



Project Description

Project Overview

The Texas Department of Transportation (TxDOT) is pleased to present this application for an FY 2023-2024 Multimodal Project Discretionary Grant (MPDG). TxDOT is seeking \$110.8 million in MPDG funding to upgrade 5.26 miles of Loop 340, a rural undivided two-lane freight corridor located in McLennan County, into a controlled access highway facility (the Project). The expansion will provide a congestion-relieving, alternate route to I-35 for freight and passenger vehicles, accommodate increased traffic volumes brought on by regional growth, and provide safety and mobility to travelers. Figure 1 shows typical sections for the existing Loop 340 project and the proposed Build scenario for this Project. Table 1 provides a summary of how the various Project components address Section 150 national goals.

Figure 1 Existing and Proposed Typical Section

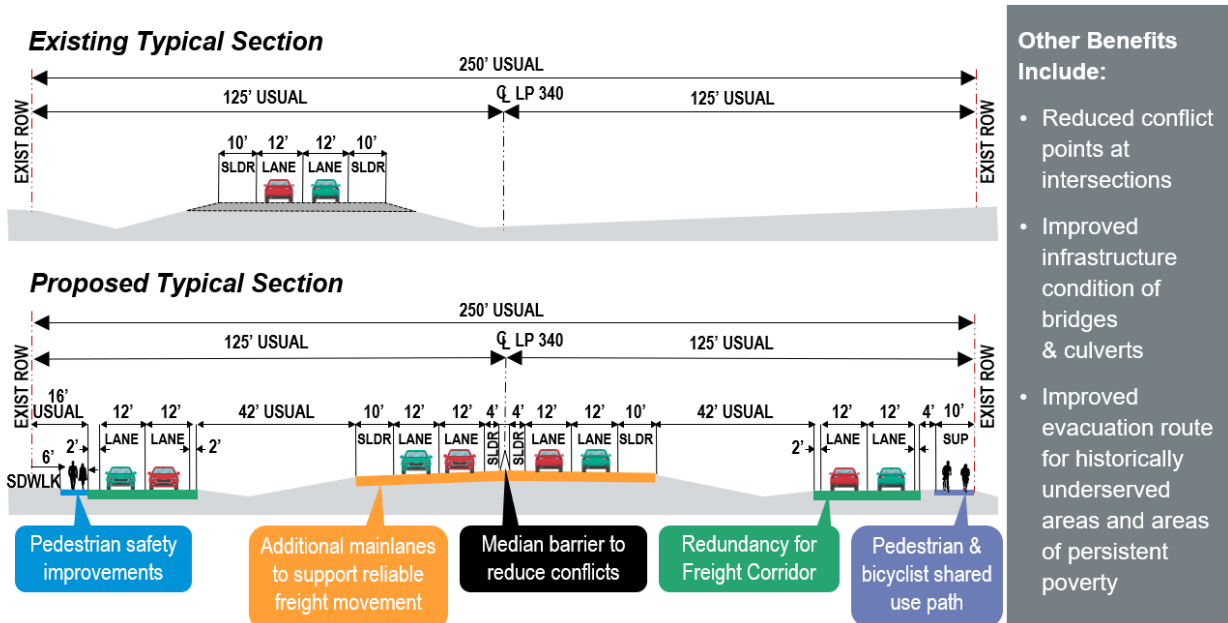


Table 1 Loop 340 Project Components and Alignment with National Goals

Alignment with National Goals
Additional mainlanes address congestion reduction, system reliability, and freight movement and economic vitality by expanding the capacity of the facility to accommodate a greater volume of traffic and providing an alternative corridor for freight traffic on I-35.
New frontage roads address safety and system reliability by moving turning movements onto frontage roads, reducing the need for vehicles to turn onto the higher-speed mainlane corridor thereby decreasing conflict points and vehicle delay.
New medians address safety by reducing the risk of conflict between vehicles traveling in opposing directions.
Reconstruction of existing and new bridges and culverts addresses infrastructure condition by reconstructing 1960s-era facilities and updating them to modern design standards, improving the quality and extending the useful life of the assets.



Alignment with National Goals

Sidewalks and shared-use paths address **safety** by providing protected bicycle and pedestrian facilities, creating greater mobility for residents, including school-aged children accessing the numerous schools within the corridor and lower-income residents reliant on active transportation as their primary mode.

Intersection improvements address **safety** and **reliability** by providing greater safety infrastructure for pedestrians and reducing conflict points between vehicles and the travel time delay associated with cross traffic.

Project Need

The Project will upgrade the last undivided section of Loop 340 to a freeway. TxDOT has previously upgraded the Loop 340 segments immediately north and south of the Project location to a four-lane freeway with frontage roads. The remaining 5.26-mile segment between the Brazos River and U.S. 84 narrows down to two-lanes, creating a bottleneck in the system. The Project reconstructs the existing undivided two-lane segment into a controlled-access four-lane facility with frontage roads to provide continuity with the adjacent freeway segments. In addition, the Project replaces multiple at-grade intersections with grade-separated intersections to reduce conflict points between vehicles and lower the risk of crashes, injuries, and fatalities. New grade separations will be built at: FM 2491; Orchard Lane (currently signalized); Williams Road (currently signalized); and SH 6 (currently signalized).

Removing at-grade intersections along Loop 340 mainlanes will improve travel speeds and times for drivers by allowing them to maintain travel speeds without having to slow down or stop for cross traffic. Traffic signals will be installed along the frontage roads at Orchard Lane and Williams Road to control traffic entering and exiting the frontage roads, managing safety while improving traffic flow along the mainlanes. The higher capacity and reduced travel time enables the Loop 340 mainlanes to maintain a Level of Service (LOS) of C or better at nearly every intersection under the Build condition in 2028 despite a forecasted 5.0% traffic growth rate between 2021 and 2028. Although traffic growth in the corridor reduces LOS at many intersections through 2048, the Build condition outperforms the No-Build condition along the Project corridor in 2048, as shown in Table 2.

Table 2 Comparison of Delay and LOS for Build & No-Build Conditions, 2048

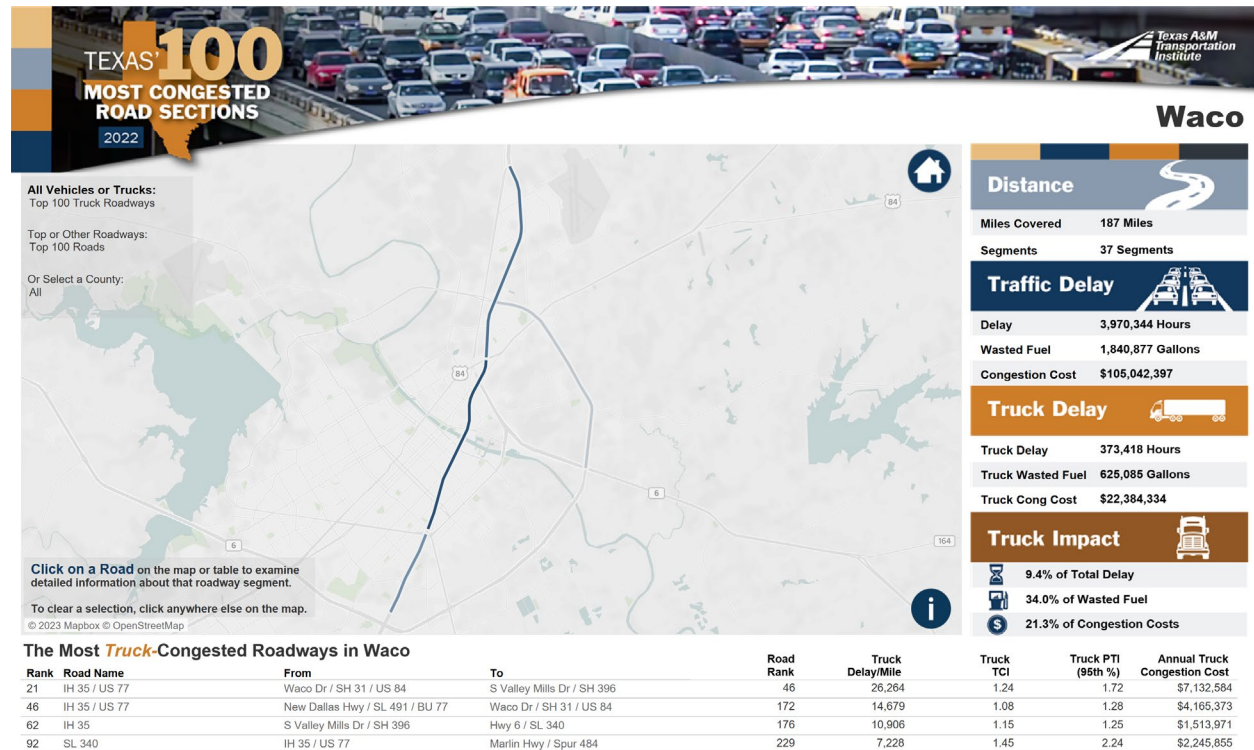
Example Project Intersection	Build Condition, 2048	No-Build Condition, 2048
Loop 340 NB & SH 6/SP 484 WB, Frontage Road	34.6 seconds of delay per vehicle (LOS C)	>100.0 seconds of delay per vehicle (LOS F)

The Project also expands capacity along the roadway to provide a valuable alternative for I-35, an interstate highway running parallel to Loop 340 through the City of Waco. I-35 is a strategic part of the Texas Highway Freight Network and the FHWA’s National Highway Freight Network, functioning as a critical corridor for both state and national freight movement. In 2022, three segments of I-35 through Waco along with the Loop 340 corridor ranked among the 100 most truck-congested roadways in Texas (Figure 2). This congestion contributed to more than 270,000 annual person-hours of truck delay and annual trucking costs of \$15 million.¹

¹ Texas A&M Transportation Institute, Texas’ Most Congested Roadways, <https://mobility.tamu.edu/texas-most-congested-roadways/>. Accessed July 23, 2023.



Figure 2 Waco Locations on Top 100 Most Congested Road Sections in Texas



Source: Texas Transportation Institute, 2022

The upgrades to Loop 340 will **provide a viable alternative to I-35** for freight and passenger traffic passing through Waco, **helping to relieve recurring congestion** during peak periods, planned construction on I-35, as well as unpredictable delays due to traffic disruptions.

By adding capacity and reducing cross-traffic along the corridor, Loop 340 becomes a more attractive travel option for both regional passenger and freight traffic. According to *Connections 2045*, the Waco Metropolitan Planning Organization (MPO)'s Metropolitan Transportation Plan (MTP), the population of McLennan County is forecast to grow by 24.9% between 2015 and 2045, while employment is forecasted to grow by 25.0%.²

Project History

Components of the Project are included as a priority project in *Connections 2045*. It is identified as East Loop 340, calling for a widening of the facility from two-lanes to four-lanes between SH 6 and U.S. 84. The MTP defines the purpose and need for this project as addressing unacceptable traffic conditions forecasted for 2045 and providing additional capacity for a designated I-35 alternative route. Figure 3 identifies the project as a short-term timeframe to be implemented between 2020 and 2030, as part of the MPO's 10-Year Plan.

² https://www.waco-texas.com/files/sharedassets/public/government/documents/section_3_demographics_final.pdf.

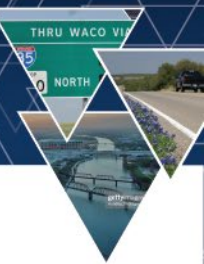
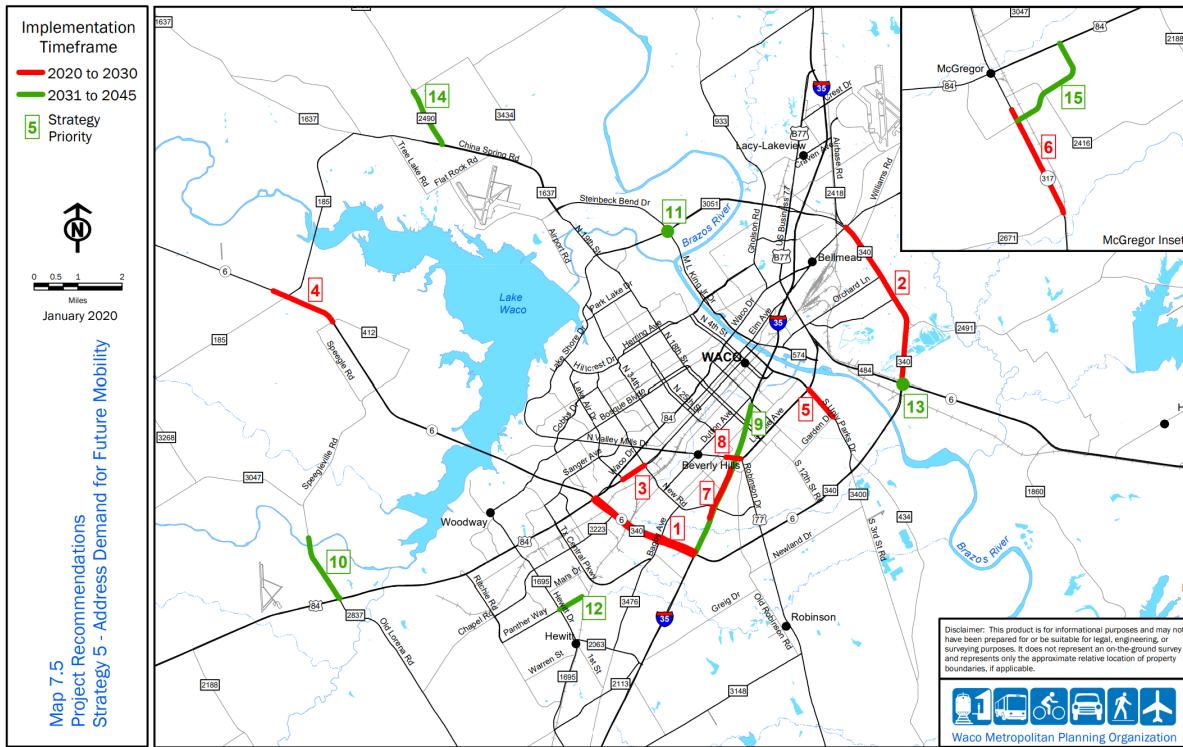
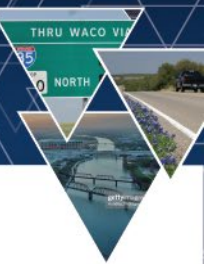


Figure 3 Loop 340 in Waco MPO Connections 2045 Priority Projects List (Project 2)



Source: *Waco MPO Connections 2045, 2020*

The inclusion of the project on the Waco MPO’s 10-Year Plan means the Project is included in TxDOT’s 10-year Unified Transportation Program (UTP); however, the Project remains only partially funded. The UTP includes funding for the Project’s frontage roads, but the mainlane components remain unfunded. Without MPDG grant funding, the Project will likely proceed in two phases: advancing final design and construction of the frontage roads first followed by construction of the Loop 340 mainlanes thereafter, doubling the timeline for ultimate completion from three years to six.



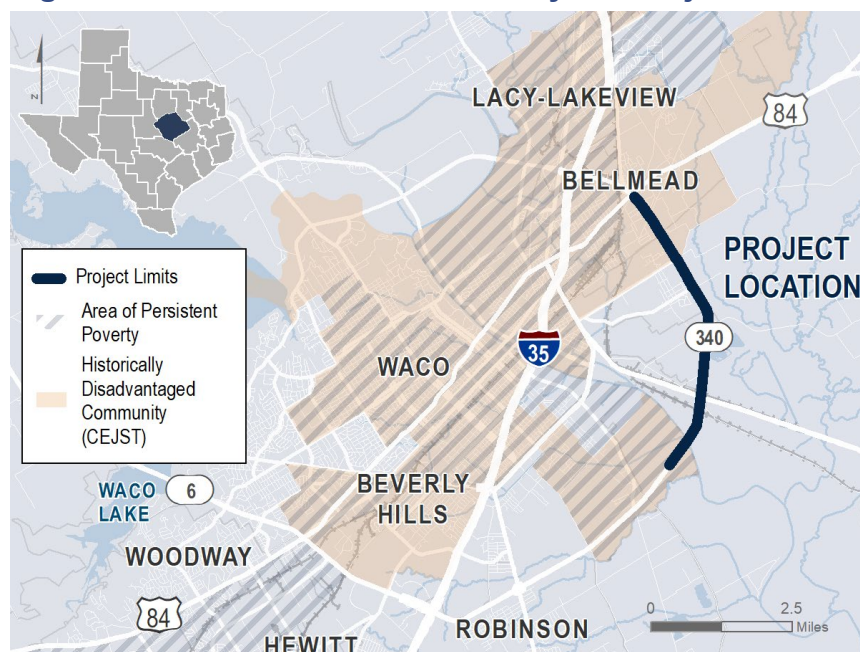
Project Location

The Project serves the greater Waco region, extending from south of the Brazos River to U.S. 84 in Bellmead. The 2020 population of the Waco Urban Area was 192,844, which classifies the project location as **rural** under the MPDG NOFO for FY23–24.³

The southern terminus of the Project serves a Historically Disadvantaged Community (HDC) and an Area of Persistent Poverty (Census Tract 19) and the northern end of the corridor from Orchard Lane to the intersection with U.S. 84 provides benefits to a HDC (Census Tract 17). Figure

4 shows the Project intersection with HDCs and Areas of Persistent Poverty. In total, 35% of the Loop 340 corridor (by length) is located within an Area of Persistent Poverty and/or an HDC.

Figure 4 Communities Served by the Project



Current Design Status

The Project is at 20–25% design completion for the overall project, although the frontage road component is at 30%. TxDOT has prepared the 30% design submittal for the four-lane controlled access facility component and has submitted the documentation for review.

TxDOT conducted environmental studies for the Project in compliance with the National Environmental Policy Act (NEPA), studying various environmental resources including water resources, traffic noise, hazardous materials, air quality assessment, archeological resources, historical resources, threatened/endangered species and wildlife habitat, and indirect impacts. TxDOT is currently updating the environmental documents through the development of a categorical exclusion (CE) and expects it to be completed by October 2024.

Overall, there is a low risk of environmental issues creating delays in implementing the Project. ***It was determined that the Project will have no adverse impacts to air quality, archaeological resources, or historical resources.*** Please refer to the *Project Readiness* attachment for additional information on environmental risk and project readiness.

³ USDOT Notice of Funding Opportunity for the Department of Transportation’s FY 2023-2024 Multimodal Project Discretionary Grant Opportunity.



Project Budget, Sources, and Uses of Funding

Previously Incurred Expenses

Future eligible project costs are sufficient for the Project to qualify as a large project. TxDOT does not request consideration of costs incurred prior to the selection of the project for an MPDG grant.

Future Eligible Project Costs

The future eligible cost of the Project, based on 20-25% design, is estimated to total \$190,391,839. Major activities for project delivery are presented in Table 3 below. **TxDOT intends to use MPDG funds only for construction costs, totaling \$184,599,418.**

Table 3 Project Costs by Major Activity

Activity	Cost
Right-of-Way	\$775,000
Preliminary Engineering	\$5,017,421
Construction	\$184,599,418
Total	\$190,391,839

Construction Costs

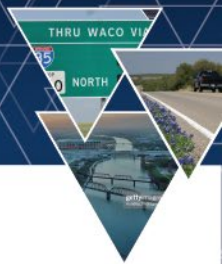
Preliminary construction costs for the Project fall into three main categories: 1. Pavement Costs, 2. Bridge Costs, and 3. Miscellaneous Costs. Notable miscellaneous costs include excavation and embankment, retaining walls, and curb and gutter. Other construction costs include mobilization and contingency. See Table 4 below for an overview of the different project costs by category.

Table 4 Project Construction Costs by Category

Category	Cost
Pavement	\$33,995,105
Bridge	\$34,565,094
Miscellaneous	\$77,368,219
Contingency (15%)	\$21,889,000
Mobilization (10%)	\$16,782,000
Total	\$184,599,418

Funding Sources for Future Project Costs

The Project relies on a combination of State and Federal revenue sources to fund the project's major construction activities. The Project consists of a four-lane mainline corridor and frontage roads that manage access to the mainline corridor. The frontage roads are currently funded in the Texas Unified Transportation Program (UTP), TxDOT's 10-year funding program. Requested grant funds are intended to fund the full build-



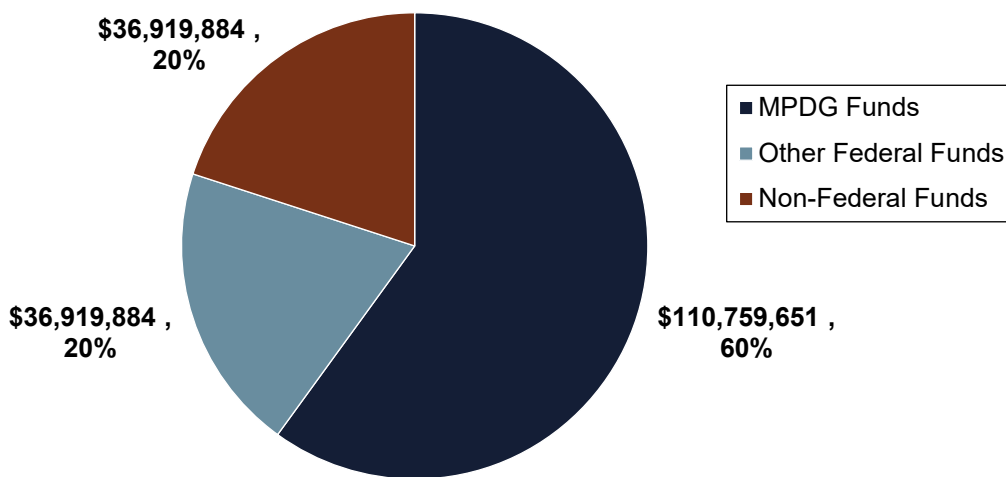
out of the project minus the local match, including the four-lane mainline upgrade, the reconstruction of existing bridges, the construction of new bridges and culverts, and the installation of sidewalks and shared-use paths.

As shown in Table 5, the requested MPDG funding equals \$110,759,651, representing 60% of the project's total construction costs. The non-Federal funding commitment equals \$36,919,884 (20%), and non-MPDG Federal funding sources equal \$36,919,884 or 20% of the total construction costs. The breakdown of funding commitment by source is shown in Figure 5.

Table 5 Budget for Project Future Eligible Project Costs

Funding Source	Loop 340		Total Funding
	Funding Amount	Percentage	
MPDG Funds	\$110,759,651	60%	\$110,759,651
Other Federal Funds	\$36,919,884	20%	\$36,919,884
Non-Federal Funds	\$36,919,884	20%	\$36,919,884
Total	\$184,599,418		\$184,599,418

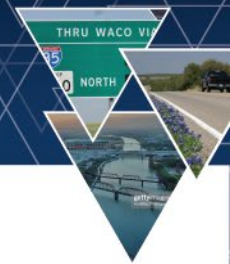
Figure 5 Project Funding Commitment by Source



A portion of the Project budget (35%) will involve construction spending in an Area of Persistent Poverty and/or an HDC as indicated in Table 6.

Table 6 Project Cost by Census Tract

Location	Designation	Project Length within Census Tract	Project Cost per Census Tract
Census Tract 17	HDC	1.31	\$45,618,567
Census Tract 19	Area of Persistent Poverty and HDC	0.53	\$18,945,800
Census Tract 18	No designation	3.43	\$120,035,049
Total		5.27	\$184,599,417



Non-Federal Funding Commitments

The State of Texas is a stable and reliable funding partner committed to delivering and maintaining this Project. A broad range of State funding sources are available to leverage Federal funding support and are dedicated by the Texas Constitution to fund public roadway projects, including:

- State motor vehicle fuels tax
- State vehicle registration fees.
- Oil and gas severance taxes (Proposition 1).
- General sales and use tax, motor vehicles sales, and rental tax (Proposition 7).

If selected, the State will use a combination of the funding sources noted above as the match for Federal funds associated with the Project. Please see the *Funding Commitments* attachment for more information.

Project Budget by Funding Source

The Project consists solely of construction, with 20% coming from a mix of Federal formula funding, including sources such as the National Highway Performance Program. TxDOT categorizes funding into 12 funding categories and allocates funding as appropriate based on need and eligibility. The Project is funded through State discretionary funds (Category 2), targeted for projects considered a “Strategic Priority” for the state or specific metropolitan or urban area.

The State will provide 20% of the Project’s funding from a mix of State-derived funding sources, as listed in the previous section. The remainder of the funding, 60%, is requested through this grant application. MPDG funds are needed to fund the Project mainlanes (funding for the frontage roads is already included in TxDOT’s FY2024 Unified Transportation Program), allowing for the project to be delivered in a more timely, cost-effective basis as a full package rather than a two-phased project (frontage road construction first followed by Loop 340 mainlanes).

Contingency Reserves

TxDOT recognizes the need for contingency funding and has budgeted sufficient contingency amounts to cover unanticipated cost increases. TxDOT includes a project contingency of 15% in the cost estimate to account for inflation, unknowns, and detailed items that are difficult to estimate at the current stage of project development (20-25% design). TxDOT conducted extensive drainage modeling to identify drainage risks and forecast needs to accommodate that risk, enabling TxDOT to reduce the contingency percentage. Additionally, TxDOT maintains a Bid Item Averages Dashboard which displays historical bidding information by bid codes for the past 24 months. This allows for construction cost estimates that account for recent changes in material costs due to supply chain and other market issues.

The possibility of Federal or State transportation dollars being unavailable for the project expenditures described in this application is remote. Historically, periodic short-term interruptions in Federal reimbursements have not hindered projects due to the State’s cash management practices. In the unlikely event that Federal and State dollars are both unavailable, Texas has contingency solutions ranging from short-term cash management techniques to longer-term access to credit and capital markets.

Effect on Freight, Rail, Port, and Intermodal Infrastructure Limits

No components of the Project are subject to the limits on freight, rail, port, and intermodal infrastructure.



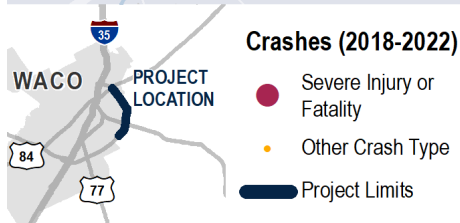
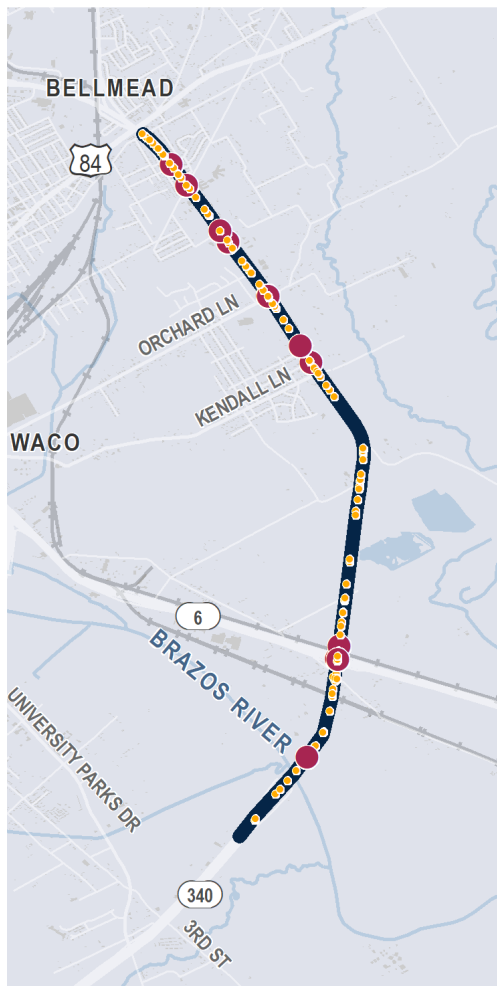
Outcome Criteria Narrative

Criterion #1: Safety

Project is Targeting a Known Safety Problem

Rural fatal and serious injury crashes accounted for 41% of the total fatal and serious injury crashes in Texas between 2017 and 2021.⁴ The key goals of the Project are to improve mobility and safety

Figure 6 Crashes along Project Corridor



throughout the rural Loop 340 corridor as well as give travelers continuity along Loop 340 within the Project's limits. The entire Project corridor, covering Loop 340 from the Brazos River North to U.S. 84, is a high-injury corridor within the region, with a **rural fatal and serious injury crash rate over 14 times higher than the average rural corridor within McLennan County**. Overall, Loop 340 accounts for 4.7% of the county's rural fatality and serious injury-related crashes between 2018 and 2022, shown in Figure 6.

Project Safety Benefits

Key safety benefits resulting from the Project include:

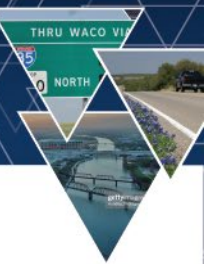
- \$105.2 million in crash cost savings
- 65% reduction in crashes

Project Protects Communities from Safety Risks

The existing Loop 340 facility was constructed in the 1960s, and the Project is an opportunity to offer continuous travel along the section of Loop 340 from south of the Brazos River to U.S. 84. The existing typical sections for Loop 340 consist of a two-lane, undivided roadway from the beginning of the Project to Williams Road. From Williams Road to U.S. 84, the existing typical section for Loop 340 is a four-lane roadway with a center turn lane. Key safety improvements incorporated into the Project design include:

- Adding frontage roads to reduce the frequency and severity of crashes along the main roadway by providing direct access to properties and separating through traffic from access-related traffic.
- Adding inside and outside shoulders to increase safety by providing a stable, clear recovery area for drivers who have left the travel lane. If a driver inadvertently leaves the lane or is attempting to avoid a crash or an object in the lane ahead, a firm, stable shoulder greatly increases the chance of safe recovery.

⁴ TxDOT Strategic Highway Safety Plan 2022-2027, page 15, <https://ftp.txdot.gov/pub/txdot-info/library/pubs/gov/shsp.pdf>.

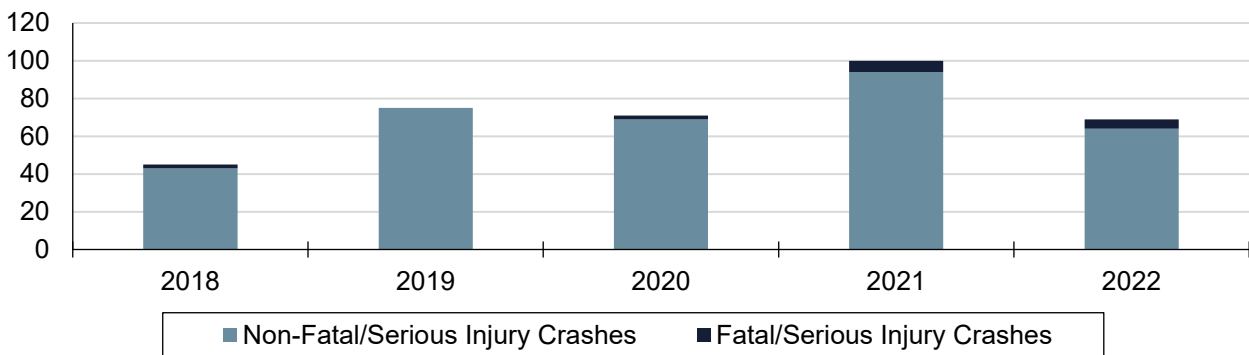


- Adding well-designed pedestrian signals, shared-use paths, and sidewalks to improve the safety and mobility of pedestrians, especially school-aged children accessing the numerous school campuses adjacent to the corridor (such as H P Miles Middle School, La Vega Junior High School, and Greater Waco Christian Academy) can help to reduce crashes involving pedestrians walking along (not crossing) roadways by up to 65 to 89%.⁵
- Adding concrete barriers between the mainlanes to separate each direction of travel can significantly reduce the number of opposite-direction crashes. According to FHWA, median barriers installed on rural four-lane freeways can reduce cross-median crashes up to 97%.⁶

Safety is a primary purpose of the Loop 340 expansion project. Between 2018 and 2022, 360 crashes occurred along the Loop 340 corridor. Of the 360 crashes, 15 were fatal and serious injury-related crashes, which resulted in 5 fatalities and 12 serious injuries.

Over the last five years, 2021 witnessed the greatest number of crashes (100) as well as the greatest number of fatal and serious injury crashes (6), as shown in Figure 7. While 2022 data shows that injury crashes have decreased from the 2021 peak, crashes have increased by 53% over this five-year period.

Figure 7 Project Crash Count by Year and Severity



Source: TxDOT Crash Records Information System (CRIS) Database, 2018-2022.

The Project improves safety by improving intersections for those using the frontage roads to access local destinations and eliminating intersections for through traffic by way of constructing additional grade separations. Intersection improvements will increase safety along the full corridor by reducing crashes and improving conditions for people walking as well as bicycling. As shown in Figure 8, between 2018 and 2022, within the study limits, intersections accounted for 55% of the total crashes and 67% of total fatal and serious injury-related crashes. Implementing safety countermeasures at intersections is urgently needed. These include but are not limited to redesigning left turn lanes and removing elements hindering sight distance.

⁵ National Roadway Safety Strategy, Safe System Approach, Proven Safety Countermeasures, Sidewalks: <https://highways.dot.gov/safety/proven-safety-countermeasures/walkways>

⁶ National Roadway Safety Strategy, Safe System Approach, Proven Safety Countermeasures, Median Barriers: <https://highways.dot.gov/safety/proven-safety-countermeasures/median-barriers>

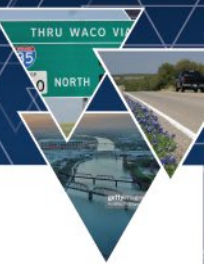
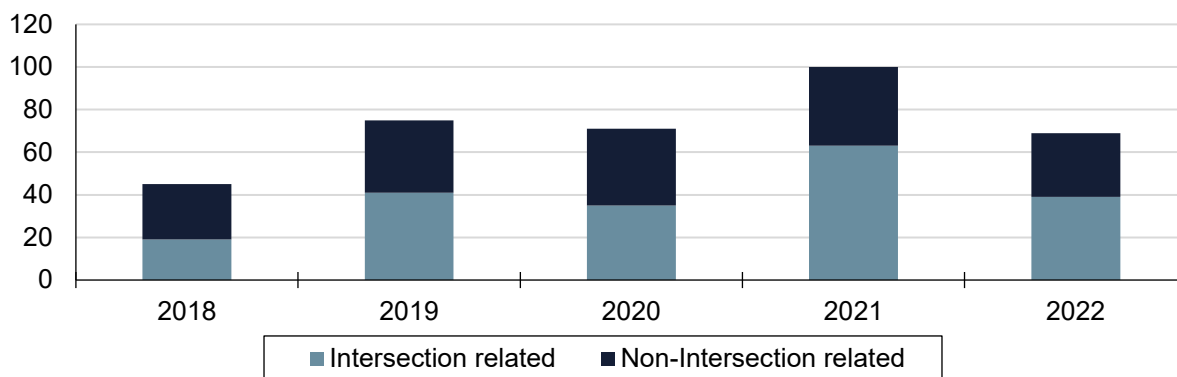


Figure 8 Project Crash Count by Year and Intersection Type

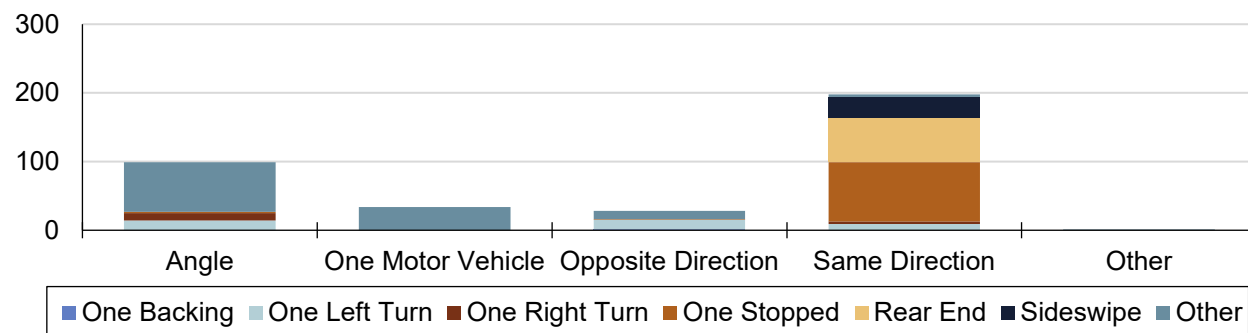


Source: TxDOT CRIS Database, 2018-2022.

The majority of the existing Loop 340 roadway within the Project limits is a two-lane facility, with one lane in each direction. Roadways in these configurations contribute to crashes occurring between motorists traveling in the same direction because there is no additional lane for drivers to use to switch lanes to avoid people making left turns. The Project provides an additional lane to help reduce rear-end crashes allowing drivers opportunities to maneuver to prevent a potential rear-end crash and improving overall safety. As shown in Figure 9, between 2018 and 2022, within the study limits, crashes in the same direction accounted for 55% of the total crashes. Rear end and one-stopped collisions are the two main contributing factors for same direction crashes.

The Project also facilitates more effective incident and emergency management. When a crash occurs on a two-lane facility, traffic backs up, and the back-up can interfere with emergency responders' access to and from the crash site. Under the mainlane/frontage road system, users can divert to the frontage road when a crash occurs on the mainlane. This alleviates traffic on the mainlane, improving emergency response, and reduces the risk of rubbernecking or sudden lane changes at the site of the crash that increase the potential for secondary crashes or additional safety hazards.

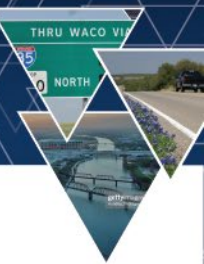
Figure 9 Count of Crashes by Collision Type, 2018 - 2022



Source: TxDOT CRIS Database, 2018-2022.

Project Supports Improved Safety on the Texas Highway Freight Network

Safety along the corridor is a concern for both passenger and commercial vehicles. Loop 340 is a critical connecting corridor on the Texas Highway Freight Network, facilitating substantial goods movement. Between 2018 and 2022, within the corridor, 65 crashes involved commercial vehicles, which accounted for



18% of the total crashes and 27% of total serious injury and fatality-related crashes. Over half of the crashes involving commercial vehicles happened at intersections, necessitating intersection improvements to help reduce this safety concern. The three main factors contributing to the same direction crashes involving commercial vehicles were: 1. sideswipes, 2. one stopped, and 3. rear-end crashes. The additional lane being added in each direction along Loop 340 will allow drivers to maneuver between lanes to reduce potential crashes.

Project Design Protects the Health and Safety of Vulnerable Roadway Users

About 40 pedestrians and 15 bicyclists are involved in fatal or serious injury crashes in McLennan County every year. Over 40% of these crashes occur on state-owned roadways. Of the fatal bicycle and pedestrian crashes, 78% occurred on state roadways.⁷ According to FHWA, the addition of a sidewalk can reduce crashes by 65 to 89%. The wider design standard of the shared-use path improves the efficacy of the safety improvements by adding additional space between pedestrians and cyclists and the vehicles on the roadways. The Project's sidewalks, intersection improvements and shared use path will provide safe facilities for the community's most vulnerable roadway users.

Criterion #2: State of Good Repair

Project is Addressing Current and Projected Vulnerabilities

The Project will **restore and modernize** infrastructure along the corridor by reconstructing existing bridges and roadways and upgrading drainage facilities. Of the 10 bridges located along the Loop 340 corridor, seven bridges are listed in good and three are listed fair condition. By reconstructing these facilities, TxDOT will extend the useful life of the bridges within the corridor by 23 years, at which point the bridges' pavement design standards call for pavement rehabilitation work.

Project State of Good Repair Benefits

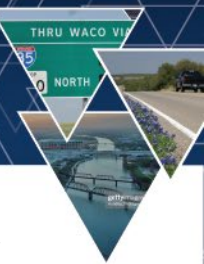
The Project will save TxDOT \$2.2 million in operations & maintenance cost savings over a 20-year period.

Additionally, the current Loop 340 two-lane roadway was built in 1965, and its cross-drainage structures were designed for a 10-year flow. The existing facility's design, therefore, places the crossing structures at risk for loss of functionality during flood events. The Project's mainlanes are designed with up-to-date standards for a 50-year flood event and checked for a 100-year flood event, protecting the high-capacity corridor from a flooding situation for any event less than a 100-year flood. A storm sewer system is also proposed along the frontage roads for conveyance of the local flows along the roadway, and the frontage roads are designed for a 5-year flood event and checked for a 10-year flood event.

The Project has estimated lifecycle maintenance costs totaling \$1.9 million at a real discount rate of 7% over 20 years. The existing facility's design standards require two cycles of milling and overlay by 2048, in addition to a full pavement rehabilitation in 2038, if no other facilities are built. If the Project is delivered, a mill and overlay cycle is not needed until 2040, and no other major rehabilitation work is required for another 11 years, saving TxDOT \$2.2 million over this period because of reduced preventative maintenance needs.

TxDOT and its Maintenance Division are prepared to ensure the continued operation and maintenance of the Project through its useful life and has a history of fully funding maintenance on the Texas road system.

⁷ TxDOT CRIS data, 2016-2020.



TxDOT appropriates funds on a biennial basis, and TxDOT’s FY 2024 to 2025 Legislative Appropriations Request dedicated approximately 40% of its funding to the maintenance and replacement of state highway projects.⁸ The primary funding sources include gas tax revenues, vehicle registration fees, Federal reimbursements, and local funding sources.

Project is Consistent with Relevant Plans to Maintain Transportation Facilities or Systems in a State of Good Repair

TxDOT submitted to FHWA in June 2022 the Texas [Transportation Asset Management Plan](#) (TAMP). TxDOT will apply the principles of the TAMP to maintain the assets in the Project corridor in a state of good repair throughout their useful life. These principles include:

- Lifecycle planning.
- Performance management.
- Risk management.
- Inspection and condition monitoring.

The TAMP details the processes by which the state utilizes lifecycle planning to forecast network-level funding needs to sustain performance of the existing assets and recommend the most cost-effective way to optimize its long-term condition. These methods include using semi-automated procedures for obtaining pavement condition information using a 0.1-mile reporting interval to align with Federal Highway Performance Monitoring System (HPMS) monitoring requirements; forecasting future pavement conditions to recommend optimized pavement work plans; implementing four-year pavement management plans; and standardized and regularly scheduled bridge inspections to assist in the prioritization of structural rehabilitation and replacement.

Under its current 10-year funding scenario, both Interstate pavement condition and non-Interstate pavement are forecasted to improve, as shown in Table 7 below. This progress demonstrates a robust TAMP approach that accommodates growth and responds to ongoing maintenance needs.

Table 7 Forecasted Pavement Condition Improvements under Texas TAMP, 2021 - 2031

Pavements	Good Condition		Poor Condition	
	2021	2031	2021	2031
Interstates	64.9%	65.0%	0.2%	0.1%
Non-Interstate NHS	52.9%	62.7%	14.7%	4.2%

Additionally, the plan considers the role that climate variables will have on TxDOT’s asset management needs, specifically: higher temperatures, with wider-ranging free-thaw cycles; longer periods of drought; sea level rise; and heavier precipitation (see Figure 10). TxDOT is committed to funding the full lifecycle costs of the Project evident from the dedicated funding sources and its TAMP strategy ensuring continued network performance.

⁸ <https://ftp.txdot.gov/pub/txdot/commission/2022/0712/6.pdf>.

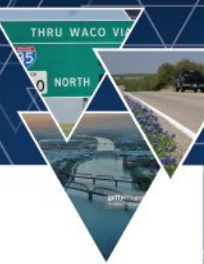


Figure 10 TxDOT TAMP Climate Risks

Climate Variable	Impact	Change
Temperature	Heat waves, wildfire, and freeze-thaw cycles	1.5° F increase since start of 20 th century. Predict increase of 20-30 days above 95° F by 2055. 40% more days above 100° F in 2036 compared to current average from 2000-2021. Source: https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update
Drought	Decreased precipitation, wildfire	Inconclusive evidence for statewide projections, but evidence suggests increasing severity. Source: https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update
Sea Level Rise	Increased water elevation	7.1mm/yr at Rockport & 6.6 mm/yr at Galveston Source: https://www.vims.edu/newsandevents/topstories/2021/slr_2020.php
Precipitation	Flooding, drought	No significant change in overall precipitation levels, but predict an increase in extreme precipitation. Source: https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update

Source: Texas Transportation Asset Management Plan, 2022

Criterion #3: Economic Impacts, Freight Movement and Job Creation

The Project solves a major freight mobility gap through the completion of Loop 340 to a controlled access highway facility. The upgrade from a rural, undivided, two-lane corridor will contribute to a more competitive freight system by reducing congestion, offering alternative routes around bottlenecks, and improving safety. Additionally, the construction of the Project will support construction and inspection jobs while improving access to existing and potentially new employment opportunities in the vicinity.

Project Supports Freight Mobility

The Project contributes to a more competitive freight system by converting a rural two-lane facility into a controlled-access four-lane facility. Loop 340 is an important segment for freight movement in the region, with 7.1% of total traffic consisting of trucks as of 2023. The route directly supports other vital routes in, and leading to, McLennan County. Loop 340 parallels I-35 as it runs north-south through the City of Waco, allowing a direct, alternate route to I-35 when frequent congestion occurs. I-35 through Waco includes three of the 100 most truck-congested roadway segments in Texas (out of 1,860 segments), contributing to \$12.8M in annual truck congestion costs.⁹ Additionally, SH 6 perpendicularly connects to Loop 340, serving as a primary connection to rural communities east of Waco and is also a direct route to College Station and Houston. The Project is also a connection for freight traveling west along SH 6 to travel north or south along I-35, and vice versa.

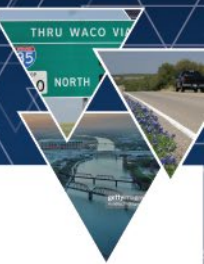
In addition to providing freight mobility options in McLennan County, the Project supports freight movement of national and international significance. In 2019, the trips along the Loop 340 corridor equated to approximately 5.0 million tons of goods traveled, while trips along I-35 between South Loop 340 to North Loop 340 moved 94.8 million tons of freight. Freight movement along the Loop 340 project is estimated to increase by 23%, to 6.2 million tons, by 2050. Expanding capacity along Loop 340 will allow the corridor to

Project Economic Impact Benefits

Key Economic Impact benefits resulting from the Project include:

- \$15.9 million in delay reduction savings
- \$6.6 million in freight travel time reliability value

⁹ Texas A&M Transportation Institute, Texas' Most Congested Roadways, <https://mobility.tamu.edu/texas-most-congested-roadways/> (accessed August 2023).



provide an alternative for freight movement along I-35, alleviating congestion for a nationally-significant freight corridor.

With the additional lanes and increased speed limit, truck traffic on Loop 340 will increase due to the route being a more feasible travel option. This further supports freight movement along I-35, a critical corridor in Texas connecting Mexico, San Antonio, Austin, and Dallas-Fort Worth towards Oklahoma and ultimately Canada. As outlined in the Texas Freight Mobility Plan, I-35 is a key corridor for the advanced manufacturing supply chains as well as the automotive, agriculture / food manufacturing, construction, and many other industries. Texas will need to ensure sufficient capacity and reliability along this and other routes to help deliver and produce these commodities to support the state and national economies.

The Project's continuation of the two-lane, divided road from the southern portion of Loop 340 improves travel time and decreases congestion. By building access-controlled mainlanes, TxDOT improves traffic conditions while reducing safety risks on Loop 340. The access control enables TxDOT to increase the design speed for the corridor's mainlanes from 55 miles per hour (MPH) to 70 MPH. According to the Texas travel demand model, the average travel speeds in the No-Build scenario in 2028 are approximately 49 mph between both directions. This is expected to increase to 64 mph under the build scenario conditions, as shown in Table 8, representing a 31% increase in travel speed. This increase in speed reduces travel time along the corridor, saving an average of 1.5 minutes along the 5.26-mile corridor, even with the expected increase in traffic. The improved speed increases the feasibility of using Loop 340 as an alternative to I-35 when congestion occurs, ensuring that goods and people reach their destination with minimal delay. TxDOT uses dynamic message signs on I-35 to provide real-time comparative travel time information to help travelers make informed route choices through Waco (Figure 11).

Figure 11 Real Time Travel Sign on I-35 Thru Waco

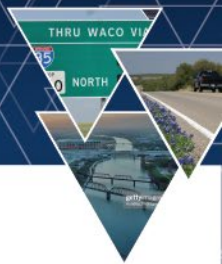


Table 8 Average Travel Speed at 5:00 PM between No-Build and Build Scenarios

Direction	No-Build Scenario (2028)	Build Scenario (2028)
Northbound	48.2 mph	60.6 mph
Southbound	50.6 mph	67.8 mph

Project Fosters Economic Development and High-Quality Job Creation

The construction of the Project would generate positive impacts to the Texas economy. The estimated impacts from the construction expenditures would create 1,872 jobs with a labor income of \$133.23 million. The business output of the construction would exceed \$376 million with a value add of \$197 million.



Criterion #4: Climate Change, Resiliency, and the Environment

Reductions in Transportation-Related Air Pollution

The Texas Transportation Institute (TTI)'s analysis of the "Top 100" congested road segments in Texas estimates that congestion along I-35 and the existing Loop 340 produce 17.9 million pounds of excess carbon dioxide (CO₂) emissions per year, 10.2 million pounds of which are due to truck traffic.¹⁰ By expanding capacity on Loop 340 and enabling it to serve as an alternative corridor for I-35, the Project will reduce delay on I-35 and reduce associated congestion along the critical freight corridor.

The Project increases capacity and average travel speed along the Loop 340 corridor, which decreases travel times: the Build scenario generates 2.7% fewer vehicle hours traveled (VHT) than the No-Build scenario in 2028 and 3.1% fewer VHT in 2048, showing that delay is reduced throughout the forecast period. The reduction in delay reduces emissions associated with idling in congested conditions, which generate excess CO₂ emissions as vehicles are less fuel-efficient in stop-and-go traffic. Stop-and-go traffic also generates additional pollutants from brake pedal particulate matter (PM), caused by repeated use of the brakes in slow traffic.

However, induced demand from the Loop 340 expansion results in an increase in Vehicle Miles Traveled (VMT), which in turn generate greater CO₂ emissions along the corridor under the Build scenario. Specifically, the Build scenario generates approximately 4,400 more metric tons of CO₂ than the No-Build scenario. Despite this increase, the Project's location has a high dilution factor due to local wind conditions, meaning that localized pollution within the area is less likely to linger and have a negative impact on local communities. Free-flow traffic also reduces the concentration of CO₂ along the corridor by reducing idling in set locations (such as traffic signals or chokepoints), further reducing localized impacts.

Reductions in Exposure to Transportation-Related Flooding

As part of the Project scope, TxDOT has identified infrastructure improvements that enhance the corridor's resilience by reducing its exposure to flooding from the Brazos River and other minor waterways. The current Loop 340 two-lane roadway was built in 1965, and its cross-drainage structures were designed for a 10-year flow. The current design, therefore, improves crossing structures to ensure they are not at risk for loss of functionality during flood events.

For Loop 340, TxDOT estimates drainage needs, flow conveyance, and emergency outfall for flood events using drainage models based on the latest design criteria, including rainfall intensity data from the National Oceanic and Atmospheric Administration's Atlas 14. The Project's mainlanes are designed for a 50-year flood event and checked for a 100-year flood event, protecting the high-capacity corridor from a flooding situation for any event less than a 100-year flood. A storm sewer system is also proposed along the frontage roads for conveyance of the local flows along the roadway, and the frontage roads are designed for a 5-year flood event and checked for a 10-year flood event.

The crossing structures for Loop 340 are also optimized by taking the overall flow and conveyance pattern for one larger structure, rather than modeling multiple smaller crossings. This modeling approach enables the project design to account for interactions between the crossings that may increase flow and flooding risk even if separate flow patterns would suggest that risk is low.

¹⁰ <https://mobility.tamu.edu/texas-most-congested-roadways/>.



These infrastructure updates provide the benefit of mobility and access on the Loop 340 corridor along with improving the local drainage patterns and conveyance. This is a significant benefit considering Loop 340 serves as a freight corridor and alternate route to I-35 and helps with supply chain logistics; establishing an alternative high-capacity corridor that has been redesigned to have a low risk of exposure to rainfall events increasing the reliability of the freight network in the Waco region.

The reliability and expanded capacity of the redesigned corridor also increases its value as an evacuation route. As shown in Figure 12, SH 6 southwest of the Project corridor serves as a major hurricane evacuation route. The intersection of SH 6 and Loop 340 is the southern terminal for the Project, and while the Waco metropolitan area is at a relatively low risk of being impacted by a hurricane, access to the SH 6 evacuation route is valuable for any disaster scenario where capacity and reliability are essential to the safe movement of people and vehicles away from a coastal event.

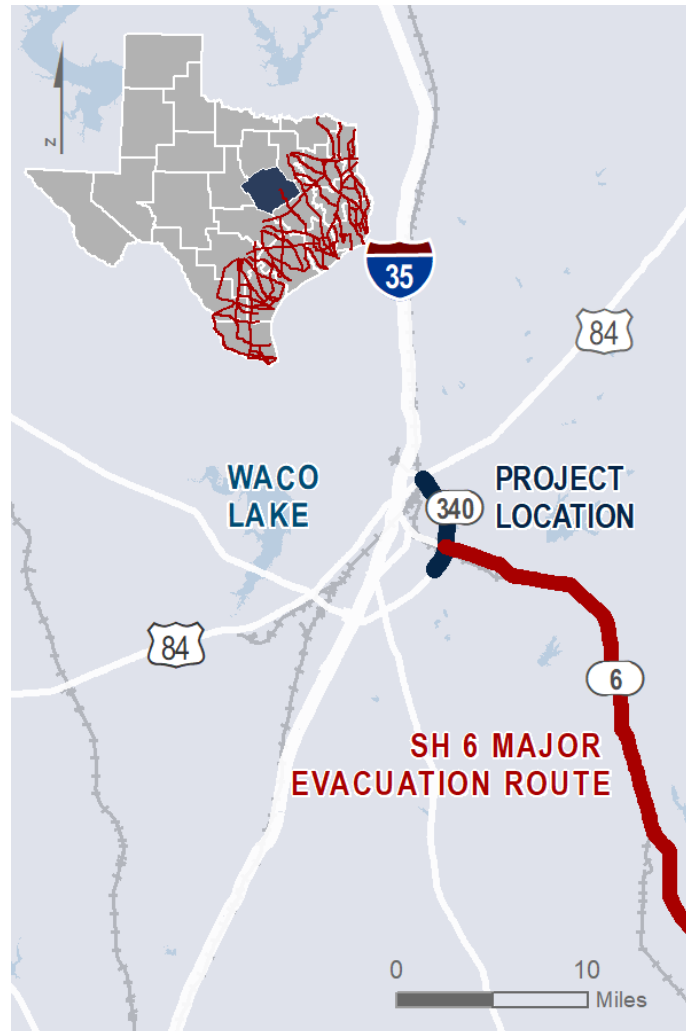
The Project serves two census tracts, 17 and 19, that have high risks of wildfire incidence. Census tract 17 is in the 91st percentile for projected wildfire risk, representing a burden threshold level, while census tract 19 is in the 87th percentile for projected wildfire risk. During a wildfire event, it is critical that all people can evacuate an area and move to safety. By increasing capacity along the Loop 340 corridor, the Project improves the ability of residents in these census tracts to evacuate the area and reach a high-capacity evacuation route on SH 6.

Criterion #5: Equity, Multimodal Options, and Quality of Life

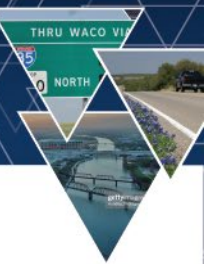
Project Increases Affordable, Accessible Transportation Choices and Equity

The southern terminus of the Project serving eastern Waco is both a HDC and an Area of Persistent Poverty. The northern end of the corridor from Orchard Lane to the intersection with U.S. 84 is in the city of Bellmead, an HDC. The Project's proposed improvements, including the sidewalks and shared-use path, will create more active transportation opportunities as well as greater mobility within these historically underserved communities.

Figure 12 Major Hurricane Evacuation Route in Waco Metropolitan Area, May 2023



Source: Texas Department of Transportation



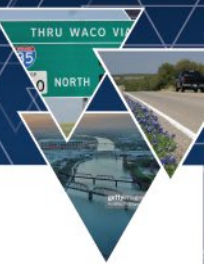
Improved pedestrian and bicycle access will ensure equitable access to transportation options for all members of the community, and specifically improve safety for vulnerable road users. Furthermore, underserved communities with higher pedestrian activity require the appropriate infrastructure to navigate roads safely and easily. Including and prioritizing pedestrian and bicycle safety will help reduce the risk of crashes and injuries, benefiting vulnerable populations, such as children, older adults, and people with disabilities. Data from Strava, a fitness tracking mobile application that records user activities for cycling and running, shows that the section of Loop 340 between Williams Road and Orchard Lane is an area of high travel for bicyclists. In examining Strava data outside of the Project corridor, the existence of frontage roads is correlated with higher bicyclist usage. Since the Project includes a similar design, it is reasonable to assume that bicycle usage will increase along the corridor.

Within a five-mile radius of the Project corridor, there are five schools, four parks, and one community center. These facilities represent critical institutions for the health, well-being, education, and development of a community and its residents. Within a one-mile buffer of the Project, there are approximately 3,094 primary jobs. The most common industries of these jobs are Education Services (21.7%), Public Administration (16.4%), Accommodation and Food Service (15.6%), and Construction (15.2%). By improving the safety of walking and biking, the Project expands the ability for residents – particularly those who are unable to drive due to disability, age, or other barriers – to travel to school and work, or enjoy a community space.

The Project improves the roadway to reduce congestion and improve traffic flow on highways (Loop 340 and U.S. 84). The reduction of congestion on roads can also lead to shorter travel times, and overall, less time spent in a vehicle. A shorter travel time, along with improved ped/bike access can alleviate stress caused from long commutes and allow for more positive health outcomes caused by time spent with loved ones and physical activity.

The Project will have an outsized impact for residents who are at higher levels of health risk and exposure. The disadvantaged communities served by the Project corridor demonstrate higher levels of health risks, being within the 94th percentile for the percentage of residents who have been told they have asthma, the 92nd percentile for low life expectancy and in the 92nd percentile for low income residents.

By increasing roadway capacity and reducing travel times along the Loop 340 mainlane, the Project will ***reduce congestion and exposure to vehicle emissions, alleviating health burdens in a high-risk area for asthma.***



Increased Walkability and Access

The Project improves access to jobs, schools, healthcare facilities, entertainment, and other essential services which directly benefits the local and regional community with improved mobility and accessibility, better opportunities for employment, education, and social interaction. As shown in Figure 13, the Project provides access to five school campuses, and through community engagement, the Project design has been modified to accommodate access specific to school-aged children. Improving access can also improve quality of life for impacted individuals and foster economic development.

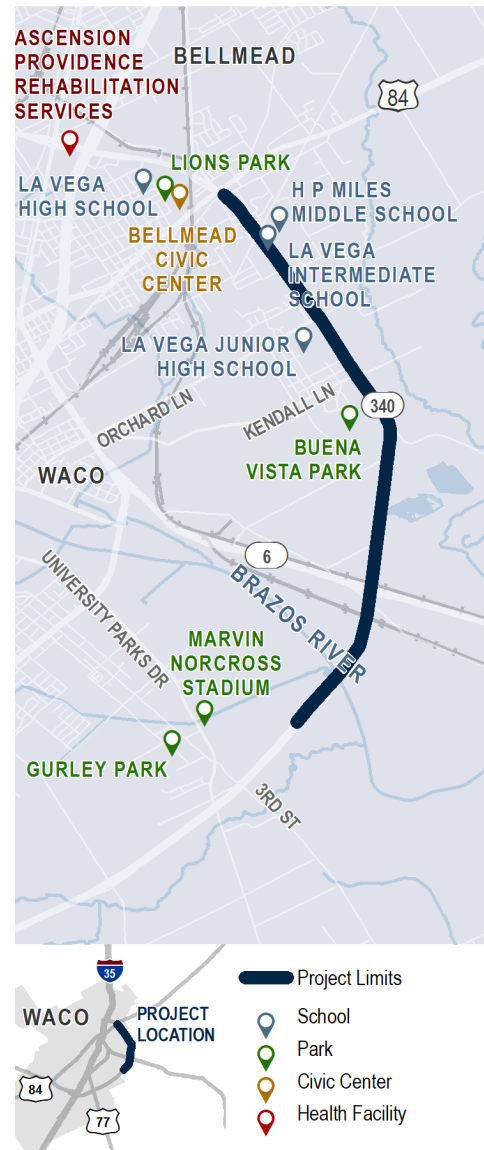
The Project serves communities with multiple factors related to socioeconomic condition that categorize it as disadvantaged in the areas of energy, housing, and workforce development. Energy costs as a share of household income are in the 97th percentile, while the share of households making less than 80% of the area median family income and spending more than 30% of income on housing are in the 99th percentile. These factors indicate significant cost burdens that impact the ability of residents to save money for larger purchases or financial emergencies or invest in human capital, which in turn limits their ability to advance economically. By making walking and biking safer in the corridor, this Project makes low-cost mobility a more attractive offer, providing these households with the opportunity to reduce their transportation costs and direct their household income to other activities.

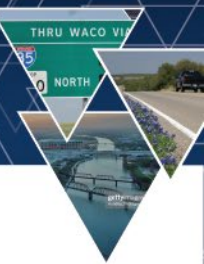
Additionally, improved access to the transportation network can reduce exposure to other environmental risks. The Project serves communities in the 91st percentile for projected wildfire risk and is in the 92nd percentile for low-income residents. These two factors mean that residents along the Project corridor have a higher exposure to environmental hazards and fewer resources to protect their homes and themselves against this risk. By improving access to the transportation network with a high-capacity transportation corridor, the Project improves the ability of residents to access evacuation routes and reduces travel times during an emergency event.

Engagement: Community Input and Ownership

Throughout the development of the Project, TxDOT has been deliberate about providing meaningful opportunities for community engagement, distributing 230 public notices to adjacent property owners during the two rounds of public engagement and posting flyers at local businesses advertising the opportunity to provide input. Public meetings were held at the Bellmead Civic Center, an ADA-accessible building and popular site for community gatherings.

Figure 13 Project Community Points of Interest





The Project also aligns with community priorities. The Waco MPO's Metropolitan Transportation Plan (MTP), *Connections 2045*, included the Project as a short-term priority under its strategy to address demand for future mobility. The Project's purpose and need is to **address unacceptable forecasted traffic conditions and to provide additional capacity as a designated I-35 alternative route**, acknowledging the need for expanded capacity both locally and regionally. Additionally, the Waco MPO's Active Transportation Plan (2019) highlighted facilities that intersect with the Loop 340 corridor as having safety risks for bicycles and pedestrians. The expansion of dedicated bicycle and pedestrian facilities along this corridor improves the overall environment for walking and bicycling in the Waco region and targets alternative mobility resources in areas with an outsized share of safety risks – **this area has a rural fatal and serious injury crash rate over 14 times higher than the average rural corridor within McLennan County.**

Hiring Practices

TxDOT also maintains programs to improve impartiality through its project delivery process. The Department's Historically Underutilized Business (HUB) and Disadvantaged Business Enterprise (DBE) programs are designed to create a level playing field for businesses that have historically been hindered from participating in publicly funded projects. The HUB program goals establish individual goals for contracting with small, minority-, and women-owned businesses for each TxDOT spending category: heavy construction, building construction, special trade construction contracts, professional services contracts, other services contracts, and commodities contracts. These programs are designed to ensure that TxDOT's projects support local economic development opportunities, using the projects as economic mobility tools for these businesses.

Criterion #6: Innovation Areas: Technology, Project Delivery

TxDOT will apply multiple innovative project delivery methods to ensure that the Project is delivered according to scope, schedule, and budget and that risk of incursion to other transportation modes' operations is minimized. These methods include:

- **Smart Work Zones:** TxDOT's Smart Work Zone (SWZ) Guidelines represents a program of deploying Intelligent Transportation System (ITS) solutions to a work zone to improve safety for roadway users and construction workers. These solutions, presented in Figure 14, are designed to be flexible and modular for rapid, temporary deployment when construction zones are active, generate data and images to improve driver attention and awareness, encourage safer driving behavior, allow drivers to make informed decisions about alternative routes, and coordinate with first responders on emergency incident response and management. TxDOT's SWZ Guidelines include a set of needs identification metrics and system selection criteria derived from Work Zone data and a process flow for integrated SWZ design into road and bridge project design. As Loop 340 moves from the design stage into its construction planning activities, the TxDOT Waco District will draw on the SWZ Guidelines to identify solutions that are appropriate to the Work Zone environment and the impacts of the construction activities on traffic conditions in the area.

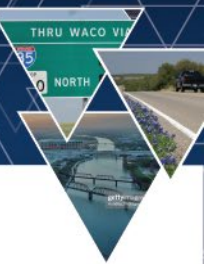


Figure 14 TxDOT Smart Work Zone Solutions

System	Description
Temporary Queue Detection System	System that continuously monitors traffic on the approaches to and within construction work zones to detect slowed or stopped traffic. This information is then presented to approaching motorists so they can make informed decisions.
Temporary Speed Monitoring System	System that uses sensors to measure vehicle speeds approaching work zone. Speed data is then immediately presented to the motorist.
Temporary Construction Equipment Alert System	System that delivers immediate information to motorists about construction vehicles and equipment that are entering the highway from a work zone.
Temporary Travel Time System	System that continuously monitors travel times through a work zone, and then presents this information to approaching motorists so they can make informed decisions.
Temporary Incident Detection and Surveillance System	System that uses sensors and/or video to detect crashes and other incident conditions within a work zone and then communicates that information to a local TMC and/or to emergency response agencies. The alerts are then confirmed remotely using live streaming video, snapshots or on-site personnel. This System can be used to provide critical information to responders who help them decide exactly what equipment to bring, how best to approach the incident, and any additional precautions that might be needed to protect themselves and the public.
Temporary Over-Height Vehicle Warning System	System detects vehicles or loads that are too tall to clear physical limitations such as low bridges in a work zone, and then conveys a warning message to approaching vehicles.

Source: TxDOT Smart Work Zone Guidelines, October 2018

- Accelerated Bridge Construction (ABC):** TxDOT’s Accelerated Bridge Construction (ABC) Program represents a methodological approach to identify and implement delivery efficiencies in planning, designing, bidding/letting, and constructing bridges. TxDOT maintains a set of Accelerated Construction Guidelines to encourage partnerships and collaboration between TxDOT and its contractors and to establish a supportive design process; both components are critical to maintain streamlined processes and reduce project delivery time.

To encourage process improvement throughout the project development and delivery cycle, TxDOT has identified a “checklist” of Accelerated Construction concepts, strategies, tools, and other ideas that project managers should consider. Examples from the checklist are shown in Table 9 below.

As Loop 340 moves forward, the TxDOT Waco District will draw on the Accelerated Construction Guidelines to identify solutions to accelerate construction that are appropriate to the scope, geography, and traffic operations in the area.

Table 9 TxDOT Accelerated Construction Checklist Examples

Categories	Examples
Project Selection	Roadway widening Controlled access highways with lane closures
Strategies for Traffic Control	Construction phasing / staging Reversible lanes
Strategies for Transportation Operations	Coordination with adjacent construction Safety award incentives



Categories	Examples
Strategies for Public Information	Public information centers Changeable / dynamic message signs
Economic Considerations	Road user costs Non-user costs (e.g., adjacent businesses)
Major Risks	Right of way acquisition Utility moves
Contracting Methods	Milestones with incentives/ disincentives Cost-plus-Time bidding (A+B, see below)
Design	Design repeatable features Pavement design and materials selection
Contractor Selection	Administrative prequalification Performance-based prequalification
Contractor Involvement	Planning and design reviews Workforce availability
Construction Considerations	Work plan and work sequence Materials storage and staging

Source: TxDOT Accelerated Construction Guidelines, 2018

- Cost and Time (A+B) Bidding:** TxDOT recognizes that extended construction periods and project delays cost travelers time and money and has developed innovative procurement strategies to consider the comprehensive costs of project delivery. The Project will be procured using an A+B bidding process that considers both cost and time estimates to minimize the negative impacts of construction on the public.

Recently, the TxDOT Waco District applied A+B bidding to the I-35 Waco (Section 4B) project, which reconstructed 4.5 miles of I-35 through the city of Waco and widened the corridor from 6 lanes to 8 lanes. Using performance-based criteria to define milestones and establishing “No Excuse” incentives to encourage schedule adherence and recovery, the project was delivered on-time despite numerous disruptions in the construction period, ranging from unknown river obstructions and the impacts of the COVID-19 pandemic. Despite these challenges and thanks to the A+B bidding process, the contractor completed the project four months ahead of its bid schedule and 18 months ahead of TxDOT’s original contract time determination schedule.



Project Readiness

Environmental Risk

TxDOT is conducting environmental review, consultation, and other actions required by applicable Federal environmental laws for the Project under 23 U.S.C. 327 and a [Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT](#). The Project is expected to begin construction by February 2025 consistent with all applicable local, State, and Federal requirements. Additional ROW is needed to implement the Project. The parcels to be acquired include corner clips of larger parcels and an abandoned railroad. No relocations are required to complete the Project.

National Environmental Policy Act (NEPA) Status

The Project initially received NEPA clearance in 2017. Further advancement in design identified changes in easement needs, which requires a reevaluation of the original NEPA clearance. The easement changes do not add any negative impacts.

An initial environmental study previously demonstrated that the Project does not induce significant impacts to planned growth or land use for the area; requires no relocations; does not have a significant impact on any natural, cultural, recreation, or historic resource; does not involve significant air, noise, or water quality impacts; does not have significant impacts on traffic patterns; and does not otherwise, either individually or cumulatively, have any significant negative environmental impact. The findings of the environmental study determined that the Project has no significant impact on the environment and is qualified to be categorically excluded from the requirements to prepare an environmental assessment or an environmental impact statement under NEPA. The NEPA Categorical Exclusion (CE) process is currently underway, and a final NEPA determination is expected by October 2024.

Reviews, Approvals, and Permits by Other Agencies

TxDOT has ongoing agency coordination with the City of Waco, the City of Bellmead, McLennan County, the Waco MPO, the Texas Parks and Wildlife Department, and the Texas Historical Commission. Below is a summary of other reviews, approvals and permits needed by other agencies.

U.S. Coast Guard

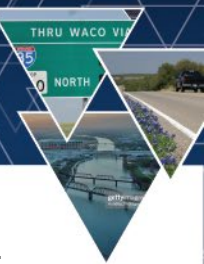
The Project includes constructing new and modifying existing bridges across the Brazos River, a navigable water of the United States. TxDOT will need to coordinate to apply for an exemption through the U.S. Coast Guard regarding a bridge permit.

U.S. Army Corps of Engineers

A Section 404 permit will be required to implement the Project. TxDOT conducted a waters of the U.S. (WOTUS) delineation for the Project in December 2022. The delineation evaluated the presence of jurisdictional WOTUS used to support the jurisdictional determination process for on-site aquatic resources. The Project area impacts approximately 0.26 acres of palustrine emergent wetland in one location which will require mitigation.

U.S. Fish and Wildlife

Initial environmental studies demonstrated that the Project does not impact federally listed endangered fish and wildlife species. However, as the CE environmental documents are completed, TxDOT will continue to coordinate with the U.S. Fish and Wildlife Service. The Texas Fawnsfoot mussel is on the proposed listing as Threatened on the Federal Endangered Species List, and the area of the Brazos River that the Project



crosses over is listed as a proposed critical habit. TxDOT will coordinate with the U.S. Fish and Wildlife Service on survey and relocation to mitigate potential for impacts to a proposed listed species if necessary.

Texas Commission on Environmental Quality (TCEQ)

The Project will require a Nation-Wide Permit (NWP) under Section 404 of the federal Clean Water Act, covered by TCEQ's blanket 401 water quality certification.

Texas Parks and Wildlife Department

TxDOT is coordinating with the Texas Parks and Wildlife Department to incorporate approved best management practices into design and avoid impacting species with potential suitable habitats within the surrounding area. Initial environmental studies identified potential suitable habitats for three listed threatened species: the wood stork, freshwater mussels that occur in the Brazos River (Texas fawnsfoot), and the timber rattlesnake.

Environmental Studies

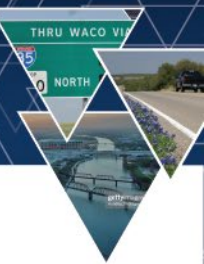
TxDOT conducted environmental studies for the Project in compliance with the NEPA, as [shared with the general public in 2018](#). The department developed a need and purpose statement for the Project and studied various environmental resources, including water resources, traffic noise, hazardous materials, air quality assessment, archeological resources, historical resources, threatened/endangered species and wildlife habitat, and indirect impacts. TxDOT is currently updating the environmental documents through the development of a CE and expects to be completed by October 2024. Overall, there is a low risk of environmental issues creating delays in implementing the Project. Below is an overview of the key findings from the initial environmental assessments:

- A **water resources** technical report was completed and found that the proposed project would impact waters of the United States, including wetlands, and requires permitting from the U.S. Army Corps of Engineers.
- **Traffic noise** analysis was conducted for the Project and preliminary results determined the Project impacts area traffic noise. Preliminary results of modeling out barriers determined a noise wall is a reasonable and feasible mitigation measure for impacts to the Bellmead Apartments located between Green Lawn Drive and Williams Road. The noise barriers will be evaluated further during future project development to determine if noise barriers will be included as part of construction.
- An initial site assessment for **hazardous materials** found a petroleum storage tank site and two liquid petroleum gas sites encroach into the TxDOT ROW. A closed abandoned landfill site was identified adjacent to the Project during investigations.

It was determined that the Project will have no adverse impacts to **air quality, archaeological resources, or historical resources**. One proposed Federally listed **threatened or endangered species** is at risk of negative impacts, and TxDOT is coordinating with the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service to conduct survey and relocation efforts to secure suitable habitats, if necessary, for these impacted species within the surrounding area to mitigate these impacts.

Public Engagement

TxDOT has engaged with community members and stakeholders within the cities of Waco and Bellmead in McLennan County, Texas as part of the Project development process to design a project responding to community needs. Several public meetings, described below, informed the final design of the Project.



Public Meeting – August 2017

A [public open house](#) was held at the Bellmead Community Center in Bellmead, Texas to gather insights from the community on the Project's preliminary design. TxDOT provided a brief overview presentation as an option for the come-and-go meeting format. The presentation was provided in English with language accommodations and special arrangements available upon request. Overall, 51 attendees participated, including 36 members of the public, which resulted in 16 comments. TxDOT notified the public of the opportunity for input through public notice in the *Waco Tribune Herald*, letters sent to adjacent property owners, and fliers posted at 18 business locations. As a result of the meeting, the design was updated where possible to address [comments received](#). One comment led to an adjusted design solution for students crossing the Project corridor at Williams Road.

Figure 15 Discussing the Project Design Details – Aug. 2017



Public Hearing – October 2018

An [open house and presentation](#) were held at the Bellmead Civic Center in Bellmead, Texas to present and gather input on the proposed improvements as well as share findings from environmental studies. The meeting was hosted in English and communication accommodations were available for attendees. The meeting hosted approximately 63 attendees, with 36 representing members of the public and seven people providing written comments. A [comment response matrix](#) documented each comment and TxDOT's responses. Like the Public Meeting in August 2017, TxDOT advertised the Public Hearing opportunity in the *Waco Tribune Herald*, fliers were posted at 16 business locations, and notices were mailed to 120 adjacent property owners and 48 elected officials and stakeholders.

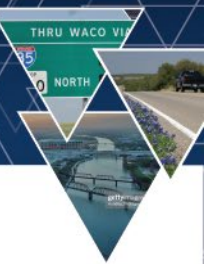
Figure 16 Public Sharing Thoughts on the Project – Oct. 2018



Inclusion in Planning Documents

The Project is a key strategy in the Waco MPO MTP to address demand for future mobility. The Project, and specifically the overpass for Loop 340 at the intersection of SH 6, was identified as a priority in supporting freight movement and economic development efforts.¹¹ The Project is also included in the current Waco MPO Transportation Improvement Program (TIP) and the TxDOT Statewide Transportation Improvement Program (STIP).^{12 13} The Project is supported as a statewide initiative with programming for the engineering, environmental, and frontage road construction phases in state budgets but outside of the current TIP timeframe given the large funding gap necessary to complete the full-build improvements. If

¹¹ Connections 2045: the Waco Metropolitan Transportation Plan (MTP), Section 7: Recommendations. https://www.waco-texas.com/files/sharedassets/public/government/documents/section_7_recommendations_final.pdf
¹² FY 2023-2026 TxDOT Statewide Transportation Improvement Program – Highway Projects, page 4348 <https://ftp.txdot.gov/pub/txdot/tpp/stip/2023-2026/highway-projects.pdf>
¹³ FY 2021-2024 Waco MPO Transportation Improvement Program, Map 2 (page 21), Map D-1 (page 54), CSJ number 2362-01-034 https://www.waco-texas.com/files/sharedassets/public/departments/mpo/documents/policy-brd/waco_mpo_tip_fy2023_2026_adopded.pdf



USDOT MPDG Grant funds are awarded, the Waco MPO TIP and the TxDOT STIP will be amended to include the Loop 340 improvements within the timeframe expected for delivery.

Project Risk and Mitigation Strategies

The key Project risks to implementation include funding, ROW acquisition and utility relocation, weather-related delays, railroad coordination, and environmental reassessment. Table 10 demonstrates TxDOT's strategies undertaken or plans to mitigate these risks.

Table 10 Project Risks & Mitigation Strategies

Project Risk	Mitigation Strategy
Project Funding	TxDOT has authority to supplement the grant award to cover development of any needed plan sets and environmental analysis not covered by the grant award; funding should not be a constraint to achieving project completion within the statutory timeline.
ROW Acquisition and Utility Relocation	Limited ROW acquisition is required. Utility relocations are minimal and exclusively within TxDOT ROW. The schedule includes sufficient time to complete all utility-related locations. The completed Project does not require displacement of any businesses or residents. The Project is not expected to disturb any identified historical or cultural resources.
Weather-Related Delays	Anticipated weather delays based on typical seasonal rainfall are included in the schedule.
Railroad Coordination	TxDOT has begun to coordinate with Union Pacific Railroad to expedite partnership needs. By monitoring coordination milestones, TxDOT ensures continued monitoring of potential delays. TxDOT designs traffic control phasing to ensure work involved with railroad ROW is not scheduled for the beginning of the Project's construction.
Environmental	Initial environmental studies were conducted in 2017 and demonstrated minimal impacts. TxDOT will continue to coordinate with State and Federal agencies, like the U.S. Fish and Wildlife Service as environmental standards may have changed since the initial studies.

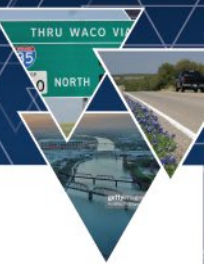
Source: TxDOT, 2023.

Schedule

The Project schedule identifying all major milestones is shown in Figure 17. Completion of NEPA review is expected by October 2024. Design completion is expected by October 2024. Construction is anticipated to begin by February 2025 with a projected opening date of November 2027. All necessary activities will be completed to allow Federal funds to be obligated in advance of September 30, 2026.

Figure 17 Project Schedule





Technical Capacity

TxDOT has extensive experience working with Federal agencies, complying with civil rights laws, successful delivery of USDOT discretionary grant awards and has the technical experience and resources dedicated to the Project.

TxDOT has Extensive Experience with Federal Funds

TxDOT has been awarded and successfully managed many Federal discretionary grants within the past decade. Since 2015, TxDOT has successfully been granted 18 projects totaling \$352 million of Federal discretionary grant support. TxDOT is familiar with and has complied with USDOT's processes for grant awards, grant agreements, and implementation.

TxDOT has Extensive Experience Completing Projects with Similar Scope

TxDOT has ample experience implementing projects similar to the Project proposed in this grant application. TxDOT directs project implementation through to completion. TxDOT is a strong facilitator of all project components, both financially and institutionally. In the past five fiscal years, the TxDOT Waco District has successfully let and managed \$1.3 billion in total projects with a typical yearly average project value of \$190 million.

TxDOT has the Resources to Deliver the Project

As discussed in Section 2, TxDOT has budgeted sufficient contingency amounts to cover unanticipated cost increases and has contingency solutions ranging from short-term cash management techniques to longer-term access to credit and capital markets, if needed.

The Project has Minimal ROW Acquisition

The Project required minimal ROW acquisition, and TxDOT has advanced through the acquisition process for the proposed ROW. In total, the Project requires proposed ROW at six locations, four are drainage easements and two ROW parcels. One parcel required is ROW from an abandoned railroad near SH 6 and the other is a corner clip near Orchard Lane. The abandoned railroad parcel development is substantially complete and being coordinated by the TxDOT ROW Division to advance towards acquisition. All remaining ROW needs are currently in process. All ROW necessary for the Project is expected to be secured by November 2024.

The Project will Comply with All Applicable Federal Requirements

TxDOT has a long history of compliance with applicable Federal requirements including but not limited to Buy America provisions, ADA regulations, Civil Rights requirements, and Federal Motor Vehicle Safety Standards. The TxDOT project delivery process ensures involvement from compliance subject matter experts throughout Project development and implementation.



Project Requirements

TxDOT is submitting the Loop 340 Project for consideration under all three grant programs included in the MPDG opportunity: the Nationally Significant Multimodal Freight and Highways Projects grant program (INFRA), the National Infrastructure Project Assistance grant program (Mega), and the Rural Surface Transportation Grant program (Rural). The Loop 340 Project is considered a Large Project under INFRA because it exceeds the \$100 million threshold.

Table 11 Statutory Requirements for MPDG Selection

Statutory Selection Requirements	Loop 340 Features (Large Project)
<p>1. The project will generate national or regional economic, mobility, or safety benefits. [INFRA, Mega, Rural]</p>	<p>The Loop 340 Expansion will provide a congestion-relieving, alternate route to I-35 for freight and passenger vehicles; accommodate increased traffic volumes brought on by regional growth, and provide safety and mobility to travelers, serving HDCs and/or Areas of Persistent Poverty on both ends of the corridor. Specific benefits are documented throughout Requirement 3 below.</p>
<p>2. The project will be cost effective. [INFRA, Mega, Rural]</p>	<p>With a benefit-cost ratio of 1.03, the Loop 340 benefits (totaling \$132.4 million, discounted) will exceed its costs (\$129.0 million, discounted). Please see the <i>BCA Narrative</i> and <i>BCA Calculations</i> attachments for all assumptions, data sources, methodologies, and calculations associated with the benefit-cost analysis.</p>
<p>3. The project will contribute to 1 or more of the national goals described under Section 150. [INFRA, Rural]</p>	<p>Safety: As one of the primary purposes of the Project, the Loop 340 expansion includes several components to improve safety: conversion to a four-lane divided highway, new frontage roads, barrier-separated medians, sidewalks and shared-use paths, new pedestrian signals at intersections, and grade separations. The Project is expected to decrease fatalities, injuries, and property damage crashes by 64.8% through 2048. Crash reduction benefits, totaling \$105.2 million, comprise 79% of the Project’s quantifiable Project benefits.</p> <p>Infrastructure Condition: Originally constructed in the 1960s as a two-lane facility, reconstruction of Loop 340 will update it to modern design standards, improving the quality and extending the useful life of the assets. The Project will save TxDOT \$2.2 million over a 20-year period as a result of reduced preventative maintenance needs.</p> <p>Congestion Reduction: Reducing congestion and delay is another primary purpose of the Project, both within the Loop 340 corridor itself and as a reliever route for I-35. Upgraded capacity along Loop 340, currently ranked as one of the 100 most truck-congested roadways in Texas, is expected to reduce travel times along Loop 340 and provide delay reduction savings totaling \$17.1 million over a 20-year period. In addition, intersection Level of Service (LOS) in the Build condition outperforms the No-Build condition along the full length of the corridor.</p>



Statutory Selection Requirements	Loop 340 Features (Large Project)
	<p>System Reliability: The Project's added capacity will increase efficiency and reliability for north-south travel, accommodating growing demand and providing a viable alternative to I-35 for both freight and passenger vehicles during congested conditions, construction, or other traffic disruptions. The Project yields \$7.0 million in freight travel time reliability benefits.</p> <hr/> <p>Freight Movement and Economic Vitality: Existing truck congestion on I-35 and Loop 340 combine to account for \$15.1 million in annual congestion costs. Expanding capacity along Loop 340 provides a valuable alternative for I-35, a strategic part of the Texas Highway Freight Network and the FHWA's National Highway Freight Network, functioning as a critical corridor for both state and national freight movement.</p> <hr/> <p>Environmental Sustainability: As part of the Project scope, TxDOT has identified infrastructure improvements that enhance the corridor's resilience by reducing its exposure to 100-year flood events from the Brazos River and other minor waterways. This is a significant benefit considering Loop 340 serves as a freight corridor and alternate route to I-35, establishing an alternative high-capacity corridor that has been redesigned to have a low risk of exposure to rainfall events increases the reliability of the freight network and supply chain through the Waco region.</p> <hr/> <p>Reduced Project Delivery Delays: The Loop 340 project will be procured using an A+B bidding process that considers both cost and time estimates to minimize the negative impacts of construction on the public. See the Outcome Criteria Narrative, Criterion #6 for more information on TxDOT's methods to reduce project delivery delays.</p>
<p>4. The project is based on the results of preliminary engineering. [INFRA, Rural]</p>	<p>The following activities have been completed as of the date of application submission:</p> <ul style="list-style-type: none"> ▪ Environmental Assessments – the Project received initial NEPA clearance in 2017; further advancement in design identified changes in easement needs. The NEPA CE reassessment process is currently underway, and a final NEPA determination is expected by October 2024. ▪ Topographic Surveys – complete ▪ Metes and Bounds Surveys – ongoing (30% complete) ▪ Geotechnical Investigations – complete ▪ Hydrologic Analysis – complete ▪ Utility Engineering – ongoing (95% fieldwork complete; analyzing conflicts) ▪ Traffic Studies – complete ▪ Financial Plans – not started, will be completed prior to letting ▪ Revenue Estimates – N/A ▪ Hazardous Materials Assessments – complete ▪ General estimates of the types and quantities of materials – complete



Statutory Selection Requirements	Loop 340 Features (Large Project)
<p>5. With respect to non-federal financial commitments, 1 or more stable and dependable sources are available to construct, operate, and maintain the project and to cover unanticipated cost increases. [INFRA, Mega]</p>	<p>The Loop 340 Project has \$73.8 million in committed funds, which is 40% of the total construction cost. Of the committed funding, \$36.9 million represents non-Federal financial commitments to construct the project derived from several stable State revenue sources, as outlined in the <i>Project Budget</i> attachment, including State Motor Fuel Tax, State Vehicle Registration Fees, and Propositions 1 and 7 funding. TxDOT reserves a project contingency of 15% to account for unknowns and detailed items that are difficult to estimate specifically at the current stage of project development. Partial funding for the Project (frontage roads component) is included in TxDOT’s FY2024 10-Year Unified Transportation Program adopted in August 2023.</p>
<p>6. The project cannot be easily and efficiently completed without Federal funding. [INFRA, Mega]</p>	<p>Federal funds are critical to leveraging the State funds committed to this project. If Federal funding, including MPDG grant funds, were not available to support the Loop 340 Project, TxDOT will have to deliver the project in two phases, completing final design, letting, and construction of the frontage roads first, followed by letting and construction of the mainlanes upon frontage road completion. In a phased approach, the construction letting date for the Loop 340 mainlanes could be delayed by up to three years, causing an increase in total construction costs due to price escalation as well as delay in providing the Project’s full spectrum of safety enhancements, economic benefits, and system redundancy.</p>
<p>7. The project is reasonably expected to begin construction not later than 18 months after the date of obligation of funds for the project. [INFRA, Rural]</p>	<p>The Project schedule and committed funding in TxDOT’s FY2024 Unified Transportation Program ensure that the project is reasonably expected to begin construction within 18 months after the date of the obligation of funds. The remaining ROW acquisition is minimal and expected to be completed by November 2024. Design will be complete in Fall 2024, project letting will take place at the end of 2024, and construction is expected to commence in February 2025.</p>
<p>8. The applicant has, or will have, sufficient legal, financial, and technical capacity to carry out the project. [Mega]</p>	<p>As described in the <i>Project Readiness</i> attachment, TxDOT has undertaken other similar projects and has sufficient legal, financial, and technical capacity to carry out the project as scoped. The Project initially received NEPA clearance in 2017. Further advancement in design identified changes in easement needs, which requires a reevaluation of the original NEPA clearance. The easement changes do not add any negative impacts. The NEPA CE process is currently underway, and a final NEPA determination is expected by October 2024. The <i>Project Readiness</i> attachment includes an assessment of other potential project risks and mitigation strategies.</p>



Statutory Selection Requirements	Loop 340 Features (Large Project)
<p>9. The application includes a plan for the collection and analysis of data to identify the impacts of the project and accuracy of forecasts included in the application. [Mega]</p>	<p>As described in the <i>Mega Data Plan</i> attachment, TxDOT has identified specific performance measures related to safety and traffic volumes to analyze the long-term impact of the Loop 340 project. If the project receives Mega grant funds, TxDOT commits to submitting a baseline data report prior to the start of construction and a project outcomes report that compares baseline data to quarterly project data for the duration of the fifth year after substantial completion of the project.</p>



Mega Data Plan

TxDOT has developed a data plan for the Project in accordance with 49 U.S.C. 6701(g) for the Mega grant. This data plan identifies performance measures for evaluating the Project’s outcomes and presents an approach for data collection.

The Project is designed to improve safety and enhance capacity along the Loop 340 corridor by reconstructing the existing undivided two-lane segment into a controlled-access four-lane facility with frontage roads to provide continuity with the adjacent freeway segments. To demonstrate progress towards these goals, TxDOT has identified performance measures in Table 12 below.

Table 12 Project Goals and Performance Measures

Project Goal	Performance Measure
Criterion #1: Safety	Crashes by collision type
	Injuries
	Fatalities
Criterion #3: Economic Impacts, Freight Movement, and Job Creation	Vehicle AADT
	Truck AADT
	Volume/Capacity Ratio

As part of the data collection requirements, TxDOT will utilize a combination of its Crash Records Information System (CRIS) and its Statewide Traffic Analysis and Reporting System (STARS II). TxDOT’s CRIS system will be used to collect traffic incident data on Loop 340, while the STARS II system will collect daily traffic counts and vehicle classification counts along Loop 340. Both data sets will help provide insight about how the Project will address the criteria identified in Table 12, as follows:

- **Criterion #1: Safety** – Examining traffic crashes along the Loop 340 corridor, including at intersecting roadways, will provide an understanding as to whether the Project results in measurable reductions in crashes, fatalities, or serious injuries to the traveling public. Analyzing crashes by collision type will specifically enable TxDOT to determine if the frontage roads have succeeded in reducing collisions between turning vehicles on Loop 340, which is a key function of the frontage road facilities.
- **Criterion #3: Economic Impacts, Freight Movement, and Job Creation** – Evaluating changes in traffic volumes for automobiles and trucks will provide an understanding as to whether the Project transforms Loop 340 into an alternative freight corridor for I-35. TxDOT will also compare AADT to the design capacity of the four-lane facility to track the Volume/Capacity Ratio over time to evaluate traffic conditions. This analysis will enable TxDOT to determine if traffic delay remains low and travel speeds stay consistent with forecasted values.

Prior to commencement of construction, TxDOT will provide the baseline data for traffic incidents, AADT, and volume/capacity ratios. TxDOT will compile CRIS data and STARS II data to measure and assess project outcomes.



Letters of Support

Enthusiastic support for the Project is demonstrated through the five letters of support from elected officials and community organizations. The list of entities providing support include:

Elected Officials

- Texas Senator Brian Birdwell, Texas Senate District 22
- Texas State Representative Angelia Orr, Texas House District 13
- McLennan County Judge Scott Felton
- McLennan County Commissioner Will Jones, Precinct 3

Public Entities

- Mukesh Kumar, Waco MPO Director
- Yost Zakhary, Bellmead City Manager



Funding Commitments

TxDOT's Commitment

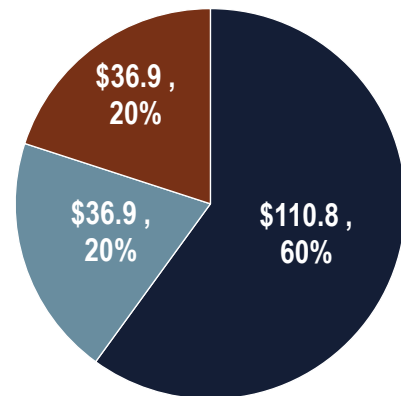
TxDOT is committed to allocating \$73.8 million to the construction of the Loop 340 expansion project, and the \$110.8 million in requested MPDG funding would fill the remaining funding gap to complete project construction. The committed funding that has been allocated to the Project is split evenly between State and Federal sources. This attachment describes the source and stability of State funds and the locations of applicable funding programming documents.

State Funding Sources

The **Texas State Highway Fund** consists of deposits from various revenue sources, several of which are specifically dedicated by the Texas Constitution for highways. One of the most important revenue sources for the State Highway Fund is the state motor fuels tax. The state currently levies 20 cents per gallon of gasoline and diesel and 15 cents per gallon of liquefied and compressed natural gas. The Texas Constitution dedicates three-fourths of state motor fuels tax revenue to the State Highway Fund and one-fourth of that revenue to the Available School Fund. Charts of historical funding amounts by source and greater detail on the State Highway Fund can be found in [TxDOT's 2023-2024 Educational Series on Funding](#).

Texas voters overwhelmingly approved two propositions directing State revenue toward transportation projects: **Proposition 1** and **Proposition 7**. Proposition 1 was passed by 80% of voters in 2014, and Proposition 7 was passed by 83% of voters in 2015.

Loop 340 Funding Commitment by Source (Millions)



- MPDG Funds
- Other Federal Funds
- Non-Federal Funds

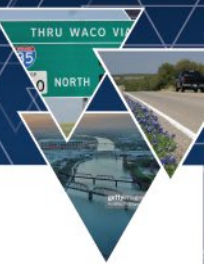
Proposition 1

The constitutional amendment providing for the use and dedication of certain money transferred to the state highway fund to assist in the completion of transportation construction, maintenance and rehabilitation projects, not to include toll roads.

Proposition 7

The constitutional amendment dedicating certain sales and use tax revenue and motor vehicle sales, use, and rental tax revenue to the state highway fund to provide funding for nontolled roads and the reduction of certain transportation-related debt.

Under [Proposition 1](#), a portion of oil and gas tax revenues, which would have otherwise been deposited into the Economic Stabilization Fund (also known as the Rainy Day Fund), is deposited to the State Highway Fund. TxDOT began awarding project contracts using Proposition 1 funds in March 2015. As of December 2022 (fiscal year 2023), the State Highway Fund has received approximately \$13.3 billion in Proposition 1 revenue. **This revenue source will be available throughout the project development and**



construction timeline: it is set to expire in 2043 if not extended by the Texas legislature. [Proposition 7](#) dedicates portions of revenue from the state's general sales and use tax as well as from the motor vehicle sales and rental tax to the State Highway Fund for non-tolled projects. As of November 2022, the comptroller has transferred a total of \$13.2 billion in Proposition 7 revenues to the State Highway Fund. **This revenue source will be available throughout the project development and construction timeline:** it is set to expire in 2039 if not extended by the Texas legislature.

More information about Proposition 1, Proposition 7, and other funding mechanisms used by TxDOT is available in [TxDOT's 2023-2024 Educational Series on Funding](#). TxDOT's [long-range revenue forecast for FY2022-2046](#) was last updated in October 2022.

Plans and Programming Document References

The Loop 340 expansion project has been included in planning and programming documents developed at the state and regional scale. However, the project amounts and funding status in each document will reflect the scope of the project at the time each document was developed. If awarded, TxDOT and the Waco MPO will update required document to reflect the costs and funding sources to reflect the information provided in this application.

The Loop 340 expansion project is included in the following planning and programming documents:

- The [FY2023-2026 Statewide Transportation Improvement Program](#) as project 2362-01-034.
- The [FY2023 Unified Transportation Program](#), TxDOT's 10-year funding document, as project 2362-01-034.
- The [Texas Delivers 2050 Plan](#), TxDOT's Freight Mobility Plan, as project 2362-01-034.
- The Waco MPO's [Connections 2045: Metropolitan Transportation Plan](#) as project S-001A.
- The Waco MPO's [2023-2026 Transportation Improvement Program](#) as project 2362-01-034 and S-001A.