# Feasibility Study 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
October 2025

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# Acronyms

| | |
|---|---|
| AADT | Average annual daily traffic |
| ADA | American with Disabilities Act |
| BNSF | Burlington North Sante Fe |
| CMV | Commercial motor vehicle |
| COH | City of Houston |
| CRIS | Crash Records Information System |
| FEMA | Federal Emergency Management Agency |
| FM | Farm-to-Market |
| FY | Fiscal year |
| H-GAC | Houston-Galveston Area Council |
| I | Interstate |
| LOS | Level of service |
| mph | Miles per hour |
| NEPA | National Environmental Policy Act |
| P&R | Park and ride |
| PEL | Planning and Environmental Linkages |
| PMIS | Pavement Management Information System |
| Rd | Road |
| ROW | Right of way |
| RTP | Regional Transportation Plan |
| SH | State Highway |
| SSD | Stopping sight distance |
| SUP | Shared use path |
| TxDOT | Texas Department of Transportation |
| UPRR | Union Pacific Railroad |
| vpd | Vehicles per day |

# 1 INTRODUCTION

In September 2022, the Texas Department of Transportation (TxDOT) initiated a feasibility study for Interstate 610 South (I-610S), from Farm-to-Market (FM) 521/Almeda Road to Telephone Road. This section of I-610S was constructed in the late 1960s and has served as a major thoroughfare for the Houston region. As the region continues to grow and I-610 approaches its useful service life, it is necessary to plan for the future of the corridor. The I-610S Feasibility Study is the first step in determining the future vision for the corridor.

# 2 BACKGROUND

A feasibility study is a high-level early-stage planning study that helps to determine if potential transportation improvements should move forward to more in-depth analysis. The I-610S Feasibility Study was conducted to evaluate the corridor’s transportation needs and recommend viable solutions, considering engineering, environmental, and economic constraints.

## 2.1 Study Approach

The I-610S Feasibility Study approach was divided into four main steps:

- Collect and analyze data
- Identify needs and goals
- Develop and screen alternatives
- Identify recommended improvements

**Figure 2-1** shows the specific tasks that were performed in each step as well as the overall timeline for the study.

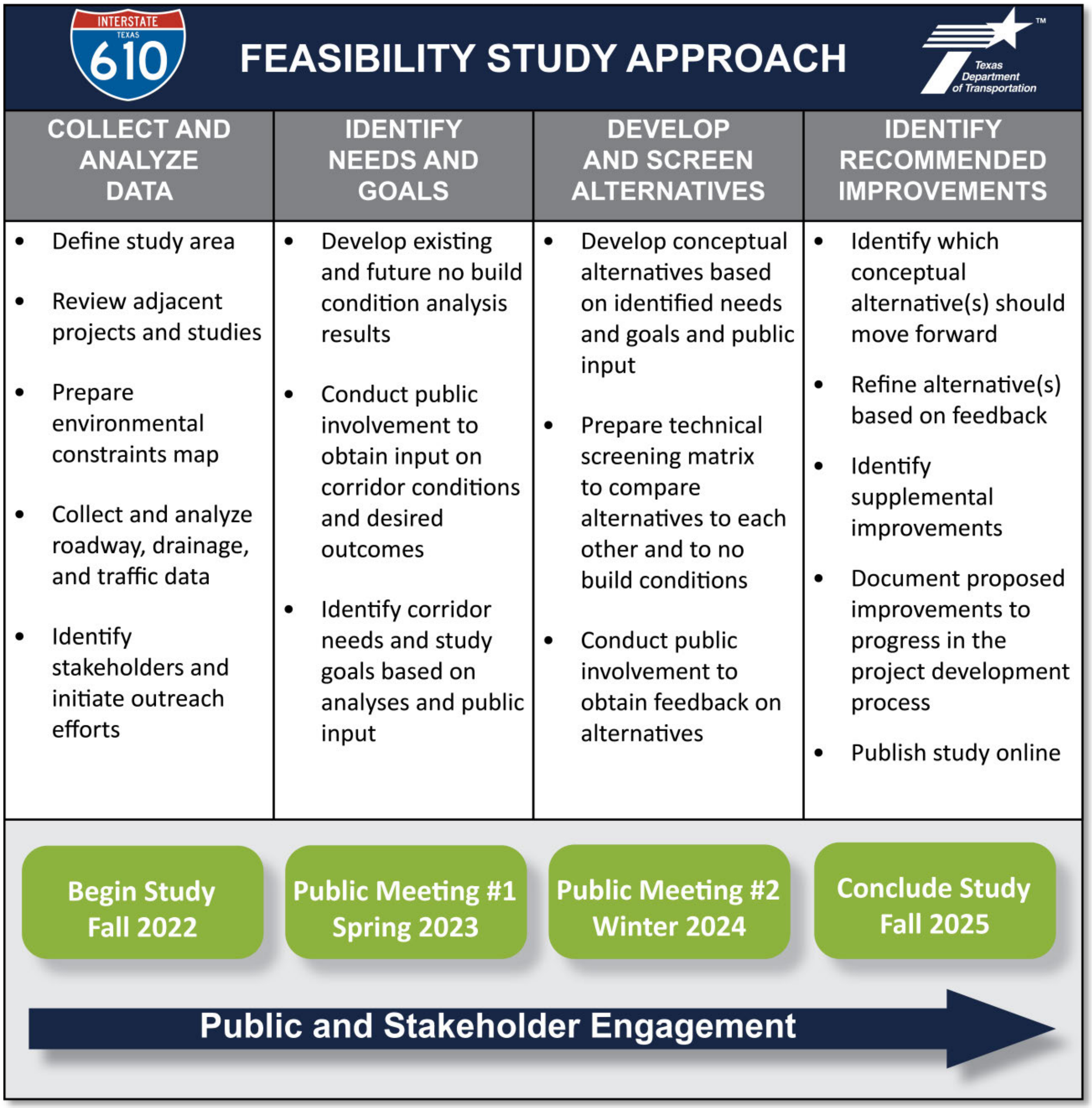



Figure 2-1: Study Approach

## 2.2 Study Area

I-610 South, located in Harris County, is the southern segment of the overall 38-mile I-610 Loop around the inner City of Houston. The I-610S study limits extend from FM 521/Almeda Road to Telephone Road (west of State Highway 288 [SH 288] to west of I-45 South), for an approximate length of 5.8 miles. See **Figure 2-2** for a map of the study limits.


Figure 2-2: Study Limits

I-610S provides access to multiple areas and other freeways including SH 288 and I-45. Major cross streets include FM 521/Almeda Road, Scott Street, FM 865/Cullen Boulevard, Martin Luther King Boulevard, Mykawa Road, and Telephone Road. The corridor is used for both local and regional trips and consists of primarily residential and industrial development, with some commercial, mixed-use, medical, education, and park adjacent property.

## 2.3 Adjacent Projects and Studies

To better understand I-610S in relation to the regional roadway network, the study team reviewed ongoing and recently completed projects and studies adjacent to the study area, which are shown in **Figure 2-3**. There are two adjacent Planning and Environmental Linkages (PEL) studies. The SH 225 and I-610E PEL Study was completed in 2023. The Gulf Freeway PEL Study is in the alternatives analysis phase. Construction of the SH 288/I-610 interchange, which began in 2017, was ongoing when this study was initiated and was completed in mid-2025. The SH 35 project extends from I-45 in Downtown Houston to just south of I-610 with an elevated multi-directional interchange at I-610. The SH 35 mainlanes are currently under construction. Four of the eight interchange direct connectors are in the design phase.

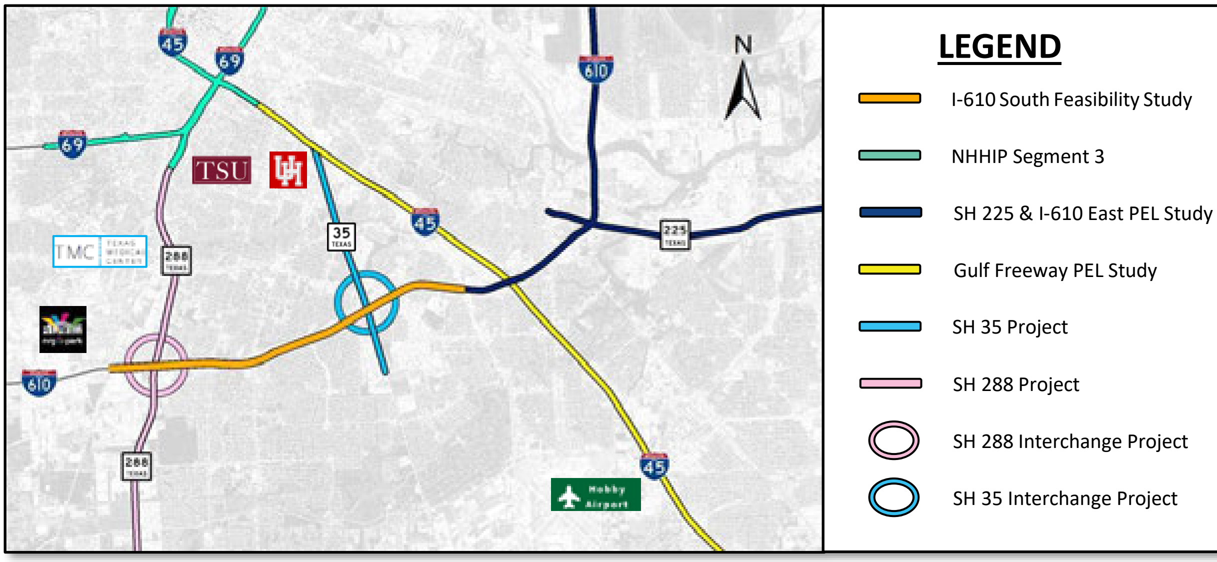



Figure 2-3: Adjacent Projects and Studies

The review of adjacent projects and studies highlights the importance of studying I-610S to identify alternatives for providing connectivity and continuity in the Houston freeway network.

# 3 PUBLIC AND STAKEHOLDER ENGAGEMENT

Public and stakeholder engagement was a critical part of the study process. Public and stakeholder feedback helped guide the study team in the development of solutions that would be suitable to meet the corridor needs and community goals. Feedback was obtained through both stakeholder workshops and public meetings. The public engagement events that were held for the study are summarized in **Figure 3-1** and documentation of these events can be found in **Appendix A.** The public meetings were held virtually with two in-person open house options in the study area. A bilingual public outreach effort in English and Spanish was undertaken to inform the community about the meetings. In addition to the public meetings, stakeholder workshops were held to collaborate with representatives of the community, including elected officials, agencies, and neighborhood groups.

| PUBLIC ENGAGEMENT SUMMARY | | |
|---|---|---|
| Stakeholder Workshop #1 | May 23rd, 2023 | • Introduced the study<br>• Presented existing conditions<br>• Obtained input on needs and goals |
| Public Meeting #1 | June 13th & 15th, 2023 | |
| Stakeholder Workshop #2 | January 25th, 2024 | • Presented conceptual alternatives and evaluation<br>• Obtained input on conceptual alternatives |
| Public Meeting #2 | February 20th & 22nd, 2024 | |

Figure 3-1: Public Engagement Summary

## 3.1 Stakeholder Workshop #1 and Public Meeting #1

The first round of public engagement events was held in mid-2023 to introduce the public and stakeholders to the study, present existing conditions, and obtain input on the needs and goals. Information on existing conditions - including bridge age, vertical clearances, connectivity and access challenges, crash statistics, traffic volumes, and travel speeds - was presented. A "mark it on a map" feature allowed participants to mark specific locations in the corridor where they observed safety, drainage, congestion, or access issues. Input was also obtained through comment cards and a survey that asked participants what study goals and transportation needs were most important to them.

Common themes that emerged from these meetings were: minimizing right of way (ROW) impacts, connecting frontage roads, intersection improvements, bicycle and pedestrian connectivity, and ramp improvements.

## 3.2 Stakeholder Workshop #2 and Public Meeting #2

Based on analysis of the corridor and input from the first round of public engagement, the study team identified the primary needs of the corridor and goals for the study. The team also developed and evaluated conceptual alternatives based on the needs and goals. The needs, goals, and conceptual alternatives were presented at the second round of public engagement in 2024. A survey was conducted asking participants which conceptual alternative best meets the needs and goals for I-610S. The results of the survey are discussed in the Conceptual Alternatives section of this report.

# 4 EXISTING AND FUTURE CONDITIONS

Existing roadway, drainage, traffic, and safety conditions in the study area were analyzed to help identify the needs in the corridor and establish a baseline for proposed improvements. Future no build conditions were also evaluated as a reference point for evaluating the potential benefits of proposed improvements over time.

## 4.1 Existing Roadway Conditions

I-610S is classified as a freeway facility. Based on as-built plans, the existing mainlane design speed varies from 55 miles per hour (mph) to 60 mph, with frontage road design speed varying from 30 mph to 45 mph.

**Figure 4-1** is a depiction of what I-610S looks like today. The mainlane configuration is typically an eight-lane section with varying frontage roads within a typical 350-foot-wide ROW. The frontage roads vary from to two to three lanes and are discontinuous in some areas due to lack of ROW, proximity to railroads, major utilities, and adjacent structures.

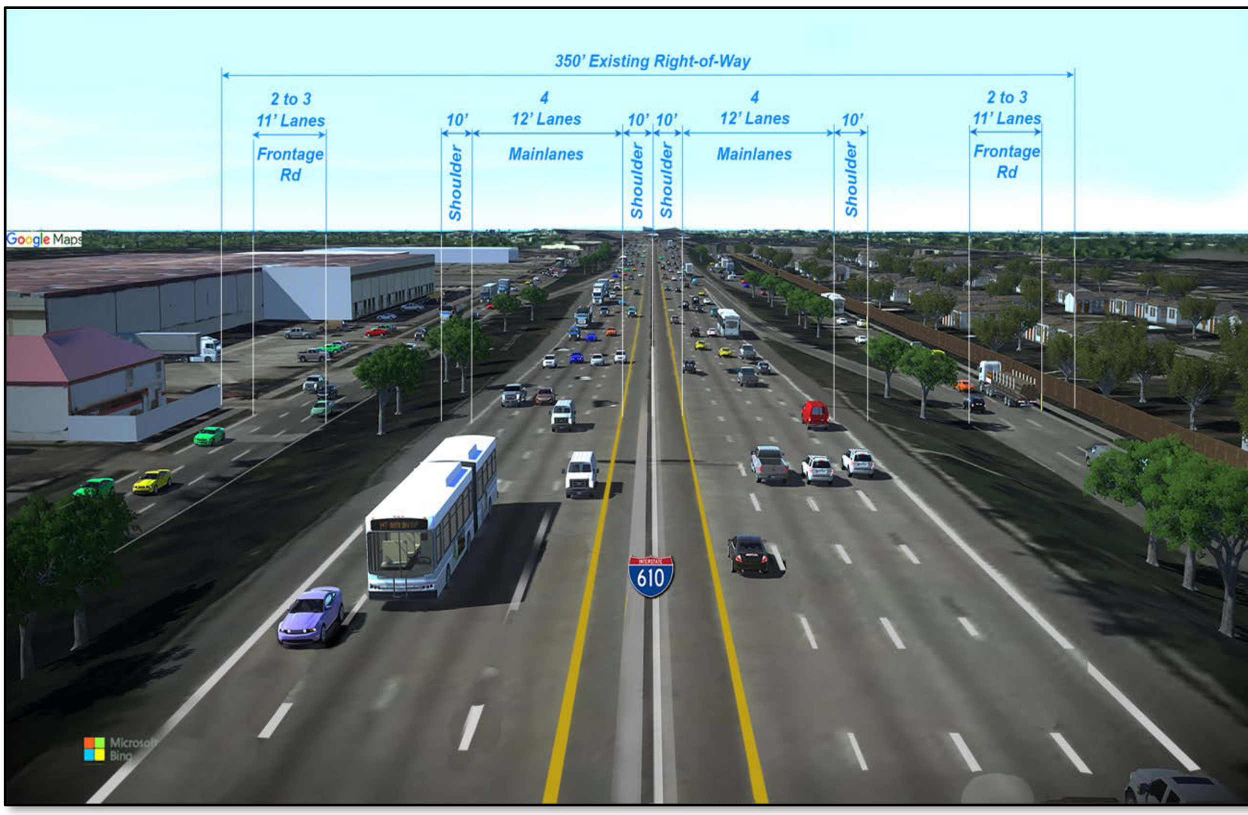



Figure 4-1: Existing Typical Section

With the majority of the existing I-610S corridor built over 50 years ago, roadway design criteria such as horizontal and vertical alignment, ramp spacing, vertical clearances, stopping sight distance (SSD), and pedestrian/bicycle accommodations no longer meet current roadway standards and regional transportation needs. A detailed analysis of existing roadway conditions is provided in **Appendix B**. **Figure 4-2** highlights key existing roadway deficiencies.


Figure 4-2: Existing Roadway Deficiencies

The existing I-610S mainlane and frontage road pavement conditions were also reviewed and analyzed based on TxDOT Pavement Management Information System (PMIS) data, which provides condition scores for roadway segments. Condition scores greater than 70 are considered “good or better” condition. Based on the TxDOT PMIS Annual Report (FY 2023) data, much of the mainlane pavement condition falls below 70, with areas as low as 35 (“poor” condition). In review of the I-610S frontage road pavement within the study limits, almost the entire limits fall below 70, with areas as low as 1 (“very poor” condition).

## 4.2 Existing Drainage Conditions

The I-610S study limits are within two major watersheds: Sims Bayou, and Brays Bayou. The study corridor is close to the drainage divide between Brays and Sims Bayous. Therefore, only relatively minor offsite drainage areas flow across the corridor. Offsite drainage areas cross the project at 12 locations. The most significant cross-drainage area is Plum Creek, which crosses I-610S just west of Telephone Road. There are no existing FEMA floodplains mapped within the study corridor.

The existing drainage infrastructure in the corridor consists of storm drainpipes, inlets, and culverts. Many of the storm drains outfall to City of Houston’s storm drain system. The recently completed SH 288/I-610 interchange project added detention ponds at the interchange and replaced much of the existing drainage infrastructure between FM 521/Almeda Road and Scott Street. The ongoing SH 35 project will add detention ponds at the I-610 interchange and install new storm drains within the project limits. **Appendix C** contains further details on existing drainage conditions.

## 4.3 Existing Traffic and Safety Conditions

An analysis of traffic characteristics (traffic volumes, travel speed and time, origin-destination patterns, traffic operations, and safety) was conducted to understand existing (2023) conditions within the study area.

Existing daily traffic volumes along the I-610S corridor range from approximately 115,000 to 126,000 vehicles per day (vpd). The highest daily traffic volumes occur in the segment between SH 288 and Cullen Boulevard.

Travel speeds and times along the corridor were analyzed using field travel time runs (March 21, 2023, to March 29, 2023) and INRIX data (September 2022). The corridor experiences westbound congestion during peak periods, with average morning peak travel time of 16 minutes and speeds dropping to 10-20 mph in certain segments.

Origin-destination analysis conducted using Replica’s Places data (Fall 2021) shows that more than 50% of trips dissipate onto side streets within the corridor limits during both morning and evening peak periods.

A traffic operational analysis was conducted for both construction and post-construction conditions due to construction work at the SH 288/I-610 interchange during the period when data was collected. The analysis results show that the existing congestion will likely be reduced after the interchange construction is completed, but several frontage road intersections will experience unacceptable levels of service (LOS E or F).

A crash analysis conducted for the I-610S corridor for the five-year period of 2018 to 2022 identified a total of 3,830 crashes, including 1,269 injury crashes and 98 fatal or incapacitating crashes. The segment between FM 521/Almeda Road and Cullen Boulevard had the highest number of crashes (2,457), with a crash rate more than double the statewide average for urban interstates.

A detailed analysis of existing traffic operations and safety is provided in **Appendix D**.

## 4.4 Future No Build Traffic Conditions

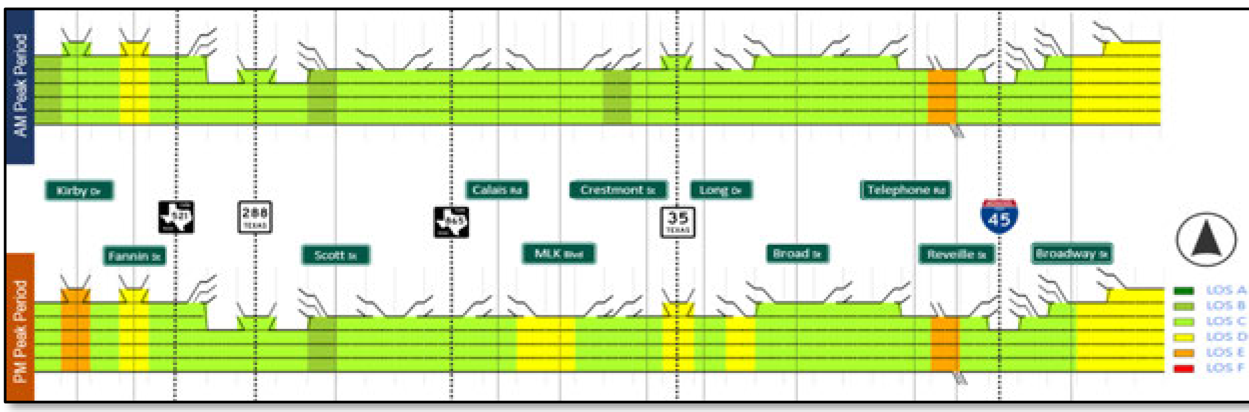
An analysis of future 2030 and 2050 no build traffic operations was conducted to evaluate future conditions assuming projected trends for population, employment, development, and associated traffic growth. The no build scenario includes future transportation improvement projects that are approved and funded.

Existing traffic volumes were projected to 2030 and 2050 using linear growth rates of 2% and 1.83%, respectively. A detailed traffic projections methodology and the resulting growth rates are provided in **Appendix E**. A traffic operational analysis conducted for both future no build scenarios showed that traffic conditions in 2030 worsen marginally compared to the existing scenario. However, traffic conditions are expected to deteriorate after 2030, with many more segments of the I-610S corridor operating at unacceptable levels of service (LOS E or F) by 2050. **Figure 4-3** through **Figure 4-6** provide the 2030 and 2050 no build LOS summary for the mainlanes along both eastbound and westbound directions.

The 2030 analysis showed that most of the mainlane segments on the I-610S corridor are expected to operate at acceptable levels of service (LOS D or better) during both morning and evening peaks. The exceptions include a few segments – the eastbound segment upstream of the I-45 southbound exit, the westbound segment from the I-45 northbound entrance ramp to the Woodridge Drive exit ramp, and the segment from Fannin Street entrance ramp to the Main Street exit ramp.


Source: AIG Tech using HCS 2023

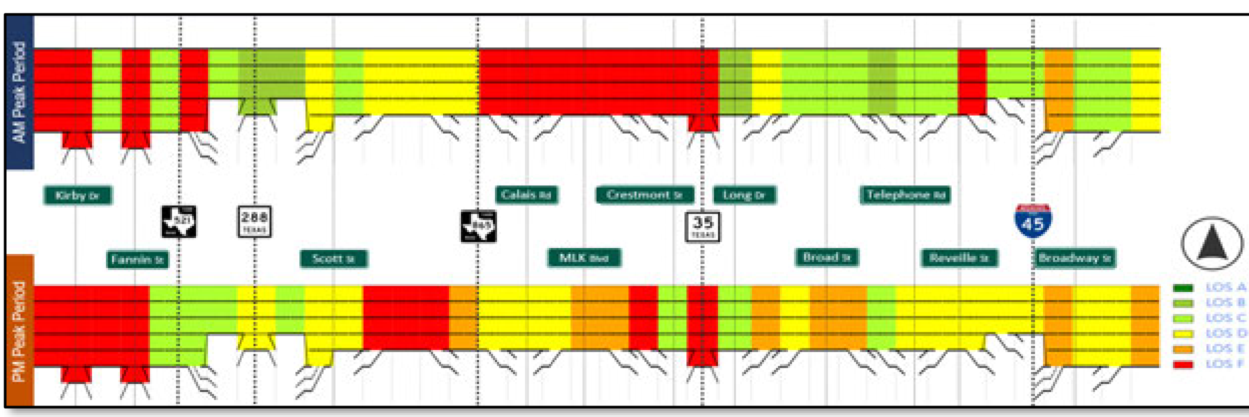
Figure 4-3: 2030 Eastbound Peak Period Freeway LOS




Source: AIG Tech using HCS 2023

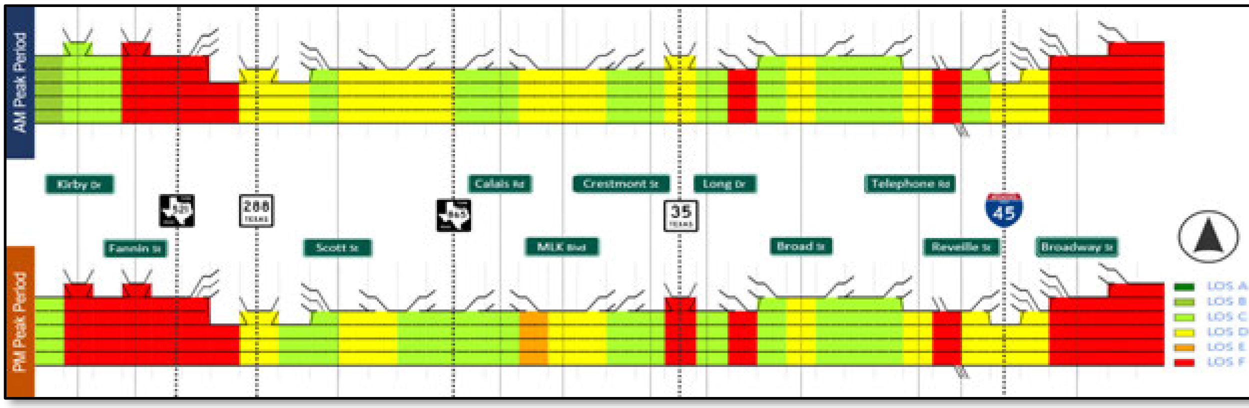
Figure 4-4: 2030 Westbound Peak Period Freeway LOS

The 2050 analysis projects several mainlane segments to operate at unacceptable levels of service (LOS E or F) during both the morning and evening peaks, particularly around SH 288, Cullen Boulevard, I-45, and SH 35.




Source: AIG Tech using HCS 2023

Figure 4-5: 2050 Eastbound Peak Period Freeway LOS




Source: AIG Tech using HCS 2023

Figure 4-6: 2050 Westbound Peak Period Freeway LOS

Similar to freeway mainlane segments, traffic operations at frontage road intersections are projected to worsen in 2030 compared to the existing scenario and continue to decline more significantly by 2050.

Details of the no build traffic operations analyses are provided in **Appendix F**.

## 4.5 Environmental Constraints

An environmental constraints map was created to identify existing environmental constraints in the study area. This map was used to evaluate potential environmental impacts of alternatives, and to identify any potential “fatal flaws” during the alternatives analysis process. The environmental study area was defined using a 500-foot buffer from the centerline of I-610S within the study limits, as well as a 500-foot buffer from portions of cross streets where incidental/transition work could potentially take place. See **Appendix G** for the environmental constraints map.

The primary identified constraints are shown in **Figure 4-7.**

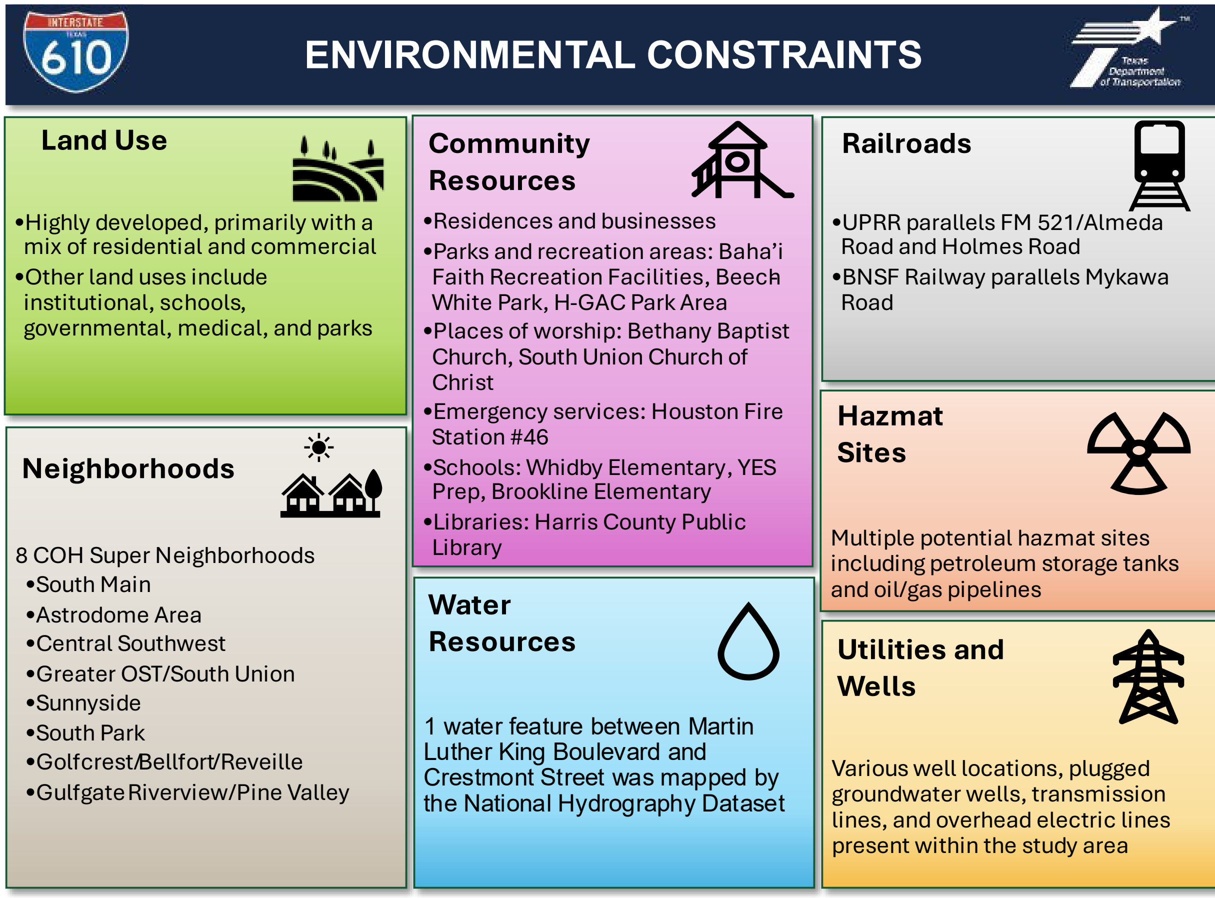



Figure 4-7: Environmental Constraints

At the time of the constraints mapping, no suitable habitat for species that are listed, potentially listed, or candidate species under the Endangered Species Act is anticipated to be present within the study area due to the high level of development. In addition, there are no existing historical districts, sites, markers, landmarks, or cemeteries within the study area.

## 4.6 Multimodal Facilities

The I-610S corridor is a multimodal facility that serves METRO bus and Harris County Transit shuttle routes and provides multiple bike route crossings.

The COH Bike Plan shows an existing shared on-street bikeway along Crestmont Street and a proposed shared on-street bikeway on Broad Street. Dedicated on-street bikeways are proposed on Scott Street, Cullen Boulevard, Long Drive, South Wayside Drive, and Telephone Road. Off-street bike routes are proposed along the UPRR ROW near Holmes Road and along the BNSF ROW near Mykawa Road.

There are existing sidewalks along the corridor, but they are discontinuous and do not meet Americans with Disabilities Act (ADA) requirements. There is one existing pedestrian bridge crossing over I-610S, between Wayside Drive and Broad Street. This bridge is programmed to be removed as part of the proposed SH 35 interchange project. The project would re-reroute pedestrian traffic to a new at-grade pedestrian crossing under I-610S at Broad Street.

Existing METRO bus routes currently cross I-610S at FM 521/Almeda Road, Scott Street, Cullen Boulevard, Martin Luther King Boulevard, Crestmont Street, Mykawa Road, and Long Drive. The Gulf Freeway/Texas Medical Center Park & Ride (P&R) bus route along I-610S connects the Texas Medical Center to park and rides along I-45 South.

During the study, METRO's long range plan included transit improvements in and around the study area, namely the proposed extension of the Purple and Green Light Rail Transit Lines to Hobby Airport. The proposed Purple Line extension would cross the I-610S corridor near Long Drive. While these projects remain in the draft 2050 Regional Transportation Plan (RTP), the focus of METRO's current METRONow Plan is on improving system operations rather than capital expansion.

One of METRO's ongoing projects in the study area is the 11-mile Scott Street BOOST corridor improvement project between Downtown Transit Center and Martin Luther King Jr. Health Center. BOOST corridor improvements include bus stop relocations, new shelters, accessibility improvements, transit signal improvements, and real-time passenger information.

# 5 NEEDS AND GOALS

The study identified transportation needs along I-610S, which were used as the basis for developing alternatives to improve the corridor. Study goals, based on the priorities and needs of the community, were also identified.

## 5.1 Corridor Needs

Based on the analysis of the existing and future conditions of the study area, public comments, and stakeholder/agency feedback, the following needs were identified in the I-610S corridor:

- Infrastructure deficiencies
- Safety issues
- Increased congestion
- Limited multimodal connectivity

Meeting the needs of the corridor is considered a prerequisite to moving forward with any potential alternative and ultimately identifying a recommended alternative.

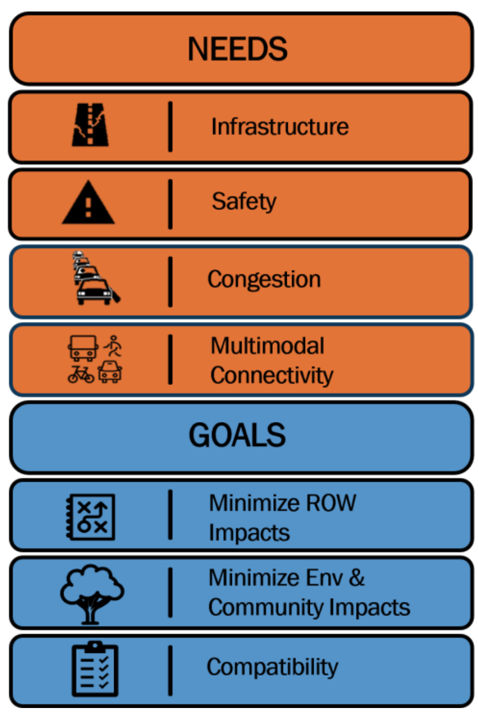


Figure 5-1: Needs and Goals

## 5.2 Study Goals

Goals are objectives or intentions that describe the desired outcomes for the transportation system and community. The study team identified three goals following public and stakeholder engagement and existing conditions analysis. The goals include:

- Minimize ROW footprint
- Minimize environmental and community impacts
- Ensure compatibility with adjacent projects and studies

The needs and goals are summarized in **Figure 5-1** and further discussed in **Appendix H**.

# 6 CONCEPTUAL ALTERNATIVES

Conceptual alternatives are broad solutions that address the overall corridor needs while satisfying study goals. The study evaluated five conceptual alternatives for I-610 – four build alternatives and the No Build Alternative. The build alternatives were developed based on data analysis and public input. Each build alternative had to meet at least one need to be considered. The No Build Alternative was included as a baseline for comparison of the build alternatives. The No Build Alternative assumes completion of all proposed projects in the Houston-Galveston Area Council (H-GAC) Regional Transportation Plan but would not provide any further improvements to the I-610S corridor beyond regular maintenance activities.

To address infrastructure deficiencies, all build alternative concepts would reconstruct the I-610S corridor to meet current standards. The build alternatives would also provide shared use paths (SUPs) for bicyclists and pedestrians. As described in the following sections, the build alternative concepts differ primarily in terms of the number and type of proposed lanes and potential right of way needs. Additional information on the conceptual alternatives and their evaluation is provided in **Appendix I**.

## 6.1 Alternative 1 - Operational Improvements

Alternative 1 would reconstruct the corridor to current design standards while generally maintaining the existing number of general purpose and frontage road lanes. Alternative 1 would add SUPs for bicyclists and pedestrians and would implement operational improvements at localized problem areas at ramps and intersections and along the frontage roads. As depicted in **Figure 6-1**, these improvements could include the addition of auxiliary lanes between ramps, intersection improvements such as turn lanes and U-turns, and connection of discontinuous frontage roads. Alternative 1 would require approximately 20 to 45 feet of additional right of way in some areas.

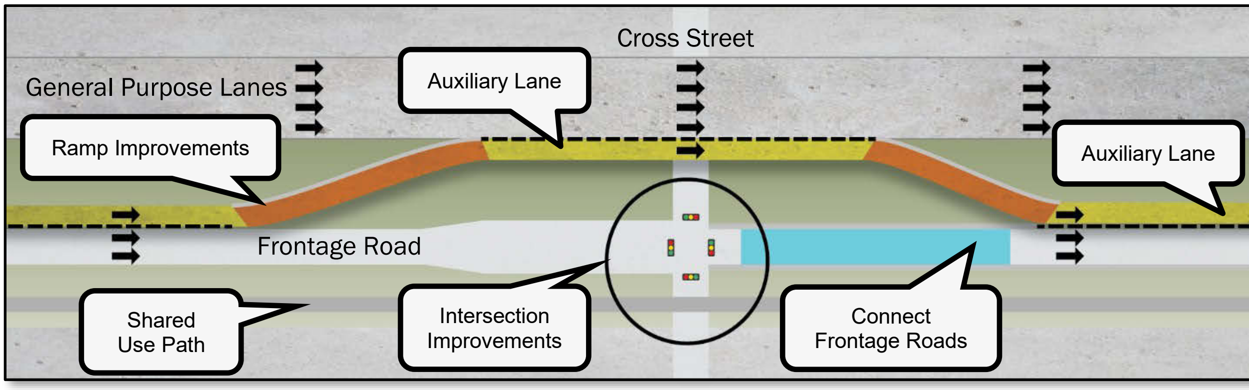



Figure 6-1: Alternative 1 - Operational Improvements

## 6.2 Alternative 2 - Convert One General Purpose Lane to Managed Lane

Alternative 2 would convert one general purpose lane in each direction to a managed lane. Managed lanes are a set of lanes within the freeway that are separated from the general purpose lanes. They help improve safety, reduce congestion, and provide options for multimodal opportunities and connectivity. The operations of any proposed managed lanes on I-610 South would be defined during project development and would be based on factors such as vehicle type, time of day, and access points. For this alternative, the managed lanes would be at the same level as the general purpose lanes as illustrated in **Figure 6-2**. Alternative 2 would also include reconstruction of the general purpose lanes and frontage roads to current design standards, addition of SUPs for bicyclists and pedestrians, and operational improvements similar to Alternative 1. Alternative 2 would typically require approximately 25 feet of additional right of way and up to 45 feet in some areas.

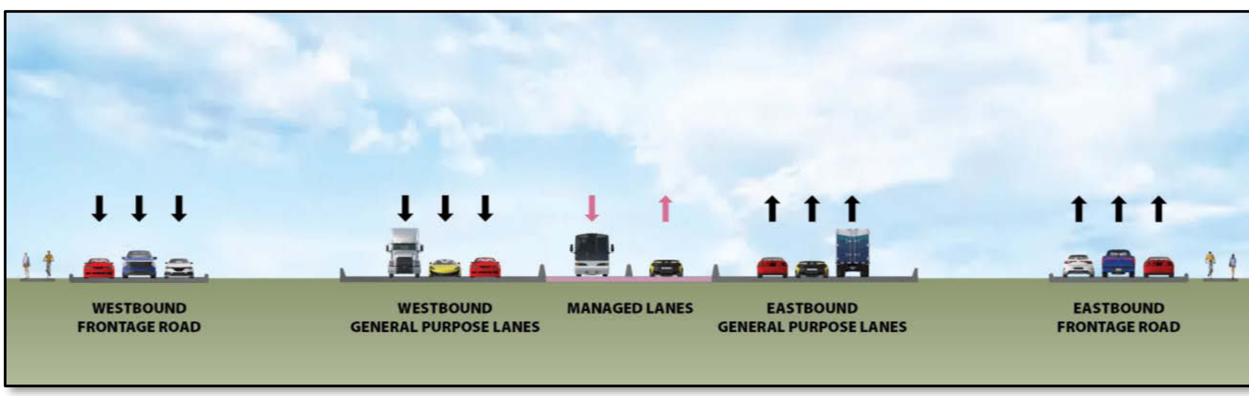



Figure 6-2: Alternative 2 - Convert One General Purpose Lane to Managed Lane

## 6.3 Alternative 3 - Add Two New Managed Lanes in Each Direction

Alternative 3 would construct two managed lanes in each direction. For this alternative, the managed lanes would be on an elevated structure that could be placed either in the middle of the highway as shown in **Figure 6-3** or between the general purpose lanes and the frontage road lanes. Alternative 3 would also include reconstruction of the general purpose lanes and frontage roads to current design standards, addition of SUPs for bicyclists and pedestrians, and operational improvements similar to Alternative 1. Alternative 3 would typically require approximately 15 feet of additional right of way and up to 45 feet in some areas.

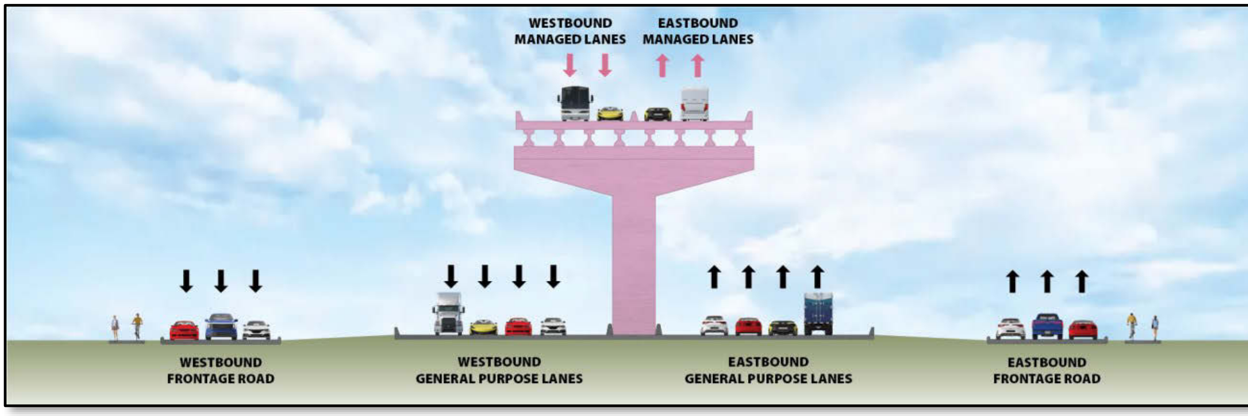



Figure 6-3: Alternative 3 - Add Two New Managed Lanes in Each Direction

## 6.4 Alternative 4 - Add One New General Purpose Lane in Each Direction

Alternative 4 would add one general purpose lane in each direction as shown in **Figure 6-4**. Alternative 4 would also include reconstruction of the general purpose lanes and frontage roads to current design standards, addition of SUPs for bicyclists and pedestrians, and operational improvements similar to Alternative 1. Alternative 4 would typically require approximately 25 feet of additional right of way and up to 45 feet in some areas.

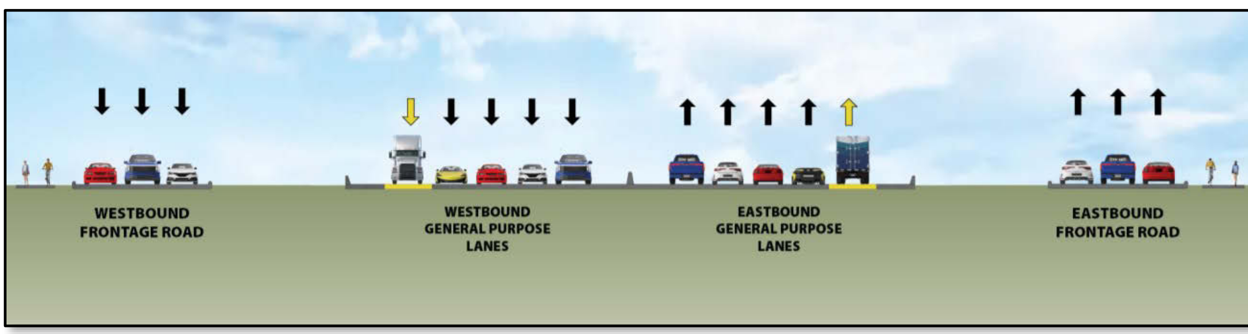



Figure 6-4: Alternative 4 - Add One New General Purpose Lane in Each Direction

## 6.5 Screening Process

The alternatives screening process assesses how well an alternative can achieve the study goals and the roadway needs. The alternative screening methodology utilized for the I-610S study incorporated a two-step screening process to narrow the conceptual alternatives to viable alternatives.

- Step 1 – A qualitative and quantitative analysis of alternatives based on technical data
- Step 2 – Consideration of input from stakeholders, agencies, and the public

Step 1 included a screening based on qualitative and quantitative variables associated with the needs and goals identified for this study. In addition to the needs and goals, a high-level comparative cost analysis was performed.

For Step 2, the conceptual alternatives and Step 1 screening results were presented to stakeholders, agencies, and the public at Stakeholder Workshop #2 and Public Meeting #2. Participants were asked to provide feedback on the alternatives through a comment form or a survey. Participants were also given the opportunity to select "other" and write in their suggestions.

## 6.6 Screening Results

The results of the conceptual alternatives screening are summarized in **Figure 6-5**.

**SCREENING RESULTS**

| EVALUATION CRITERIA | ALTERNATIVE 0 *No Build* | ALTERNATIVE 1 *Operational Improvements* | ALTERNATIVE 2 *Convert General Purpose Lane to Managed Lane* | ALTERNATIVE 3 *Add Elevated Managed Lanes* | ALTERNATIVE 4 *Add General Purpose Lane* |
|---|---|---|---|---|---|
| Increased Congestion | Red | Red | Red | Green | Yellow |
| Infrastructure Deficiencies | Red | Green | Green | Green | Green |
| Safety Issues | Red | Yellow | Yellow | Yellow | Yellow |
| Limited Multi Modal Connectivity | Red | Yellow | Yellow | Yellow | Yellow |
| Minimize ROW Impacts | Green | Green | Red | Yellow | Red |
| Minimize Environmental Impacts | Green | Green | Green | Green | Yellow |
| Compatibility with Ongoing Projects and Studies | Red | Yellow | Yellow | Green | Red |
| Cost | Green | Yellow | Red | Yellow | Red |
| Public Input | Red | Red | Red | Green | Red |

LEGEND: Need; Cost; Goal; Input; Green – Best meets needs and goals; Yellow – Somewhat meets needs and goals; Red – Does not meet or minimally meets needs and goals

Figure 6-5: Conceptual Alternatives Screening Results

Of the build conceptual alternatives, Alternative 1 - Operational Improvements and Alternative 3 – Add Managed Lanes scored the best in meeting the needs and goals.

Alternative 1 would provide the improvements necessary to bring the facility to current design standards and is anticipated to have the fewest ROW and environmental impacts and the lowest construction cost of the build alternatives. Although Alternative 1 did not score as well in addressing increased congestion at the corridor level, it would implement localized operational improvements to alleviate bottlenecks and improve traffic flow at the segment or local level.

Alternative 3 would provide the same improvements as Alternative 1 while also providing increased capacity with the addition of two elevated managed lanes in each direction. Alternative 3 scored the highest overall. However, it is anticipated to have more ROW impacts than Alternative 1.

Alternative 3 was also selected by the majority (67%) of the public and stakeholders who participated in the survey or indicated their selection on a comment form. **Figure 6-6** shows the overall distribution of responses.

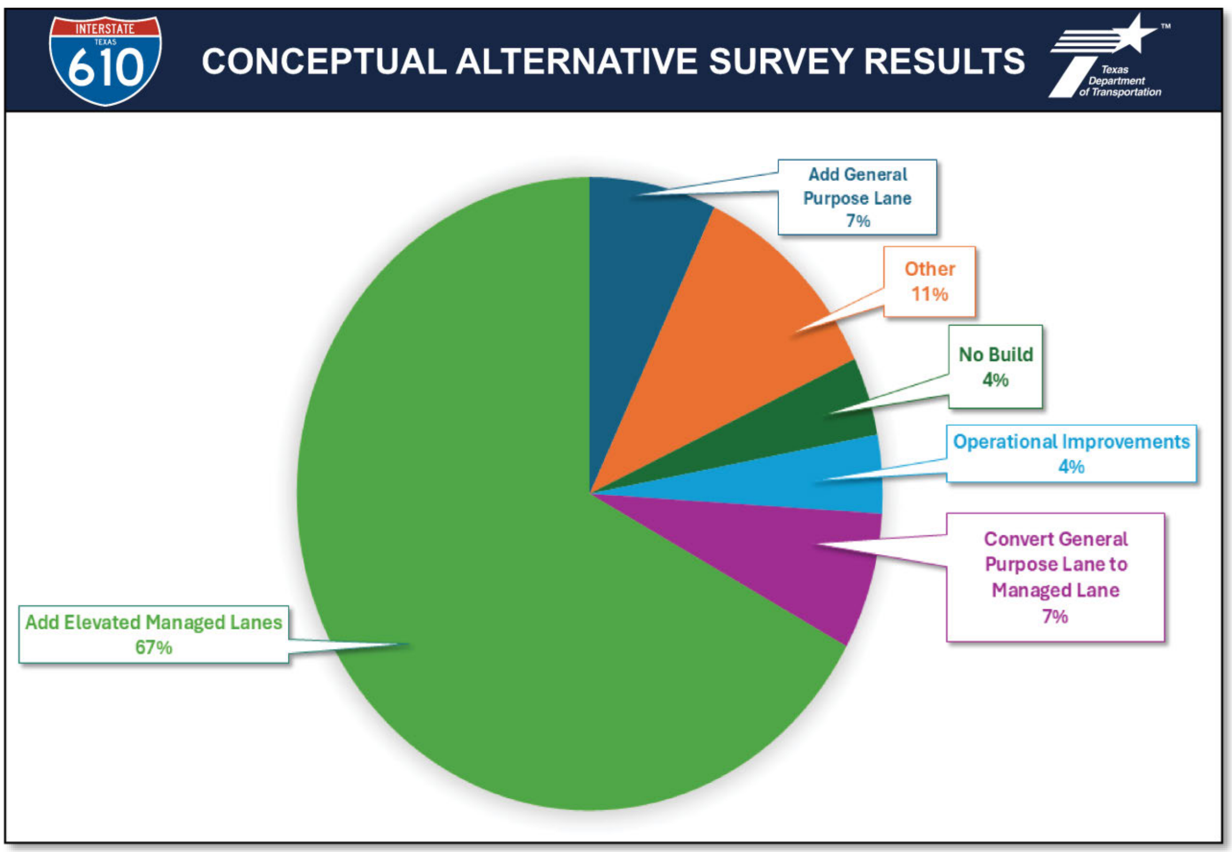



Figure 6-6: Conceptual Alternative Survey Results

# 7 RECOMMENDED IMPROVEMENTS

Based on the screening results, Alternative 1 – Operational Improvements and Alternative 3 – Add Managed Lanes are recommended to be carried forward for further evaluation as viable alternatives. Although the study team's ultimate recommendation is a complete reconstruction of the I-610S corridor to meet current design standards, several or select improvements could be implemented as interim steps without full reconstruction. This phased approach would allow TxDOT to deliver interim corridor enhancements while progressing toward the corridor's full reconstruction.

## 7.1 Frontage Roads and Ramps

Continuous frontage roads are recommended to be provided between SH 288 and Telephone Road. Extending the frontage roads through the SH 288 was evaluated but it was determined to be infeasible due to height restrictions and the location of existing direct connector columns. **Exhibit 1** shows the sections where currently discontinuous frontage roads would be connected. These connections would improve local access and help reduce congestion on the mainlanes.

Recommended improvements to ramps in the corridor are also shown in **Exhibit 1** and include reversing ramps, adding auxiliary lanes, and braiding closely spaced ramps. Reversing ramps (from an exit to an entrance or vice versa) can help solve congestion issues when the existing ramps are too close to the upstream or downstream cross street. Adding auxiliary lanes between ramps provides extra space for traffic to enter and exit the freeway. Braiding ramps separates traffic entering and exiting the freeway by physically 'braiding' one ramp over the other.

## 7.2 Intersections

Intersection turn lane improvements such as addition of left- and right-turn lanes, lane reconfigurations and addition of U-turns are recommended at several intersections within the study area. **Exhibit 2** shows intersection approaches where U-turns and turn lane improvements are recommended to improve traffic operations.

## 7.3 Multimodal

Both viable alternatives would add SUPs along the frontage roads for bicyclists and pedestrians. The proposed configuration of bicycle and pedestrian elements along city streets that are within TxDOT's right of way would be determined in coordination with the City of Houston. Proposed bike/ped facilities are recommended to be grade separated where they cross the existing UPRR and BNSF Railway lines in the corridor.

Continued coordination with METRO is also recommended regarding bus routes and stops in the corridor to minimize impacts to bus riders.

# 8 NEXT STEPS

This feasibility study lays the groundwork for the project development process, which is shown in **Figure 8-1**. If the recommendations of the study advance into project development, the next step would be schematic design and environmental studies.

During the schematic and environmental phase, Alternatives 1 and 3 would be further developed as viable alternatives. The No Build Alternative would also be carried forward to serve as a baseline for comparison. The viable alternatives would be presented at future public involvement events to obtain feedback. Along with public input, the screening of the viable alternatives would include more detailed engineering, traffic, and environmental analysis to ultimately identify the preferred alternative.

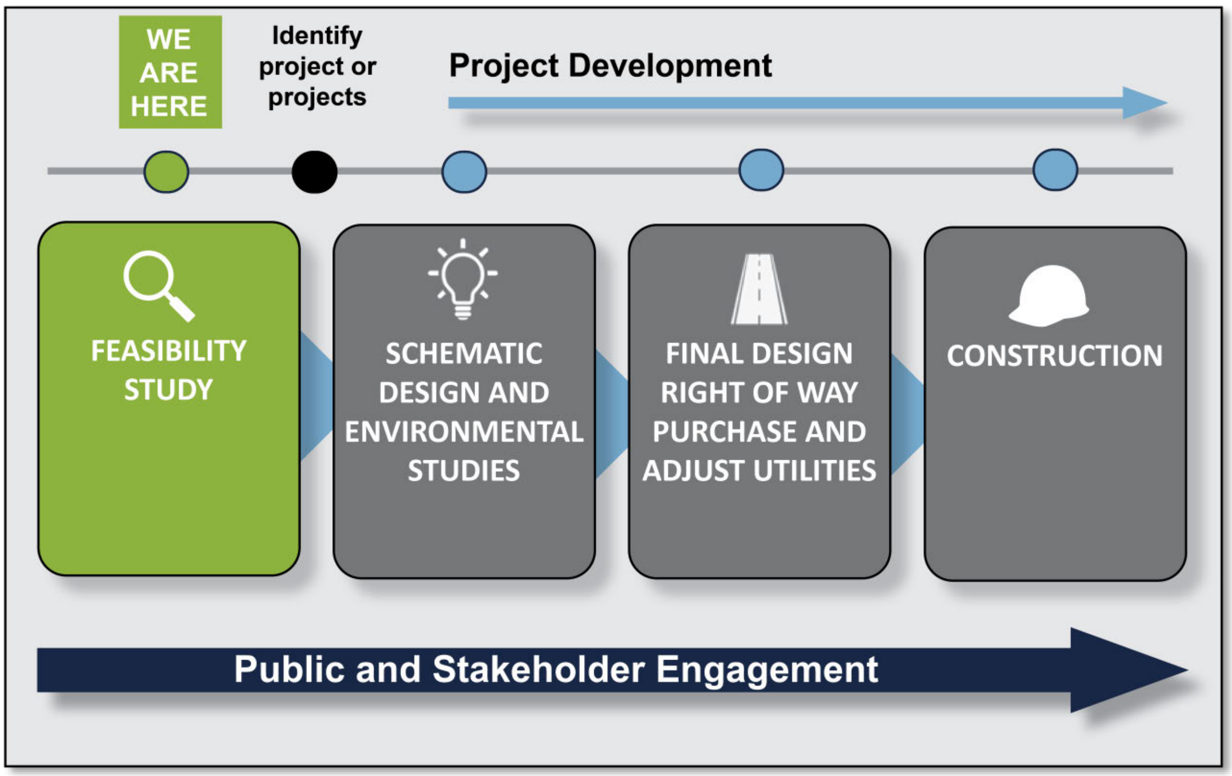



Figure 8-1: Project Development Process

Schematic design for the preferred alternative would involve defining elements such as roadway alignments, access points, and right of way footprints. The schematic would show the proposed location of the mainlanes and frontage roads as well as proposed ramp locations and intersection configurations. The height of the various roadways relative to each other and relative to ground level would also be shown.

A drainage study would be conducted in conjunction with the schematic design and would utilize the latest rainfall magnitude requirements to evaluate the existing drainage conditions, potential project impacts, proposed drainage infrastructure needs, and strategies to mitigate flood risk.

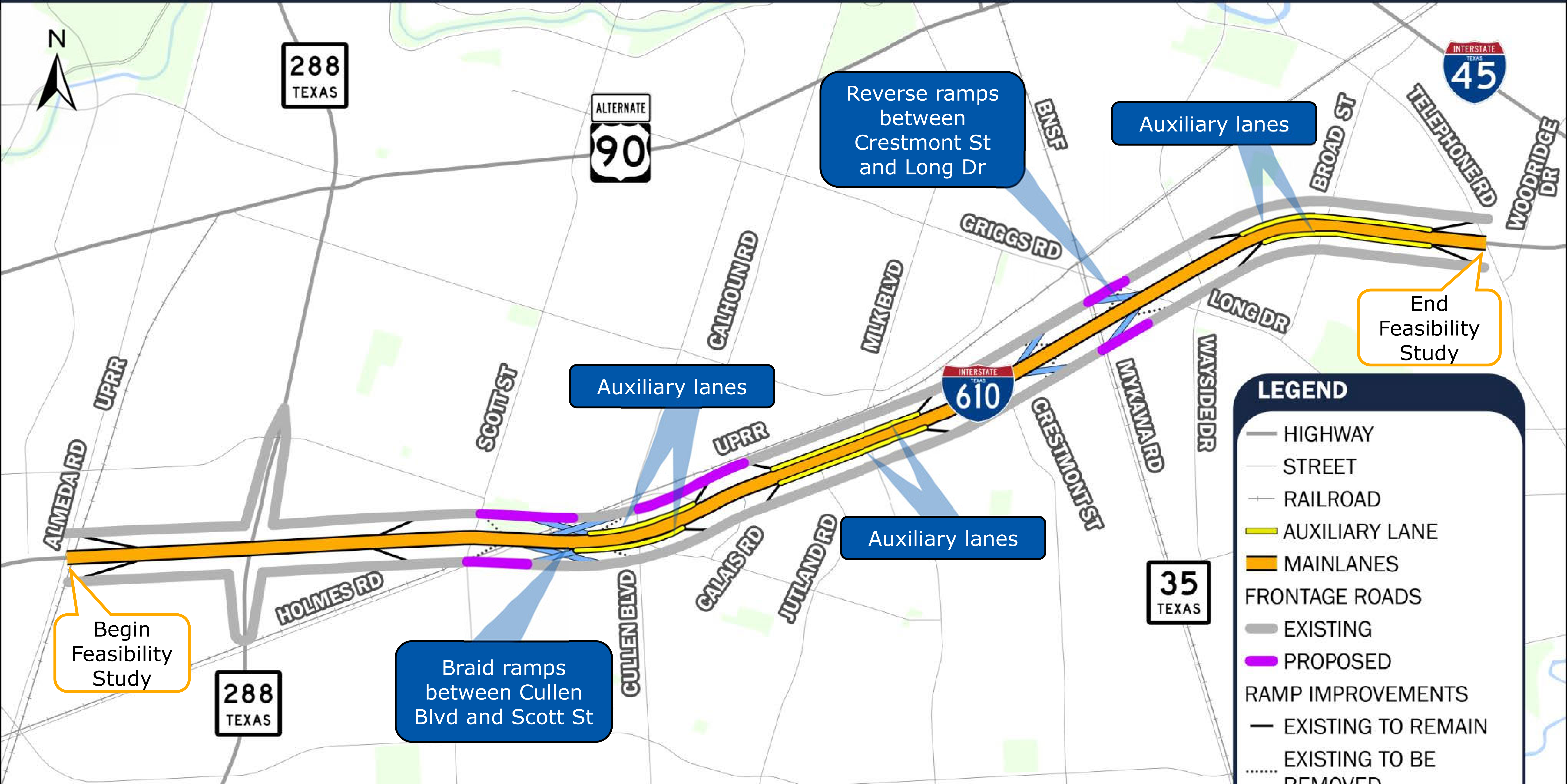
A detailed traffic operations analysis would be conducted to evaluate the performance of the proposed geometric schematic and refine it as needed. The analysis model would include corridor mainlanes, ramps, direct connectors, and major arterial intersections, and be developed and calibrated using existing conditions. A predictive safety analysis would also be conducted to estimate the anticipated changes in crashes from the no build condition to the build condition for the design year.

An analysis of the existing environment and potential impacts would be conducted in accordance with the National Environmental Policy Act (NEPA). Areas that would be analyzed and documented include biological resources, community impacts, water resources, hazardous materials, archeological resources, historic resources, air quality and traffic noise. Technical reports documenting the analysis and conclusions of these studies would be summarized in an environmental document and made available to the public.

The public involvement that was initiated during the feasibility study would continue throughout the project development process. Additional public and stakeholder meetings would be held during the schematic and environmental phase to obtain feedback on the proposed design. The design would be refined where possible to address public and stakeholder comments.

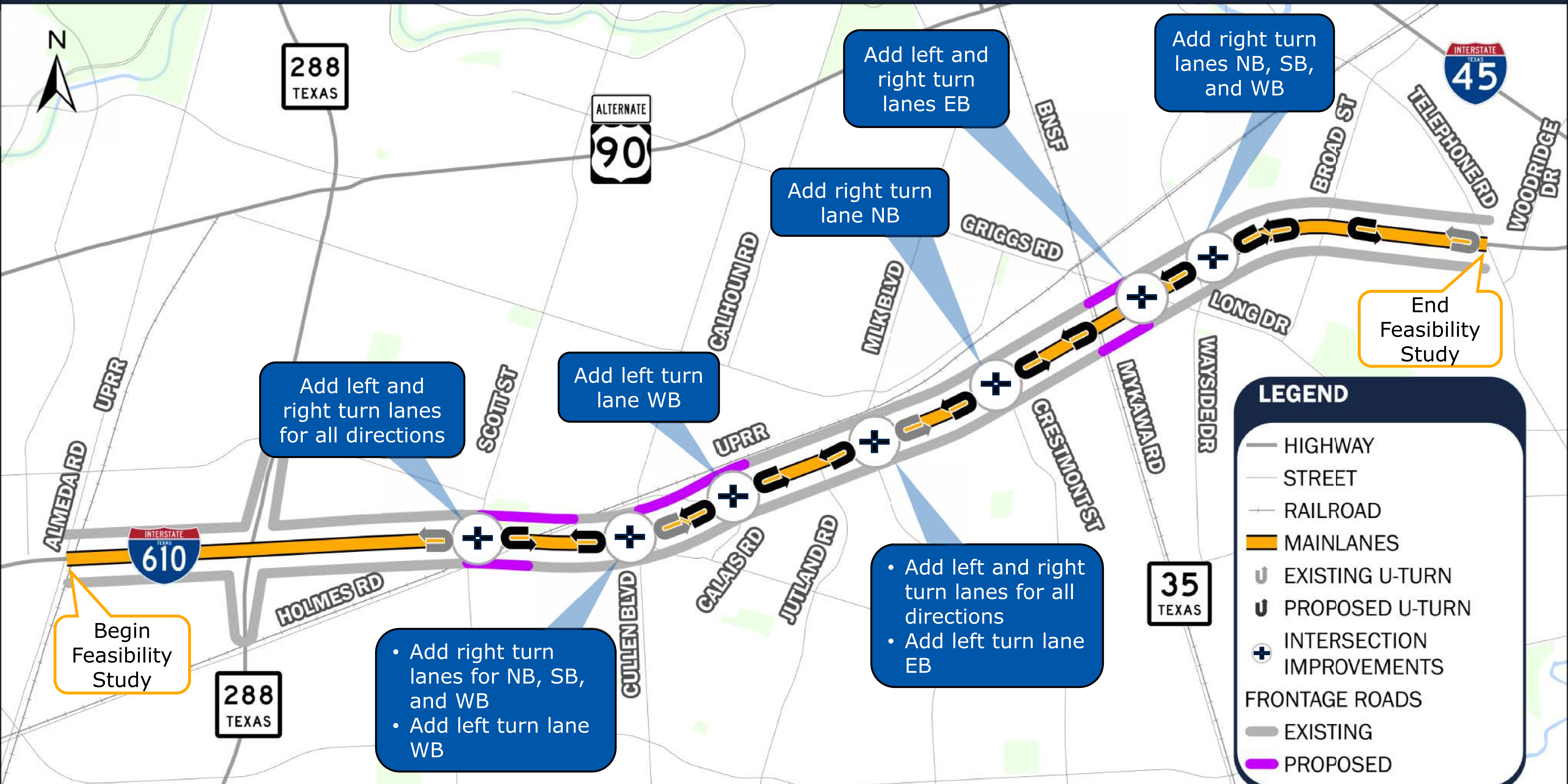
Advancement of the preferred alternative from schematic and environmental to final design and construction would be contingent upon the outcome of the schematic and environmental process and availability of funding. Currently, no funding has been identified for the recommended improvements outlined in this report. The implementation of improvements may be broken into multiple construction projects based on funding constraints and be phased over time. TxDOT will use this report, along with feedback from stakeholders and the public, to prioritize improvements in the I-610S corridor and identify funding sources.

# EXHIBIT 1:
# FRONTAGE RD & RAMP IMPROVEMENTS




Alternatives recommended at the conclusion of the feasibility study may become future projects and would be subject to modification during the project development process.

# EXHIBIT 2: INTERSECTION IMPROVEMENTS




Alternatives recommended at the conclusion of the feasibility study may become future projects and would be subject to modification during the project development process.