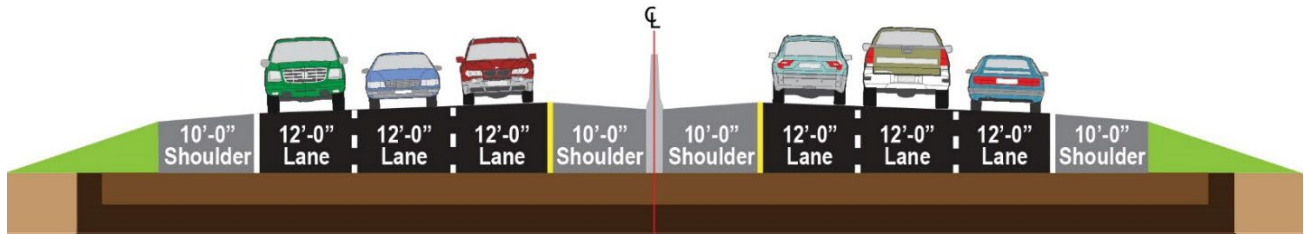
- > Project intent and need
- > Current site conditions including infrastructure, terrain, geometrics, and traffic volumes
- > Special conditions that could impact design
- > Known environmental issues
- > Alternative evaluation
- > Bridge longitudinal location and hydraulic assumptions
- > Detour options, construction sequencing, and required items to accomplish plan
- > Right-of-way and utility needs
- > Access control
- > Project schedule and cost estimate



In addition, interchange alternative concept development and selection has been finalized for the interchanges at SH-153 and SH-9W. The SH-153 interchange completed its environmental review in 2019 with a Programmatic Categorical Exclusion (PCE). The selection of an interchange design for SH-9W included public involvement and an environmental clearance with a resulting Documented Categorical Exclusion (DCE). Both interchanges are currently at 60% design plans with 90% design plans programmed to be complete prior to MPDG grant award. The mainline component is in environmental review with a public meeting planned for the last quarter of 2022.

The proposed mainline design would accommodate projected traffic volumes for future 2050 conditions. The proposed design would also provide 10-foot inside and outside shoulders improving the current 4-foot inside shoulder to meet standards for the new six-lane cross-section. The mainline widening would occur primarily within the current 36-foot-wide center median grassy swale with portions of widening occurring on the outside shoulder but still within ODOT ROW. Figure 7-1 shows the proposed typical section for the priority segments.

Figure 7-1. Proposed Typical Section for I-35



As part of preliminary engineering process, ODOT has completed topographic surveys. Metes and bounds surveys were not required for mainline widening. Utility investigations are also not required for mainline widening however have been programmed for the SH-153 and SH-9W interchanges. Traffic studies have been prepared for interchange alternatives analysis and further analysis is programmed for local intersections adjacent to the proposed interchanges.

Cost estimates have been prepared for the priority segments including interchanges based on recent verified project costs including type and quantity of materials. These costs are presented in the cost estimate section of this application.

ODOT has also conducted public outreach for the interchange components of the project which provided comments from agencies and the public through public meetings. The comments provided were incorporated in the selection of interchange design alternatives.

ODOT has delivered numerous projects of the same size and scope and has successfully delivered projects on time using an incentive/disincentive process on design and build contracts. The interchange projects are close to 90% design and designs for both interchanges are both feasible and constructable. The mainline widening component is in preliminary design. However, the widening is planned predominately within the existing center median therefore the feasibility and constructability of this component is not in question. ODOT is working on the ROW acquisition for the interchange components and expects to have this finalized for both interchanges by the end of the year.

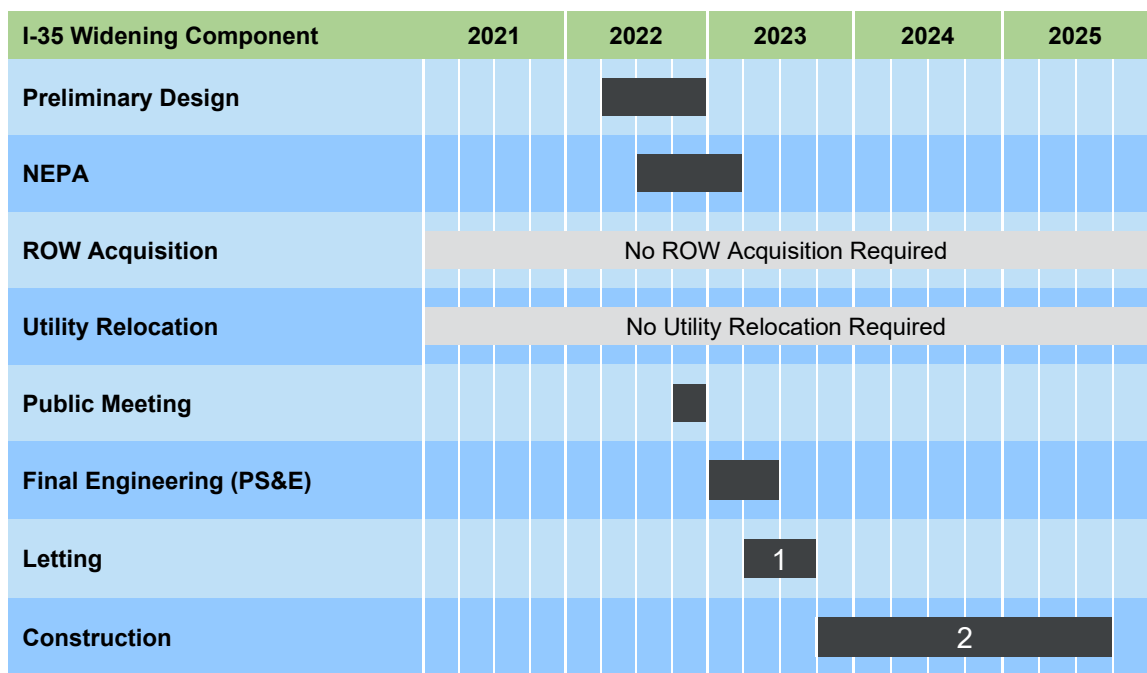
7.2 Project Schedule

The project schedule is shown in Figure 7-2 separately for each major construction component. The first schedule element is the mainline widening component (both South and North Segments) followed by the SH-153 interchange, and the SH-9W interchange. The SH-153 would begin construction a few months prior to the mainline component which would be constructed in conjunction with the interchange where appropriate. Preliminary design/engineering is generally complete for the interchange components and is slated to be completed for the mainline component by the end of 2022. The NEPA process is complete for SH-153 interchange and close to completion for the SH-9W

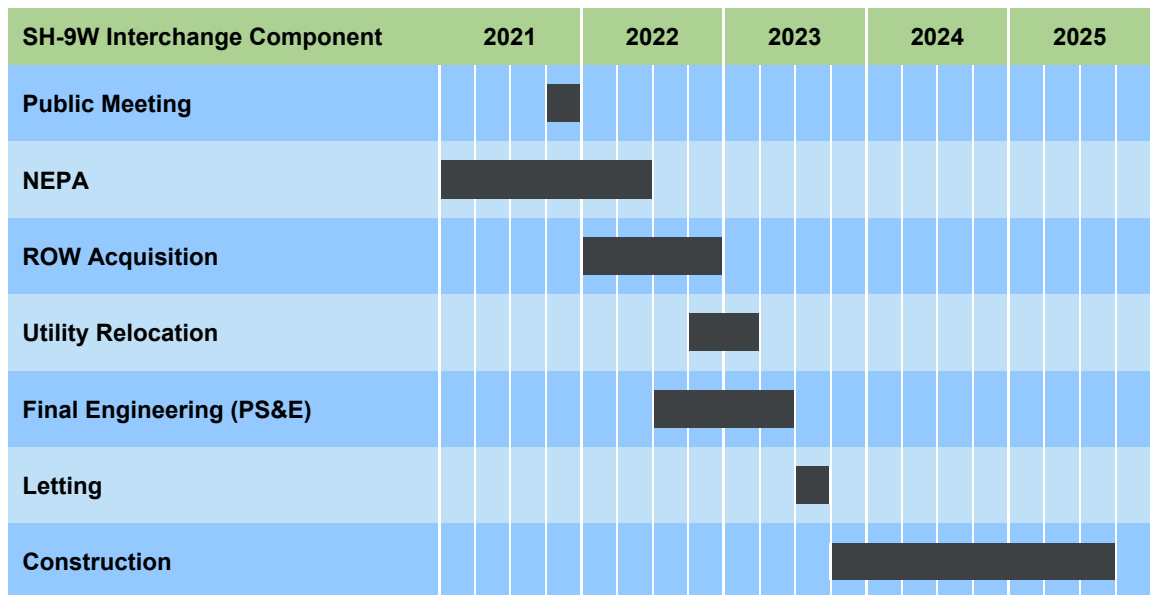
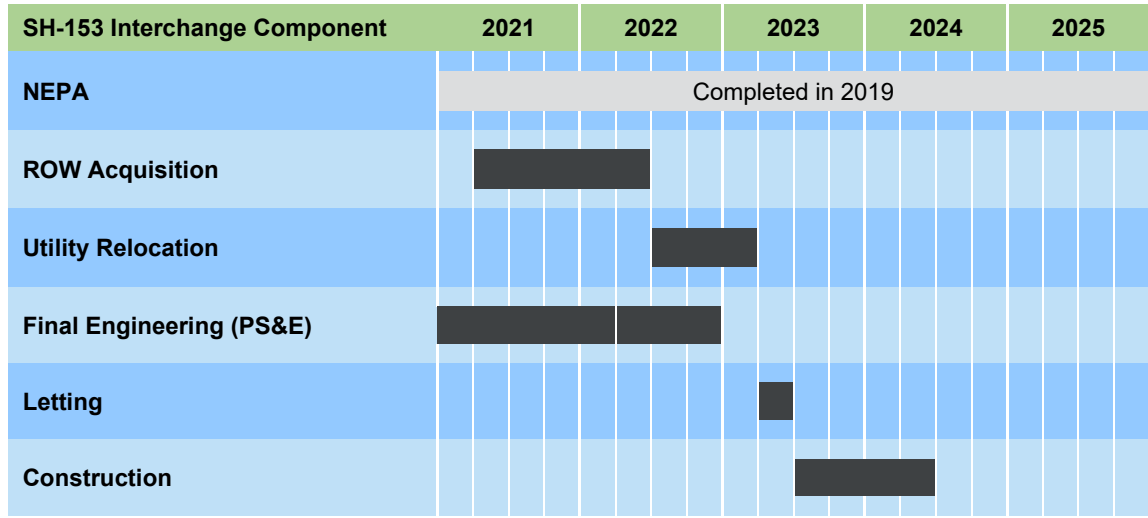
interchange. The NEPA process for mainline widening would be completed in the first quarter of 2023. All right-of-way (ROW) and utility relocation activities would be completed by the first quarter of 2023 allowing final engineering/design to proceed. Construction is expected to let in Summer 2023 and completed in Fall/Winter of 2025.

ODOT has prepared an aggressive schedule for the I-35 Priority Improvements project to have the project ready for construction in 18 months. ODOT is committed to having the project design and environmental clearance complete for project letting in Summer 2023 with a construction start date shortly thereafter.

Figure 7-2. Project Schedule



1. Letting for the widening segment and corresponding interchange would occur together
2. Construction of the widening segments and corresponding interchanges would occur together where appropriate



7.3 Financial Completeness

Project financial completeness is discussed in Section 4 where cost estimates and funding sources are discussed in detail. ODOT is also prepared to offset the 25% of non-MPDG federal funds programmed should it be needed to ensure that the project is implemented. Project components were programmed in the STIP, and 8-Year Construction Plan and the full project package can be added to the STIP as needed. ODOT takes pride in our mission “to provide a safe, economical and effective transportation network for the people, commerce and communities of Oklahoma.” This project is expected to provide safer and efficient travel on I-35 for Oklahoma

communities and the United States freight community and ODOT is committed to moving this project forward with the help of MPDG grant funds.

7.4 Environmental Review

The I-35 Corridor Priority Improvements project is currently in the preliminary engineering and environmental review phase. Initial project scoping, alternatives analysis, and identification of corridor constraints has been completed. For NEPA purposes, the project consists of four distinct components, each with a separate NEPA document. The SH-153 interchange NEPA process is now complete with a Programmatic Categorical Exclusion (PCE). The SH-9W interchange has a separate Documented Categorical Exclusion (DCE) and supporting technical studies. The mainline corridor improvements will have a two separate (South and North Segment) NEPA documents slated for completion in Summer 2022.

7.4.1 Environmental Permits and Reviews

As the project is proposed to be completed largely within existing ODOT right-of-way, a streamlined environmental permit and review process is expected. Initial technical environmental analysis for the largest project components (SH-153 and SH-9W) including noise, air quality, cultural, biological, environmental justice, historic resources, and others have been completed and permits were not required for these components.

7.4.2 Public Engagement

As part of the SH-9W alternatives selection process, ODOT conducted individual meetings with all stakeholders within the project limits including City of Newcastle, Town of Goldsby, McClain County, and the Chickasaw Nation. ODOT also conducted in-person public meetings and prepared project summary documents for in-person and virtual distribution. These stakeholders would also be engaged for the North Segment mainline widening. For the South Segment, the stakeholders include Love County, Town of Thackerville, and the Chickasaw Nation who were part of the SH-153 public outreach conducted with the NEPA process in 2019. As the project progresses, ODOT will be proactive in keeping the public informed of the project to ensure adequate project noticing but also to share the benefits of the project and the planned construction schedule.

7.4.3 State and Local Planning Documents

The project addresses all seven goals identified in the Oklahoma 2045 Long Range Transportation Plan (LRTP) including:

- > Safety and security by reducing congestion and providing a wider shoulder
- > Infrastructure preservation with the upgraded interchanges
- > Mobility and Accessibility by reducing congestion and increasing travel time reliability

- > Economic vitality by improving movement of freight and diverted freight traffic off rural highways
- > Environmental responsibility by reducing congestion and providing better access and reliability for the future wind energy production
- > Efficient intermodal system management and operation by reducing congestion and diverting traffic of rural highways
- > Fiscal responsibility by prioritizing the highest impacted segment of the busiest passenger and freight corridor in the state and leveraging federal aid

Project components are included in the STIP and the 8-Year Construction Plan. The project will be included in its entirety in the STIP if additional grant funds are made available for the project. Please note that the STIP only includes the first four years of the 8-Year Construction Plan. The regional TIP documents defer to the STIP for projects related to the interstate.

The project complies with the 2017 OFTP goals, which are consistent with national freight goals, including improving reliability, congestion and bottleneck reduction, safety, state of good repair, ensuring the competitive performance of the state's freight system, and promoting competitive access to domestic and international markets for its industries. Project components were included in the freight plan.

7.4.4 State and Local Approvals

The support for this project is indicated by the wide range of letters discussed in Section 3.2 and provided on the project [webpage](#)⁸. The corridor is critical to employment, commerce, education, medical care, and safe travel and any required state and local approvals are expected to be obtained quickly.

7.4.5 Federal Requirements Affecting State and Local Planning

The project will be included in its entirety in the STIP, TIP and other relevant state and local planning documents to meet federal-aid requirements and to obligate MPDG grant funds upon award. Separate components of the project were included in the STIP and 8-Year Construction Plan. Please note the TIP documents defer to the STIP for interstate related projects.

The project is in Love County and McClain County in Oklahoma's 4th Congressional District. The project area is also in the Southern Oklahoma Development Association (SODA), the Association of Central Oklahoma Governments (ACOG), and the Association of South Central Oklahoma Governments (ASCOG) planning districts. The project area is also part of the Oklahoma City Area Regional Transportation Study (OCARTS) and South Central Regional Transportation Planning Organization plans.

⁸ https://oklahoma.gov/odot/progress-and-performance/federal-grant-awards/mpdg-grants/mpdg-2022/priority_improvements_on_the_i-35_corridor.html



7.5 Project Risks and Mitigation Strategies

ODOT’s extensive experience completing projects of similar scope on time and on budget help mitigate some of the project risks identified in Table 7-1. Risks vary from approvals to construction, however ODOT has identified mitigation measures and contingencies to address these risks.

Table 7-1. Potential Risks and Mitigation Strategies

Risk	Description	Mitigation Strategy
Environmental Review	Project SH-153 interchange has a PCE secured, the SH-9W is in the process of acquiring DCE and the remaining components are expected to also be eligible for DCE however approval is not guaranteed.	The EA process has been started and project initiation documents have highlighted potential environmental concerns. The EA process is a couple months from completion and any permitting needs has been programmed into the project schedule.
Right of Way acquisitions	Acquiring right of way for construction.	The project will be constructed predominately within ODOT ROW. Interchange components require minimal ROW acquisitions which have been identified and coordination has started with expected completion by the end of the year.
Utility Relocations	Relocating utilities prior to construction.	The project will be constructed predominately within ODOT ROW, and no relocation is needed for the mainline component. Interchange components require some utility relocation which have been identified and coordination has started. Relocation has been programmed early so any delays would not significantly affect the construction schedule.
Roadway Design Standards	Meeting and upgrading existing roadway geometrics to current design standards.	Geometric issues have been addressed and current 60% design meets current design standards.
Schedule	Aggressive design and construction schedule.	ODOT has successfully delivered projects with tight schedules and has successfully used incentive/ disincentive based contracting to maintain project schedules.
Funding	Not securing adequate construction funding.	The funding package is dependent on MPDG funding and currently planned to use other federal funding. State and federal funding has been secured from current funding packages.
Cost Escalation & Supply Chain	Market changes in materials cost and delays in supply.	ODOT will work with the designer/contractor to identify key materials with varying costs and availability early in the process and expedite acquisition to reduce impact to the construction schedule.

8 Project Requirements

The I-35 Corridor Priority Improvements project would reduce delay, improve safety, support the economic vitality of the region and the nation, and provide a better quality of life for the growing community it serves. The project meets the MPDG grant statutory requirements as discussed in the narrative and summarized in Table 8-1 below.

Table 8-1. Project Requirements

<p>1. National or Regional Benefits (Mega & INFRA)</p>	<p>The I-35 Corridor Priority Improvements project would improve one of the primary freight and passenger vehicle corridors in the nation. I-35 facilitates national and international freight movement and is a primary artery for Oklahoma connecting Oklahoma City area through multiple attractions and work centers to the Dallas/Fort Worth area. The corridor is an economic engine for the economies of Texas, Oklahoma, the Chickasaw Nation, and the United States. See Sec 5.3.</p>
<p>2. Cost Effectiveness (Mega & INFRA)</p>	<p>The project has a BC ratio of 3.6 (at 7% discount rate). See Section 6 & Benefit Cost Analysis Appendix.</p>
<p>3. Highway Program Goals (23 U.S.C 150 INFRA)</p>	<p>The project contributes to the following national goals as discussed in the narrative:</p> <ul style="list-style-type: none"> • Safety – Sec 5.1 • Infrastructure condition – Secs 1.3 & 5.2 • Congestion reduction – Secs 1.3 & 5.4 • System reliability – Secs 1.3, 5.1, & 5.3 • Freight movement & economic vitality – Secs 5.3 • Environmental sustainability – Sec 5.4 • Reduce project delivery delays – Secs 5.6 & 7.2
<p>4. Preliminary Engineering (INFRA)</p>	<p>The project has completed the following for project components (See Sec 7.1 & 7.2):</p> <ul style="list-style-type: none"> • environmental assessment • topographic surveys • identified hydraulic and utility needs • identified ROW needs and started acquisition • alternatives analysis and selection • public outreach • prepared cost estimate and project schedule
<p>5. Stable & Dependable Financial Plan (Mega & INFRA)</p>	<p>The project has state and federal funds committed. See Sec 4 & 7.3.</p>
<p>6. Impact of Federal Funding (Mega & INFRA)</p>	<p>The project could not be completed easily or efficiently without the INFRA grant. See Sec 4.4.</p>
<p>7. 18 months to begin construction (INFRA)</p>	<p>The project is planned to begin construction in Summer 2023. See Sec 7.2.</p>
<p>8. Legal, Financial, and Technical Capacity (Mega)</p>	<p>The project is technically viable and will be delivered in compliance with applicable Federal requirements. The project has state and federal funds committed. Components of the project have environmental approvals and the full project is project for approvals in early 2023. Project risks have been identified and a mitigated. See Secs 7.1, 7.3, 7.4, and 7.5.</p>

Appendix A. Benefit Cost Analysis