Appendix H: Needs and Goals Report

I-610 South

From FM 521/Almeda Road to Telephone Road

CSJ: 0271-16-158 & 0271-16-159

Texas Department of Transportation
Houston District
September 2024

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1 INTRODUCTION

The Texas Department of Transportation (TxDOT) is conducting a feasibility study to evaluate current and future needs for a section of Interstate (I) 610 South, and potential transportation improvements along this corridor.

1.1 Study Location and Limits

The study area is located along I-610 South from Farm-to-Market (FM) 521 (Almeda Road) to Telephone Road in Harris County, Texas (**Figure 1**). The corridor is approximately six (6) miles long.

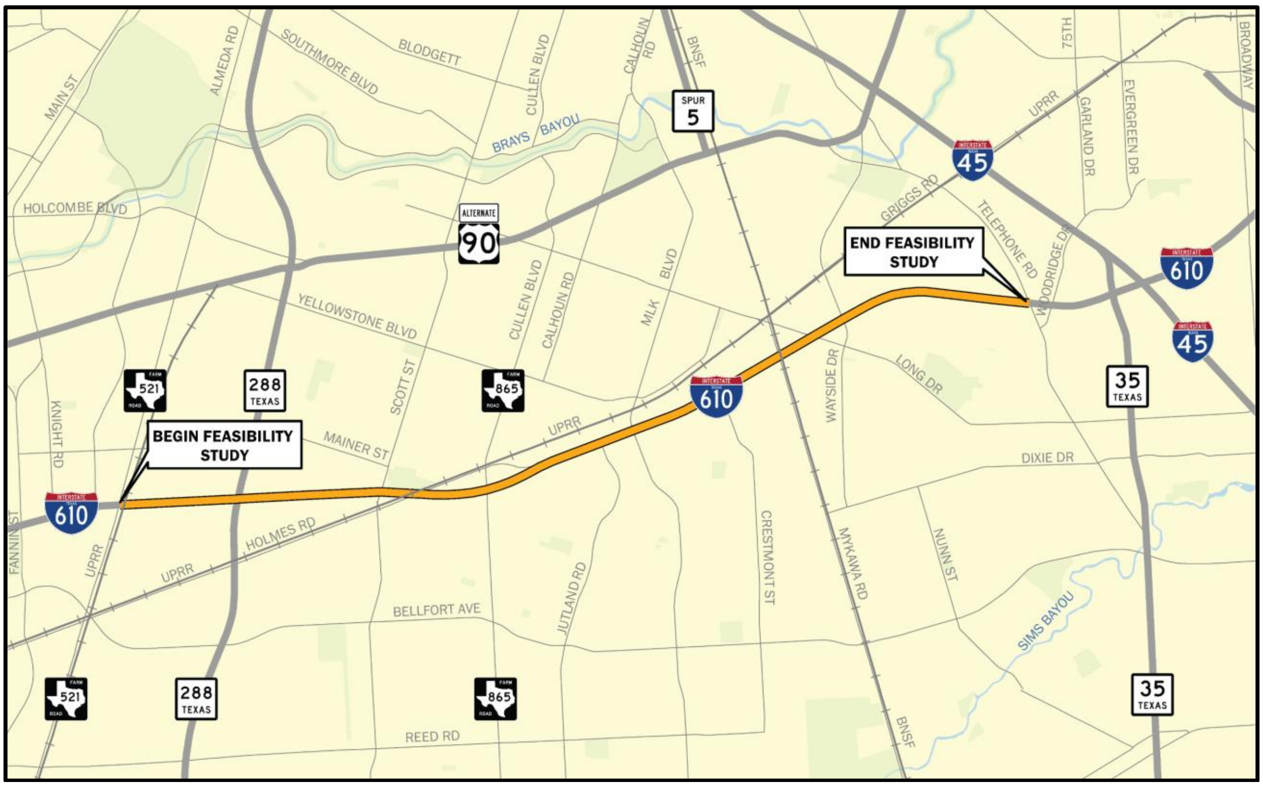


Figure 1. I-610 Feasibility Study Limits

1.2 Surrounding Communities and Neighborhoods

The study area is located in the southern portion of the City of Houston and crosses eight super neighborhoods: South Main, Astrodome Area, Greater OST/South Union, Sunnyside, South Park, Gulfgate Riverview/Pine Valley, and Golfcrest/Bellfort/Reveille (City of Houston 2024; **Figure 2**).

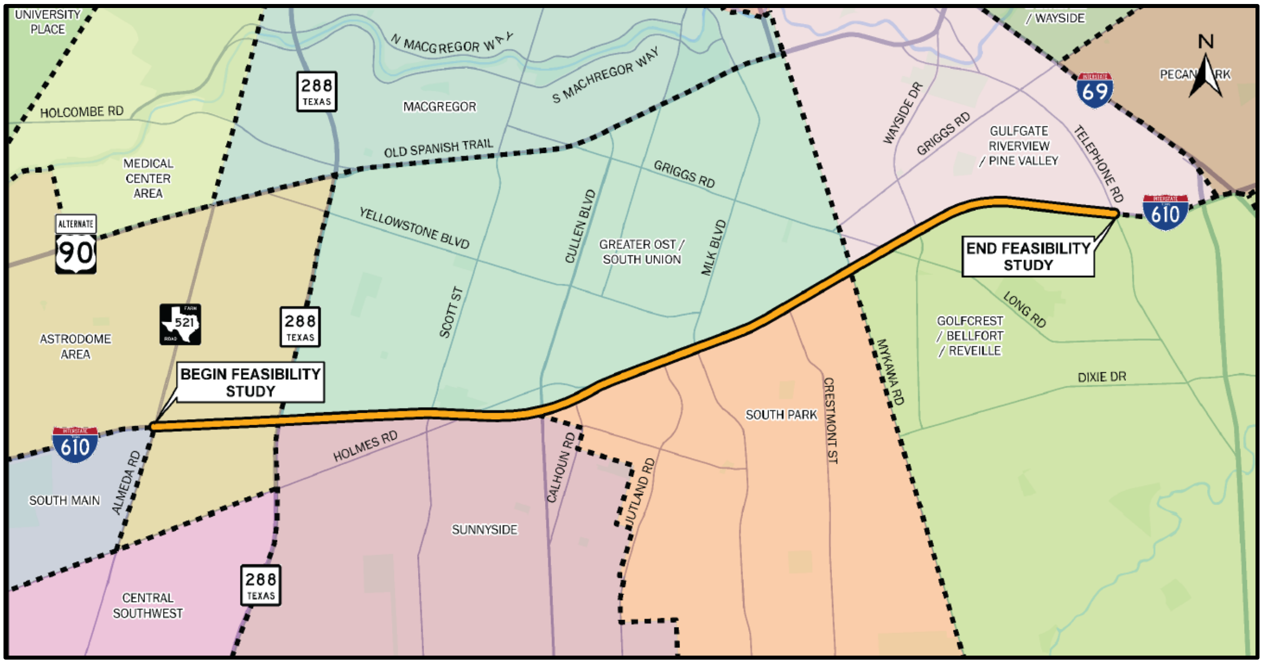


Figure 2. Super Neighborhoods Surrounding the I-610 Study Limits

1.3 Needs and Goals

This feasibility study is intended to identify needs for transportation improvements, if any, within the study area. The study evaluates potential alternative options that would address these needs, as well as the no-build alternative. As part of the study, transportation deficiencies were identified along I-610 South, and data to support the need for improvements was analyzed. These deficiencies, or needs, are used for the development of potential solutions, or alternatives for improvements in the study area. Goals for the study based on the priorities and needs of the community were also identified.

2 STUDY NEEDS

This study is needed to identify potential solutions that would address (a) infrastructure deficiencies and areas that do not meet current design standards, (b) safety concerns, (c) a lack of capacity to meet predicted future traffic volumes, resulting in increased congestion, and (d) limited multimodal connectivity on I-610 between FM 521 (Almeda Rd) and Telephone Road.

3 SUPPORTING INFORMATION

3.1 Infrastructure Deficiencies

Most of the existing corridor was built in the 1960s, with no improvements beyond routine maintenance in the more than 50 years since then. Based on analysis performed by the study team, some areas of the roadway do not meet current Federal Highway Administration (FHWA) interstate design standards and/or specifications in the current TxDOT Roadway Design Manual. Examples from the existing roadway analysis performed by the study team include:

- Some entrance and exit ramps were designed to fit between close intersections and are too short and steep and do not meet current design speed criteria.
- Ramp pairs meet the minimum spacing criteria but are closer together than the desirable spacing.
- Most intersections have operational deficiencies resulting from skewed angles, lack of dedicated turn lanes, and/or close spacing to ramps or other intersections.
- Ten of the 13 bridges within the study area do not meet minimum vertical clearance requirements for freeway overpasses.
- Of the 13 bridges within the study area, 11 are more than 50 years old. Three of these bridges are eligible for rehabilitation (a sufficiency rating below 80 out of 100), and in 2020 one was deemed eligible for replacement (a sufficiency rating below 50).

During a stakeholder meeting conducted in May 2023, and a public outreach survey conducted in June 2023, participants were asked to rank six transportation needs (including an "other" option). Responses were weighted by the given rank and aggregated into an overall ranking. The need to "update aging infrastructure to meet current design standards and enhance safety" was the highest-ranked transportation need.

Comments during a public meeting conducted in June 2023 noted deteriorated pavement conditions within the study area. These comments correlate with a pavement condition analysis conducted by TxDOT, which indicated that most of the pavement within the study limits was below a "good or better" ranking (scoring less than 70 out of 100), with some areas in "poor" or "very poor" condition.

Comments during a public meeting conducted in February 2024 noted the quality of the frontage (feeder) roads and their discontinuous nature. One commenter noted this was especially prevalent in the area along the west frontage road near Holmes Road and after the traffic signal at Calais Road.

3.2 Safety Issues

A total of 3,830 crashes occurred along the study corridor between 2018 and 2022, 21 of which involved bicyclists or pedestrians. Ninety-eight of these crashes were incapacitating or fatal. Crash hotspots were mapped throughout the corridor at several major intersections, including at Almeda Road and State Highway (SH) 288. The crash rate for the western portion of the study area (between Almeda Road and Cullen Boulevard) is more than double the statewide average. The statewide average is 149 crashes per 100 million vehicle miles traveled (HMVMT), while this segment's crash rate is 310 crashes per HMVMT (**Figure 3**).

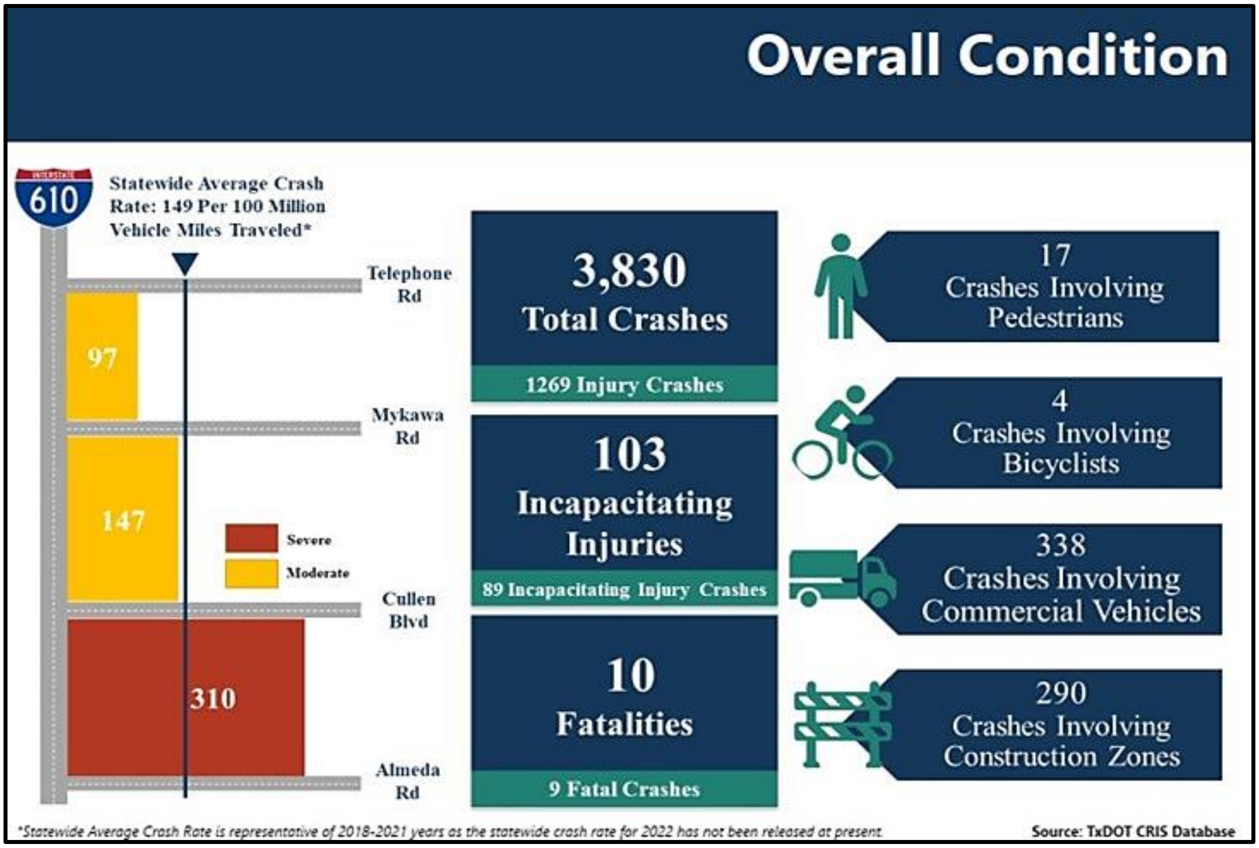


Figure 3. Five Year Crash Summary (2018-2022)

During a public outreach survey conducted in June 2023, safety concerns identified by members of the public primarily included concerns with merging onto the interstate from the short entrance ramps that were found to have deficiencies with current design standards. Two comments provided at the June 2023 public meeting noted safety concerns regarding narrow lanes and/or visibility at intersection stop lights. One comment during the February 2024 public meeting noted a safety concern due to inadequate lighting.

3.3 Increased Congestion

The study area is a portion of the 38-mile I-610 Loop, which serves the entire population of Houston. In 2023, this segment of I-610 South was ranked by the Texas A&M Transportation Institute (TTI) as the 37th most congested roadway in Texas. Existing traffic volumes along the study corridor range from 115,000 to 126,000 vehicles per day (vpd) and are expected to experience an approximate 51% increase between 2022 and 2050. The Houston-Galveston region is expected to experience an approximate 65% population increase between 2015 and 2045. The City of Houston is expected to experience an approximate 40% population increase in the same timeframe (H-GAC 2018).

Based on these projected increases, the current capacity of the freeway is not anticipated to meet population growth in this area, resulting in a substantial decrease in the predicted level of service (LOS) between 2030 and 2050. LOS is a qualitative measure of traffic flow and congestion, ranging from A to F (**Figure 4**).

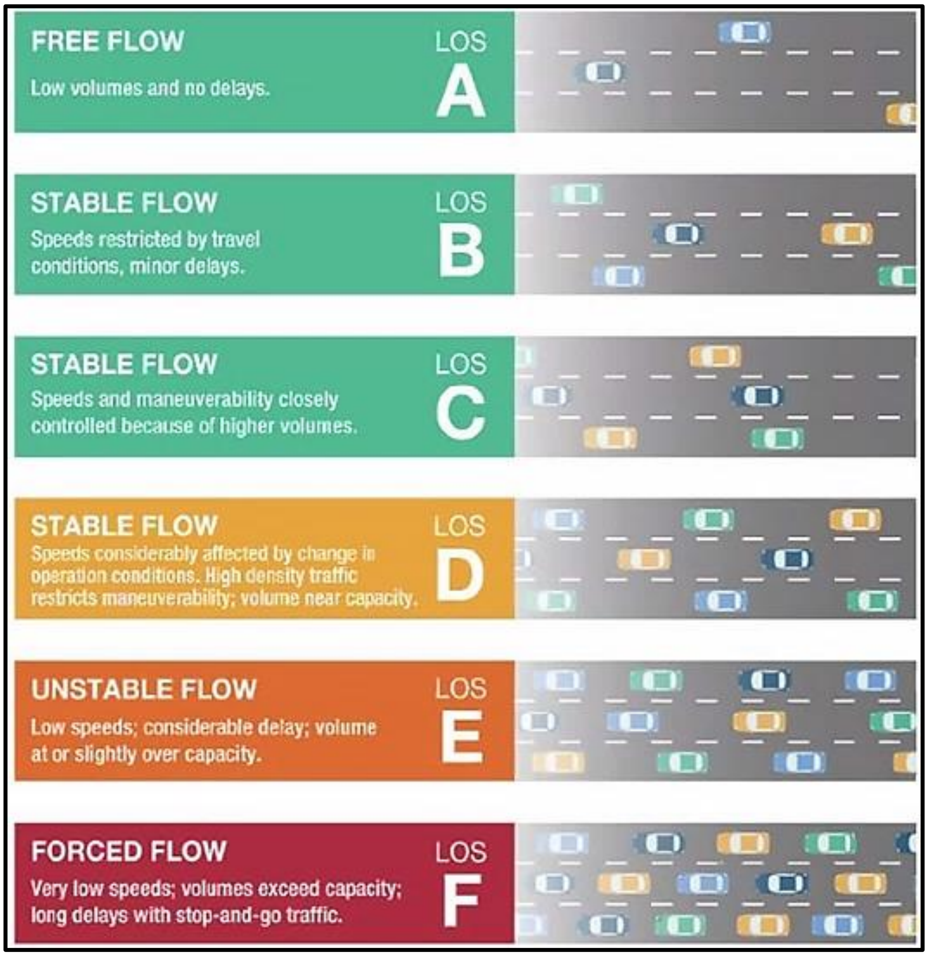
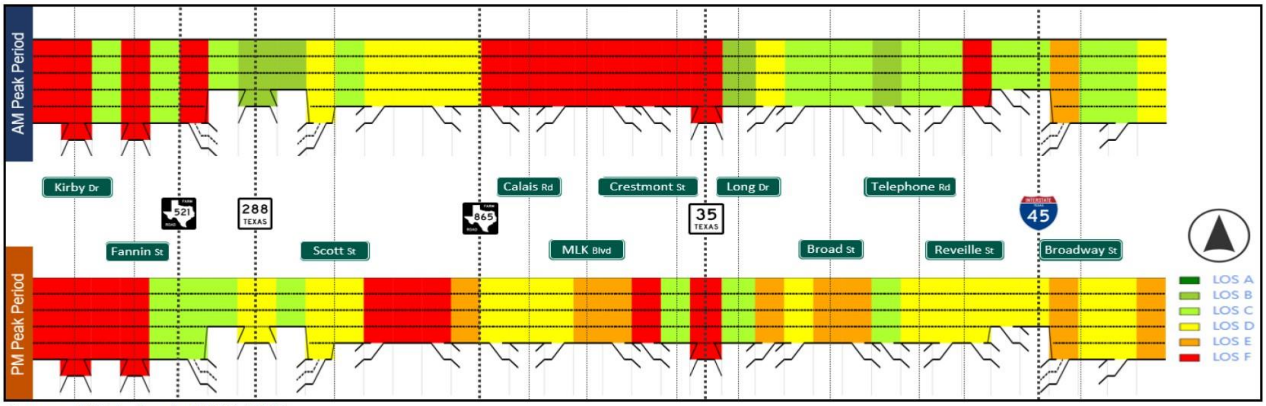


Figure 4. Levels of Service

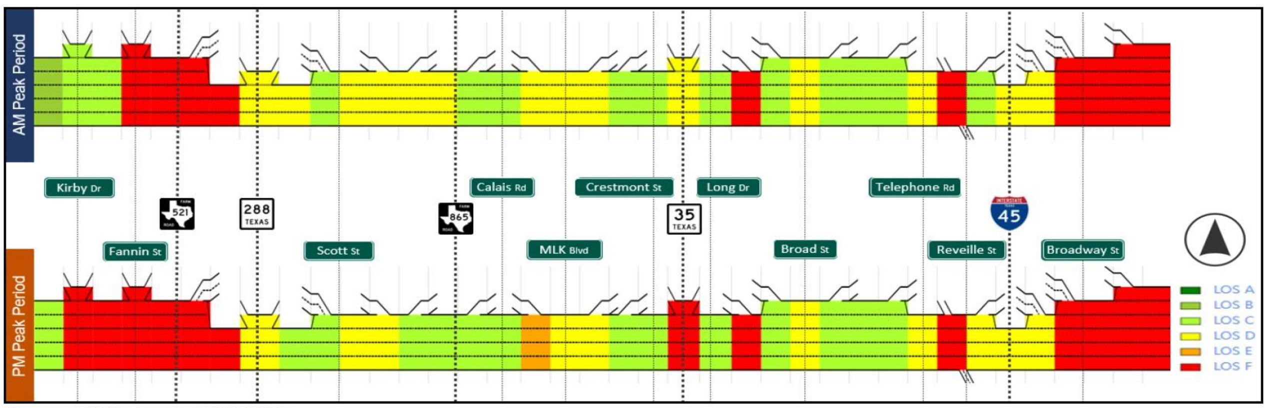
According to traffic studies conducted by the study team, several mainlane segments within the study area, including but not limited to the ones listed below, are anticipated to reach LOS D, E, or F by 2050 (shown in yellow, orange, and red, respectively, in **Figures 5** and **6**).

- Eastbound from Buffalo Speedway eastbound to the Almeda Rd off ramp
- Eastbound from the Kirby St on ramp to the Almeda Rd off ramp
- Eastbound from the Calais Rd off ramp to the Long Dr off ramp
- Eastbound from the Scott St on ramp to the Cullen Blvd off ramp
- Eastbound from Martin Luther King Blvd westbound to the Crestmont St off ramp
- Eastbound from Broad St westbound to the Telephone Rd off ramp
- Westbound from Galveston Rd westbound to the I-45 southbound off ramp
- Westbound from the I-45 northbound on ramp to the Woodridge Dr off ramp
- Westbound from SH 288 eastbound to the Main St off ramp
- Eastbound and Westbound at the off ramps for SH 35, Crestmont St, and Cullen Blvd



Source: AIG Tech using HCS 2023

Figure 5. 2050 No-Build Level of Service on Eastbound I-610



Source: AIG Tech using HCS 2023

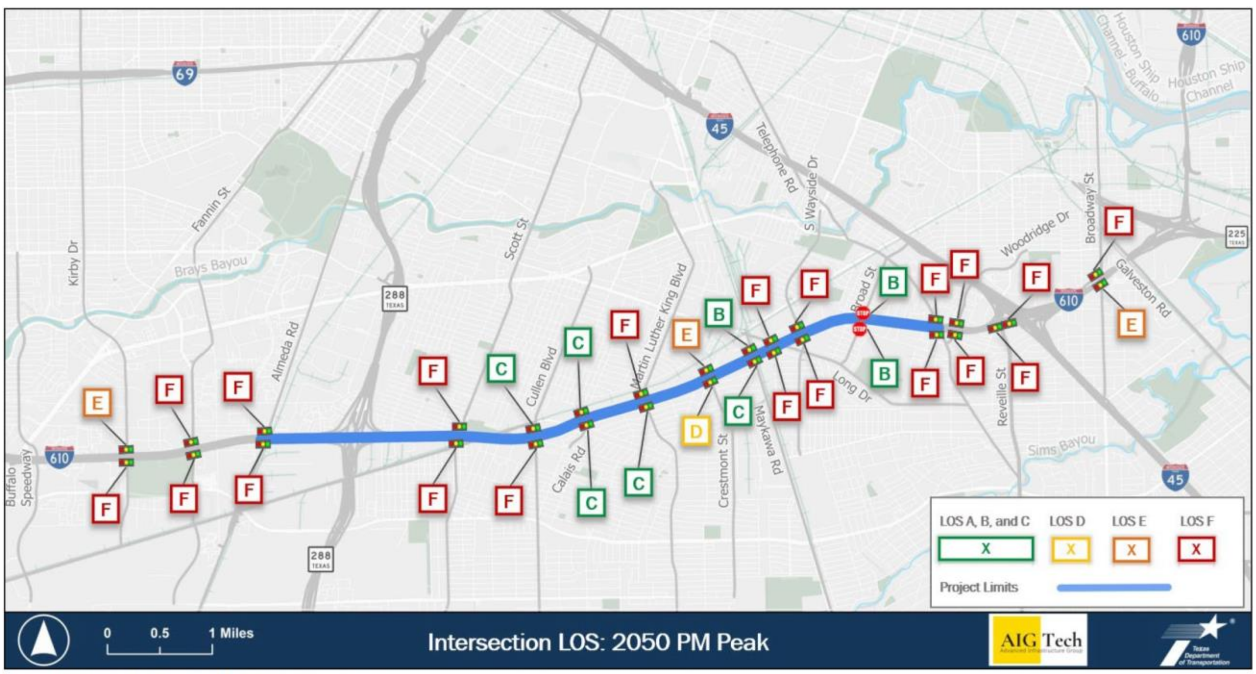
Figure 6. 2050 No-Build Level of Service on Westbound I-610

Currently, 10 frontage road intersections within the study limits are operating at LOS E or F during either the morning peak hour, evening peak hour, or both. By 2050, 15 intersections are expected to operate at LOS E or F (**Figures 7** and **8**), including but not limited to:

- Almeda Rd on both sides of I-610
- Scott St on both sides of I-610
- Cullen Blvd on the south side of I-610
- Martin Luther King Blvd on the north side of I-610
- Crestmont St on the north side of I-610
- Long Dr on both sides of I-610
- South Wayside Dr on both sides of I-610
- Telephone Rd on both sides of I-610

Source: AIG Tech using Synchro 11, 2022 traffic volumes

Figure 7. 2050 Intersection Level of Service during Morning Peak Hour



Source: AIG Tech using Synchro 11, 2022 traffic volumes

Figure 8. 2050 Intersection Level of Service during Evening Peak Hour

During a public outreach survey conducted in June 2023, when asked to mark points of concern or comment on a map, 18 of 49 comments noted existing congestion issues at some intersections, including at SH 288, Scott St, Holmes Rd, Cullen Blvd, Martin Luther King Blvd, and the I-610/I-45 interchange just east of the study area. In the February 2024 public meeting, five out of 21 comments noted congestion along the corridor, including at an at-grade crossing for the Union Pacific Railroad.

3.4 Limited Multimodal Connectivity

I-610 is an important point of connectivity for cars, trucks (including freight), bicyclists, pedestrians, and other modes of transit. The corridor is part of the Texas and National Highway Freight Networks and links to several major community facilities such as NRG Stadium and the Texas Medical Center in south Houston. As part of the Texas Freight Network, the corridor provides multimodal connectivity to the Port of Houston, multiple railroads (including two stations within one mile of the study area), and interstate connectivity for industrial supply chains (TxDOT 2023). Potential primary and secondary hubs of people and freight transportation were also identified along the corridor as part of The Regional Express Access Lanes (REAL) Plan (TxDOT 2024).

The study corridor is used by multiple modes of transportation, but it has discontinuous frontage roads, has limited bicycle accommodations, and the existing sidewalks do not meet the Americans with Disabilities Act (ADA) requirements. During a stakeholder meeting conducted in May 2023 and public meeting conducted in June 2023, 10 comments (two in the stakeholder meeting and eight in the public meeting) requested improvements to bicycle and/or pedestrian accommodations be considered as part of the study. During a second public meeting in February 2024, two comments mentioned bicycle and/or pedestrian improvements, although one of those comments expressed concern implementing those improvements along frontage roads.

Five comments during the June 2023 public meeting and one comment during the February 2024 public meeting requested improved access to METRO lines or other mass transit improvements in the area. The METRONext Moving Forward Plan identifies several areas of current and potential future connectivity in the vicinity of the study area. These include a proposed rail line extension within the study area, high occupancy vehicle (HOV) projects just east and west of the study area, and improvements to the bus network that crosses the study area in two locations (METRO 2024).

4 STUDY GOALS

Goals are objectives or intentions that describe the desired outcomes for the transportation system and community. These goals are typically based on the priorities and needs of the area. Goals are also used to guide the alternative development and evaluation process. Based on input received from the public, stakeholders, and agencies during the study outreach process, a total of three (3) goals have been identified, listed below.

- minimize the need for additional right of way,
- minimize environmental and community impacts, and
- ensure compatibility with adjacent projects and studies.

Ultimately, the needs, purpose, and goals identified in this document will serve as the foundation for the planning decisions made throughout the course of this study and ultimately into the development of a recommended transportation alternative(s).

5 RESULTS OF THE STUDY

Potential alternatives identified as a result of this study will be screened against the needs and goals of the project to identify alternatives that (a) upgrade aging infrastructure to meet current design standards, (b) enhance safety, (c) meet future travel demand and alleviate anticipated congestion, and (d) increase multimodal connectivity.

6 REFERENCES

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