



OKLAHOMA
Transportation

I-35 CAPACITY IMPROVEMENTS

FY 2023-2024 MPDG

Outcome Criteria

OUTCOME CRITERIA

CRITERION 1: SAFETY

This section of I-35 has a higher-than-normal collision rate relative to the rest of the I-35 corridor. A 105-mile segment of I-35 from the Texas border to the Canadian River (two miles north of this project) had 3,437 collisions on the freeway mainline between 2016 and 2020⁹. This averages out to 688 collisions per year along the I-35 corridor. This project length equates to 6 percent of the 105-mile I-35 corridor, but it accounts for 11 percent of the total collisions. **Twice the number of crashes occur along this 6-mile segment as compared to the 105-mile priority corridor overall.** Through the extents of this project 47 people were injured with three fatalities between 2016 and 2020⁸.

Based upon ODOT monitoring of I-35, the average daily traffic data and future projections have identified this project area to be in need of immediate improvement to mitigate the projected decreased Level of Service (LOS) in the coming years^{4 7}. The increasing traffic volumes directly indicate ongoing and continuing congestion along this section of I-35. A study by the Maryland Department of Transportation¹⁰ showed 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 proposed lane addition will help to alleviate congestion, and the proposed 10-foot inside shoulder will provide a refuge area for stopped vehicles. These elements will help to maintain traffic flow and reduce potential for collisions with stopped vehicles in travel lanes.

As part of the National Roadway Safety Strategy¹¹, studies have shown that fatalities and fatal crashes occur disproportionately by both population and vehicle travel on rural roads, including this rural section of I-35. Additionally, the study notes that fatalities involving large trucks have been increasing faster than fatalities overall. Nationwide, 19% of the population live in rural areas, while 45% of fatal collisions occur on rural roadways²⁸. In Oklahoma, a higher percentage of people reside in rural areas (34% total), and **the percentage of fatal collisions on rural roadways in Oklahoma is a staggering 65%**²⁹.

I-35 Corridor:

105 Miles

3,347 Collisions

688 Collisions/Year

(2016-2020)

I-35 Widening Project:

6 Miles

380 Collisions

11% of Collisions
in Corridor

3 Fatalities

47 Injuries

(2016-2020)

The Federal Highway Administration (FHWA) provides a resource of proven safety countermeasures¹², and this project will incorporate several of these important features including:

- Longitudinal rumble strip on the outside shoulder
- A continuous concrete median barrier
- Roundabouts at the SH-74 Interchange/Bridge in lieu of signalized intersections
- Lighting

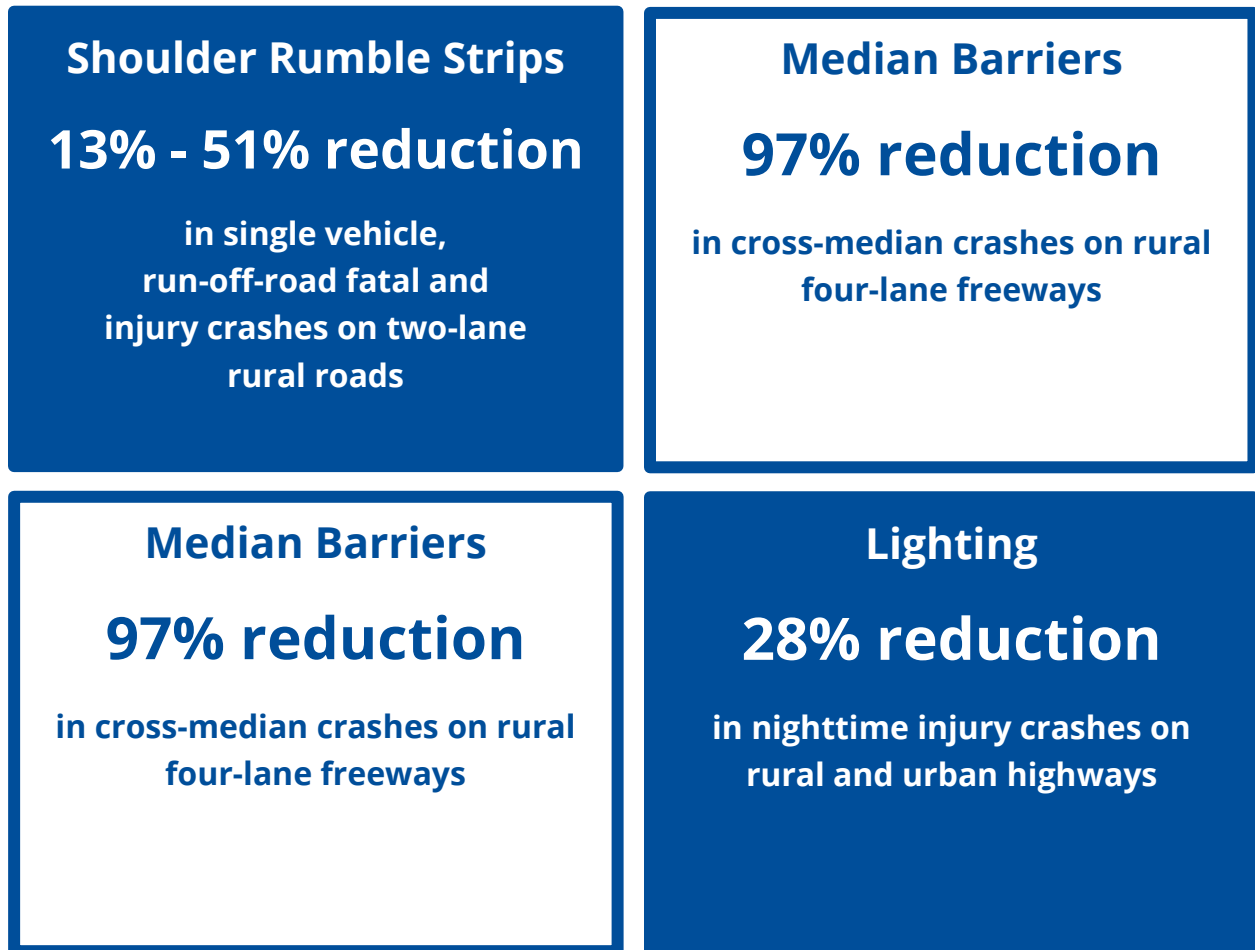


Figure 1: ***Proven Safety Countermeasure Statistics***

Providing a safe transportation network is the first tenet in ODOT's mission statement¹³. Safety is a key priority for measuring performance and accountability, including eliminating fatal and injury collisions. Reduction of congestion is the primary emphasis to reduce collisions in this section of I-35, and the installation of the wider inside shoulder will further reduce conflicts within the corridor.

CRITERION 2: STATE OF GOOD REPAIR

The improvements to the I-35 corridor proposed for funding in this application will address the existing condition of the pavement, bridges, and critical capacity needs of the facility. ODOT is responsible for maintenance for on-system facilities throughout the state, including over 30,000 lane-miles. As such, ODOT has a \$500M 4-Year Asset Preservation plan which is both federally and state funded to address pavement and bridge condition throughout the state. The existing facility has two (2) lanes in each direction and is divided by a grass median with a cable barrier separating opposing traffic.

This section of I-35 carried over 64,000 vehicles per day at a Level of Service (LOS) of D in 2022 with current projections of LOS E occurring this year (2025), and LOS F in 2031 under ideal conditions⁷. With nonrecurring sources of congestion like traffic collisions and vehicle breakdowns, traffic capacity is effectively reduced and operational issues will be experienced sooner than the timelines noted here. The I-35 mainline pavement condition is generally considered to be in fair or good condition; however, the capacity of the existing four (4) lane divided system does not meet the current and future traffic demands. In addition to pavement improvement, the project would replace the “Structurally Deficient” SH-74 bridge to accommodate the added capacity needed for I-35 under the bridge^{14 15 16}.

The SH-74 bridge over I-35 is currently listed as “Structurally Deficient” due to the condition of the deck as well as a “Fair” rating for the superstructure¹⁶. The SH-74 over I-35 bridge was constructed in 1959 as a four-span steel bridge crossing I-35 at a 53-degree skew and a clear roadway width of 36 feet. The replacement of the bridge will allow for increased vertical clearance to a minimum of 16'-9" along with increased clear width for I-35



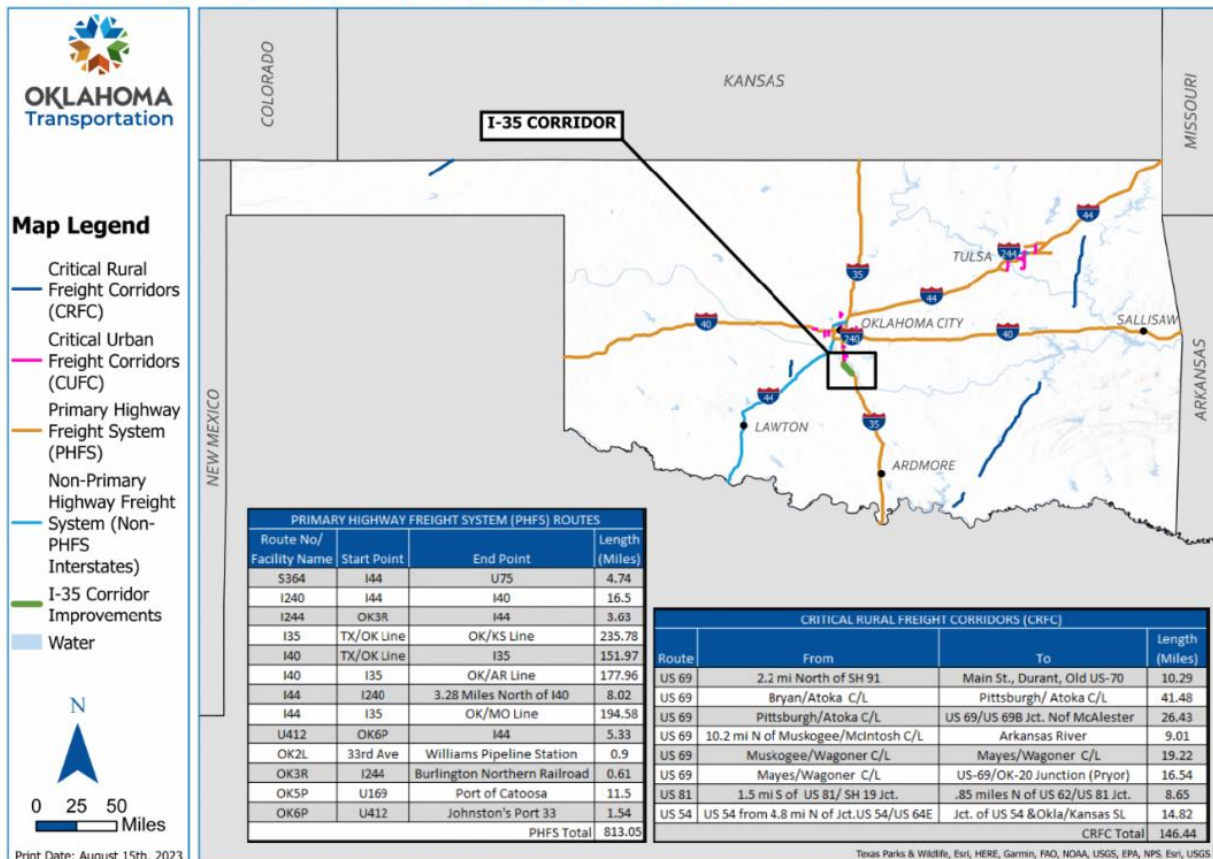
Figure 2: I-35 at SH-74

to accommodate the additional lanes and shoulders. In addition, the bridge has less than the desired roadway width to meet traffic requirements on SH-74, and the proposed wider bridge will address this issue.

The widening and improvements to I-35 will extend the life of this vital corridor and improve the LOS to accommodate the 2.5% annual traffic growth rate (linear growth model)⁴. Additionally, the replacement of the SH-74 bridge will remove a “Structurally Deficient” bridge from the system as well as remove a physical constraint to accommodate I-35 widening and shoulder improvements below.

Beyond state of good repair, this project will provide needed capacity improvements to accommodate traffic growth along the mainline, interchanges, and ramps as well as improving ramp merge and diverge alignment and distances onto I-35. This project will provide three (3) lanes in each direction, 10-foot inside and outside shoulders and a concrete barrier separating opposing traffic. Additionally, parallel acceleration and deceleration lanes will be provided for improved merging conditions. All the improvements will comply with American Association of State Highway and Transportation Officials (AASHTO) guidelines.

National Highway Freight Network System: Oklahoma



Note: PHFS and the Non-PHFS Interstate mileage is based on the U.S. Department of Transportation, Federal Highway Administration, All Roads Network of Linear Referenced Data (ARNOLD) - 2019 geospatial database. Non-PHFS Interstate mileage can fluctuate based on changes made to the Interstate System. The mileage for Non-PHFS Interstate is based on the Interstate Mileage reported in the National Highway System (NHS) as of October 17, 2019. The mileage for CRFCs and CUFCs is based on the State reported data as of January 27, 2023.

Figure 3: National Highway Freight Network System: Oklahoma

CRITERION 3: ECONOMIC IMPACTS, FREIGHT MOVEMENT, AND JOB CREATION

I-35 is an economic anchor to the state of Oklahoma and the interstate network of the United States. It connects Oklahomans to the world by providing access to goods and services and brings in materials that create and maintain jobs within the state. The corridor continues throughout the state, and it serves as one of two primary north-south highway freight routes west of the Mississippi River. I-35 in Oklahoma comprises about 236 miles of the National Highway Freight Network (NHFN) and is classified as part of the Primary Highway Freight System (PHFS)¹, see **Figure 3**. This key route is particularly important for freight traveling to and from Mexico, through Texas to Oklahoma and beyond. This is evidenced by heavy trucks comprising 20 percent of the average daily traffic through this project's section of I-35.

The Oklahoma Freight Transportation Plan (OFTP)⁵ projects trucking tonnage to grow by 38 percent (79.5 million tons) between 2017 and 2045. This consists of a 47 percent increase in inbound tonnage, a 48 percent increase in outbound tonnage and a 30 percent increase in tonnage moved within the state. The OFTP also projects employment within the transportation and warehousing sector to increase by 6.94 percent in 2028 from 2018 levels. Roughly 53 percent of the state's employment is dependent on freight transportation, emphasizing the need for efficient movement of trucks within the state. **Figure 4** (from the National Freight Strategic Plan (NFSP)² clearly shows how Oklahoma is the primary storage hub for crude oil in the nation, and trucking is projected to consist of 23 percent of the crude oil tonnage transported within the country in 2045.

Not only does Oklahoma have large facilities to store oil, Oklahoma is in the heart of the United States Mid-Continent oil region, a vast oil- and natural gas-producing area that also includes Kansas, Texas, Arkansas, Louisiana, and New Mexico and is flanked by the Mississippi River to the east and the Rocky Mountains to the west. Oklahoma has some of the largest natural gas and oil fields in the country¹⁷. Additionally, the OFTP⁵ shows employment in the mining industry will grow by 5.33 percent in 2028, and the mining industry includes oil and gas extraction jobs. Wind energy is also a significant energy sector within the state that is continuing to grow and requires delivery of oversized loads. The major freight corridors within the state, including I-35, are essential to meet these growth projections, maintain current jobs, and provide a bright future for Oklahoma.

McClain County is one of the two fastest growing counties in Oklahoma – having grown 31% over its 2010 population in just the past 12 years³⁰. As the overall population and additional opportunities for employment grow in the greater Oklahoma City metropolitan area and around Norman, the number of McClain County residents relying on I-35 has continued to grow as well. A large number of McClain County residents rely on I-35 to get to work and key shopping destinations to meet their basic needs.

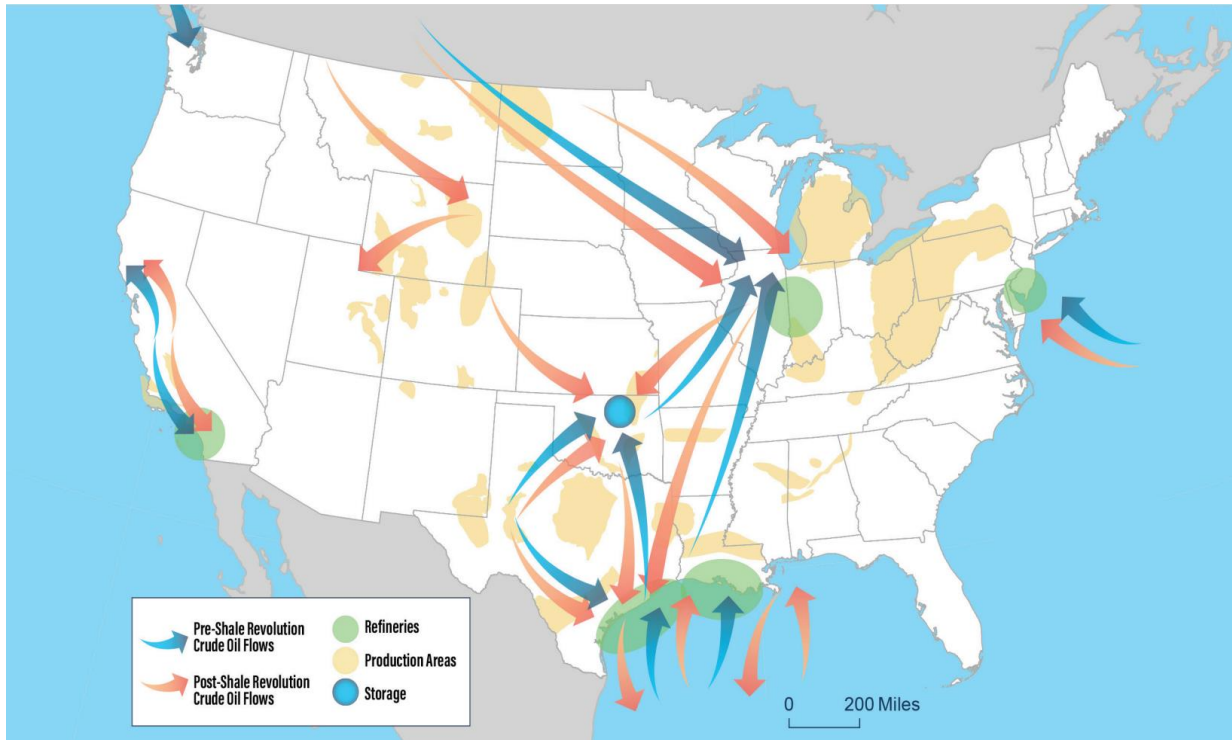


Figure 4: Crude Oil Flows Pre- and Post-Shale

The improvements to I-35 will improve national and regional economic health by reducing travel time, increasing reliability, and improving overall operations along the corridor. Improvements to our major freight corridors promote new businesses and jobs to the state. There is a diverse mix of industries supported by the I-35 corridor including agribusiness, the equine industry, manufacturing and distribution, retail trade, and tourism. Less than two miles north of this section of I-35, the Chickasaw Nation’s Riverwind Entertainment Complex is located directly off the highway and is one of the largest economic generators along the corridor.

CRITERION 4: CLIMATE CHANGE, RESILIENCY, AND THE ENVIRONMENT

This project will 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. The daily traffic volume in is projected to operate at a LOS F in 2040⁷. With these congested volumes, the delay could cause significant air pollution and emissions from stopped or slow-moving vehicles. This concept is in line with FHWA's Congestion Mitigation and Air Quality (CMAQ) Improvement Program¹⁸ which provides funding to states for transportation projects designed to reduce traffic congestion and improve air quality.

Resiliency is critical to I-35 in McClain County because it serves as a critical north-south disaster route. With significant nonrecurrent congestion or lane closures, there are no viable replacement routes for I-35 through central Oklahoma. Available north-south detours are intermittent, require long travel distances to the east or west, and aren't intended to accommodate the types of speeds and volumes that I-35 regularly carries.

In addition to reducing congestion, the project will 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 nearly 44 percent of the state's net generation in 2022, and the state was ranked third in the nation in electricity net generation from wind¹⁷. According to the US Wind Turbine Database¹⁹, more than 300 turbines are already in operation south of this project along I-35. With the state's focus and investment on renewable energy, wind energy will continue to grow, and the I-35 freight corridor will be key in 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)²⁰ and the Statewide Transportation Improvement Plan (STIP)²¹ 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 will be updated to include the project in its entirety if additional grant funds are made available for it.

CRITERION 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 the census tract of the encompassing the project area, no low-income Environmental Justice (EJ) Census Blocks or Limited English Proficient populations were identified within or adjacent to the proposed project area. This information is summarized in the Documented Categorical Exclusion²² for the I-35 North Widening and supported by the USDOT Equitable Transportation Community Explorer²³ see **Table 1 & Figure 5**. The I-35 widening project will not adversely/directly impact EJ communities with construction of the improvements or noise. It is expected to provide travel time savings and improved reliability on I-35 and provide safe and efficient travel to the community and better access to services.

	Oklahoma	McClain County	Census Tract 40087400204
Total Population	3,900,000	39,900	5,200
Total Population Living in Disadvantaged Area	1,400,000	5,600	0
Percent of population at or below 200% of the federal poverty level	Not Available	Not Available	16.4%
Median Household Income	Not Available	Not Available	\$81,799

Table 1: USDOT Equitable Transportation - Disadvantaged Census Tract

This project aligns with the goals set for in the Association of Central Oklahoma Governments 2045 Encompass Plan²⁴ (Long Range Transportation Master Plan) including:

- Providing transportation options and access for the movement of all people and goods
- Expand and maintain a safe, secure, and accessible public transportation system
- Avoid, minimize, or mitigate negative human health and environmental effects on environmental justice populations

While the project is not located in a census tract with a noted disadvantaged population based on the percentile results in **Figure 5**. The census tract does have a 96.4% transportation

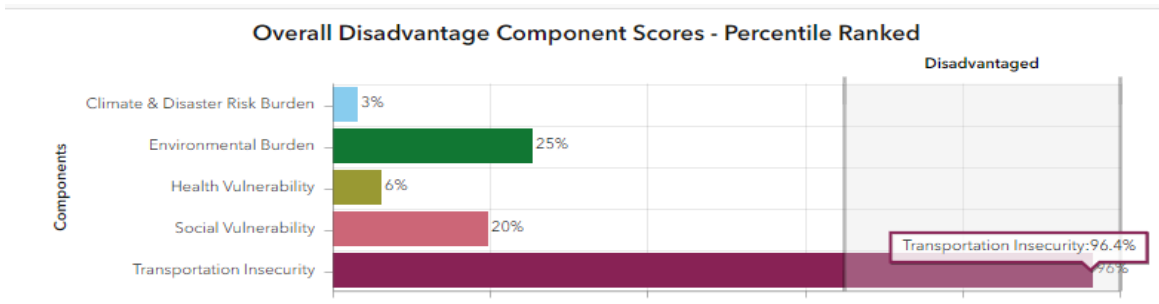
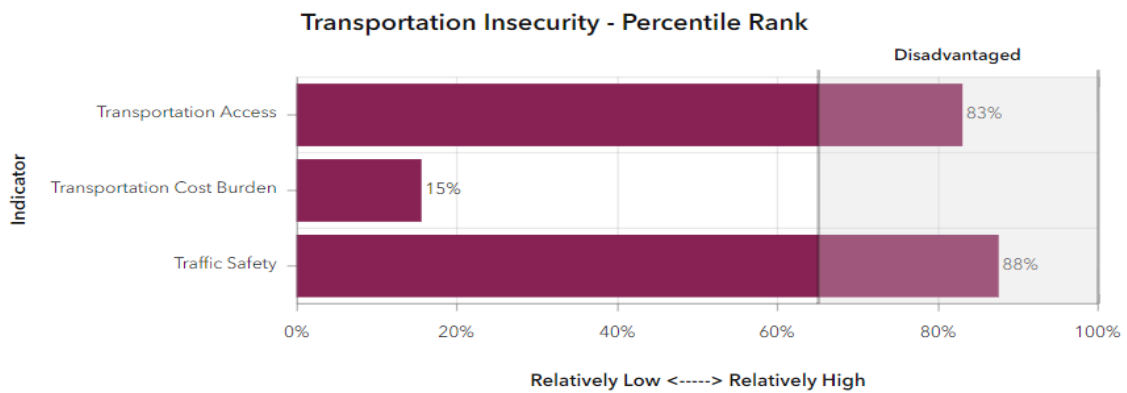


Figure 5: USDOT Equitable Transportation – Overall Disadvantaged Component Scores Project Census Tract

insecurity score which occurs when people are unable to get to where they need to go to meet the needs of their daily life regularly, reliably, and safely.

Additionally **Figure 6**, further breaks out the specific transportation issues in this area as defined below:

- Transportation Access- Communities with higher scores may experience longer commute times and difficulty traveling where they want to go via cars, walking and transit. Long commute times and limited access to personal vehicles or transit can create significant barriers to employment and resources.
- Transportation Cost Burden- Communities with higher scores spend a great percentage of household income on transportation, including transit costs; vehicle maintenance and insurance costs; gasoline and fuel, which leaves less money for housing, medical care and food potentially leading to households living in substandard housing with higher rates of chronic illness and obesity.
- Transportation Safety- Communities with higher score experience higher levels of fatalities per 100,000 persons related to motor vehicle crashes.



*Figure 6: USDOT Equitable Transportation – Transportation Insecurity
Project Census Tract*

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. 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.

CRITERION 6: INNOVATION

ODOT is constantly working to improve current processes and increase efficiency for construction and safety. Utilizing new technology and improved construction practices are significant factors in making these improvements.

Technology:

Intelligent transportation systems (ITS) will be utilized during construction and will include elements like dynamic messaging signs and traveler information systems that can be connected to communications infrastructure. The messaging sign will communicate with drivers and provide alerts due to incidents, congestion, or special roadway conditions. Cameras will also be provided with the signage to help monitor traffic through the construction area.

3D digital project plans will be required by ODOT for these project components in order to expedite project construction and minimize errors and issues encountered during the construction process. The 3D digital plans will be provided to the contractor, including the existing ground and proposed digital 3D surfaces. Contractors can utilize state-of-the-art GPS-controlled automated equipment throughout construction. This greatly reduces human error when establishing grades and elevations and increases efficiency for the entire earthwork portion of construction.



*Figure 5 Warm Mix Asphalt
(Source: FHWA)*

Warm mix asphalt construction has recently been encouraged and/or actively specified on various ODOT interstate projects and will be strongly considered for inclusion in the final design of this project (**Figure 5**). Warm mix asphalt typically yields a substantial reduction in energy consumption as well as reduced emissions from burning fuels, fumes, and odors present at both the asphalt plant and the construction site³¹.

Project Delivery:

ODOT has directed the design of these projects to limit right-of-way (R/W) and utility impacts, which simplifies the NEPA process to expedite environmental studies and permitting. ODOT has been systematically evaluating the entire 125-mile I-35 corridor in the south half of the state to determine where it makes sense to widen to the inside, to the outside, or a mixture of both⁴. Interstate-over bridges, side-road over bridges, overall cost effectiveness, existing median widths and conditions, outside clear zone conditions, right-of-way constraints, environmental constraints, and utility issues are all part of these vital, holistic interstate widening decisions.

These decisions then filter into the final design phase of the project as development work proceeds toward construction.

The North Section Widening will not acquire any new R/W and has minimal utility impacts only occurring at some crossing and ramp gore areas. The I-35 South Section Widening is expected to continue this emphasis as design progresses, and the SH-74 preferred alternative²⁵ required the least amount of R/W compared to the other alternatives.



Figure 6 I-35 Corridor

Construction staging and planning has been structured to allow two through lanes in each direction on I-35 to remain open throughout construction as illustrated in **Figure 6**. There are no viable detours for I-35 through construction, and the high daily traffic volumes in excess of 60,000 vpd necessitate two continuous lanes through construction⁴. Maintaining two lanes of traffic in both directions will reduce the risk of stop-and-go traffic flow through the construction area

which often causes rear end collisions. This is safer for both the traveling public and construction personnel. This foresight is built upon past I-35 projects that caused severe bottlenecks as I-35 was reduced to one lane in each direction and based on the significant volumes that I-35 carries every day on both weekdays and weekends.

ODOT has successfully delivered an increasing number of bundled projects like this one – utilizing one letting and construction schedule that bundles a larger number of separate development projects that are allowed to develop at different schedules but are tied together for construction, which yields construction cost advantages, improved work zone operations, shorter overall construction durations, and ultimately affords the contractor with more flexibility in scheduling the procurement of materials and combined work schedules.

Financing:

Oklahoma State leadership recently passed a law that will take effect in November 2023 prioritizing additional transportation funding beyond existing state transportation funds exclusively for use on rural facilities, including potentially the I-35 capacity widening project³². The new fund is titled the “Rural Economic Transportation Reliability and Optimization (RETRO)” Fund and is to be used exclusively for rural transportation needs on highways in counties with a population of less than seventy-five (75,000). The fund is to be used to accelerate construction on critical rural highways and would qualify to be used on I-35 widening projects going forward – subject to state appropriations and ODOT allocations. Oklahoma lawmakers have allocated \$200 million toward the RETRO fund to date.

ODOT obligates all required construction funding prior to advertising a project for construction and again prior to awarding a contract for construction. In addition, ODOT has consistently seen a contract growth of less than 3%, which is covered by other formula federal funding or Oklahoma State ROADS funds.