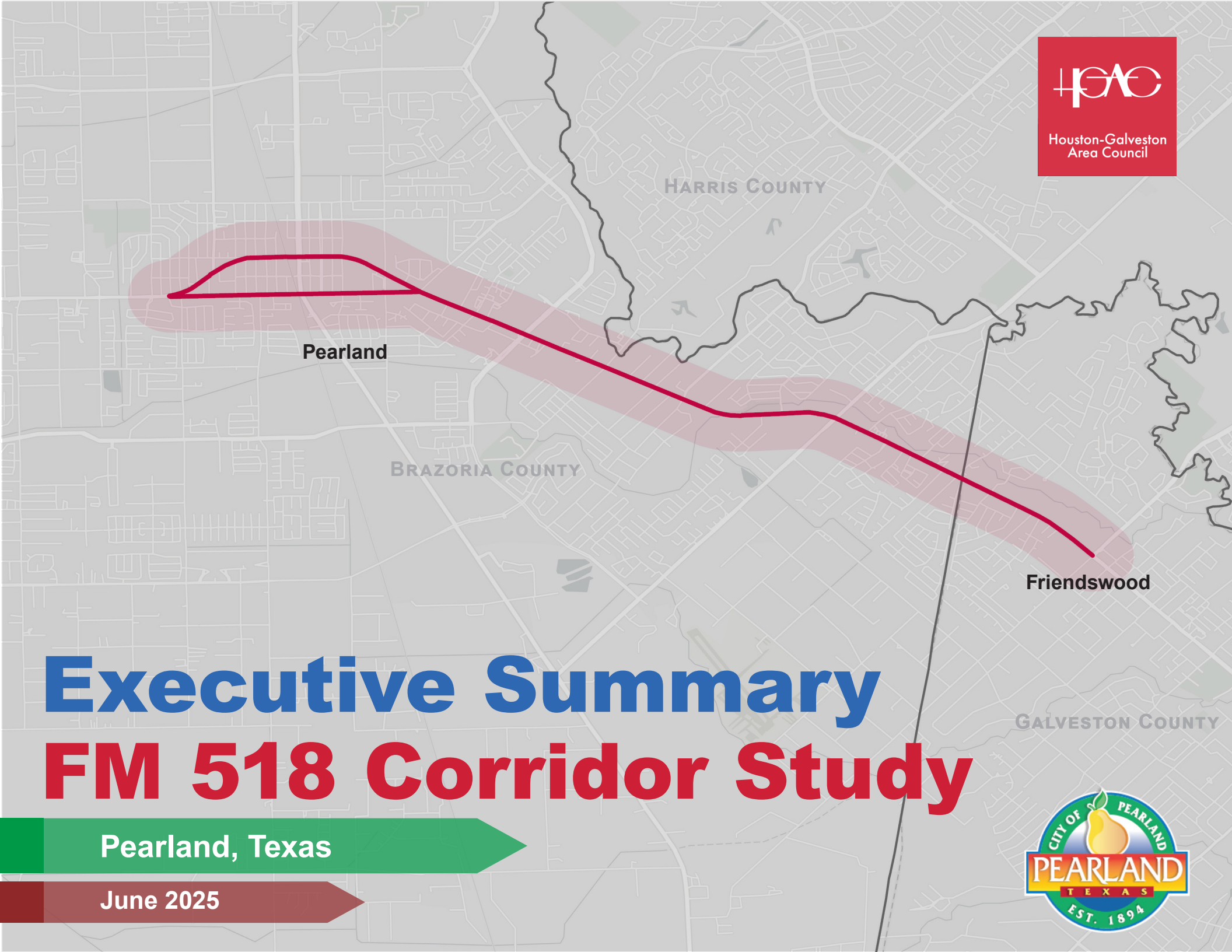

Executive Summary
FM 518 Corridor Study

Pearland, Texas

June 2025

Executive Summary

Purpose and Need

The Houston-Galveston Area Council (H-GAC), in partnership with the City of Pearland, produced this study to develop short-, medium-, and long-term recommendations to improve safety and mitigate congestion on FM 518 (Broadway Street) from McLean Road in Pearland to E. Edgewood Drive in Friendswood. This study is an opportunity to coordinate corridor improvements with nearby TxDOT projects and the H-GAC Pearland Mobility Plan. In addition, this study is consistent with past transportation planning efforts to develop a network that adequately addresses the needs of residents, visitors, and businesses.

The vision for the FM 518 (Broadway Street) Corridor Study is to create a safe, sustainable, and accessible multimodal corridor that prioritizes the needs of all users while improving traffic flow.

Goals for the FM 518 (Broadway Street) Corridor

The study has two primary goals, which are assessed using Measures of Effectiveness (MOEs) to evaluate potential alternatives.

Move people and goods efficiently through optimizing the multimodal transportation network by reducing conflict points, controlling access, enhancing connectivity, improving traffic flow, and providing safe and convenient infrastructure.
MOE: Intersection Level of Service (LOS)

Improve safety by reducing the number of crashes along the corridor by implementing traffic calming measures, improving pedestrian and bicycle infrastructure, and enhancing visibility at intersections.
MOE: Anticipated reduction in crashes

The corridor is expected to experience growth in traffic volume, which will cause traffic to significantly worsen over time. With adjacent roadways and portions of FM 518 (Broadway Street) beyond the study limits being widened in the near future, it is necessary to study future alternatives for improving the corridor.

Approach

The study reviewed existing conditions along the corridor, including demographic patterns, roadway and environmental characteristics, and previously completed plans and studies.

Analysis of alternatives and improvement concepts were modeled using PTV Vissim simulation software. Traffic data from nine annual count stations over a period of 20 years (2003-2023) was used to project anticipated traffic growth over time. Per TxDOT Corridor Analysis Standard Operating Procedures guidance and corridor traffic data, a growth rate of 2% was used to estimate future traffic volumes for the corridor.

The corridor safety analysis was conducted using benefit-cost analyses (BCA),[1] Safety Performance Functions (SPFs), and Crash Modification Factors (CMFs) to determine the potential impact of implementing safety countermeasures.

Public Engagement

Development of the FM 518 (Broadway Street) Corridor Study involved gathering input from stakeholders and the public. A Steering Committee comprised of non-elected local governmental and non-governmental representatives also provided guidance and feedback throughout the study.

Methods to promote and conduct public engagement included flyers, in-person events, online surveys, social media posts, public meetings, and yard signs. Public input provided insight into the priorities of the community and revealed preferences for potential alternatives.

[1] USDOT BCA guidelines

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Future Conditions

Future conditions were modeled for 2045 to illustrate how the corridor might operate if no additional improvements are done besides those currently in the City of Pearland's Capital Improvement Plan (CIP) and the FM 518 TxDOT project from FM 865 to west of Mykawa Road. The 2045 No Build scenario results show that all but two of the signalized intersections along the corridor can be expected to operate at a LOS level of D (significant congestion), E (severe congestion), or F (stop-and-go traffic) in the PM peak period.

The considerable change in LOS from the existing conditions demonstrates that if no additional improvements are made to the corridor, severe congestion and stop-and-go traffic will be a major issue, especially in the afternoons and evenings.

Alternatives

Short- and Medium-Term

The study describes short- to medium-term improvements or alternatives which can be implemented relatively quickly - within five years or up to ten years if ROW acquisition is required.

Intersection Improvements

Intersection improvements along the corridor were identified and analyzed. These include the addition of turn lane(s), modification of signal operations, or both.

Figure 2 shows the location of intersection improvements by type. Safety countermeasures were also identified for intersections with high crash rates. Detailed information including cost for these improvements can be found starting on page 38 in the document.

Walnut Street Closure Alternative

A medium-term alternative to remove the signal at Walnut Street and McLean Road was also studied, but ultimately determined by the Steering Committee to be unsatisfactory due to the potential restriction of emergency services. Figure 1 illustrates the Walnut Street Closure.

Figure 1: Walnut Closure Alternative

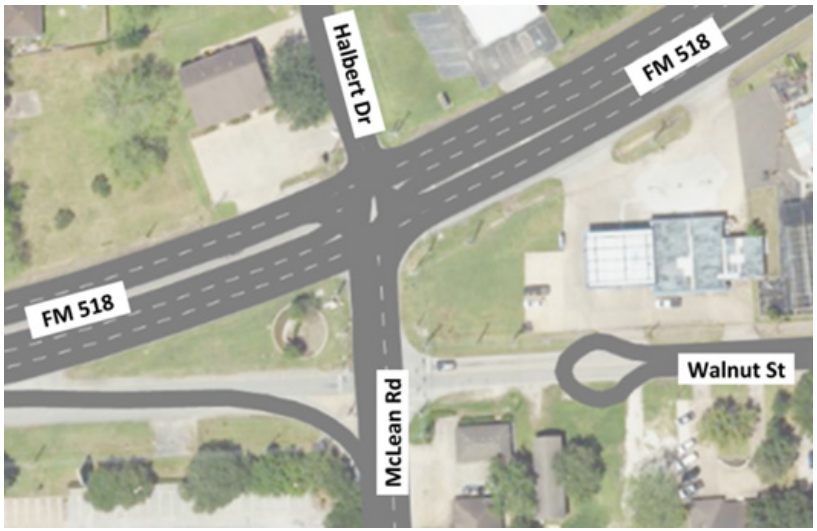
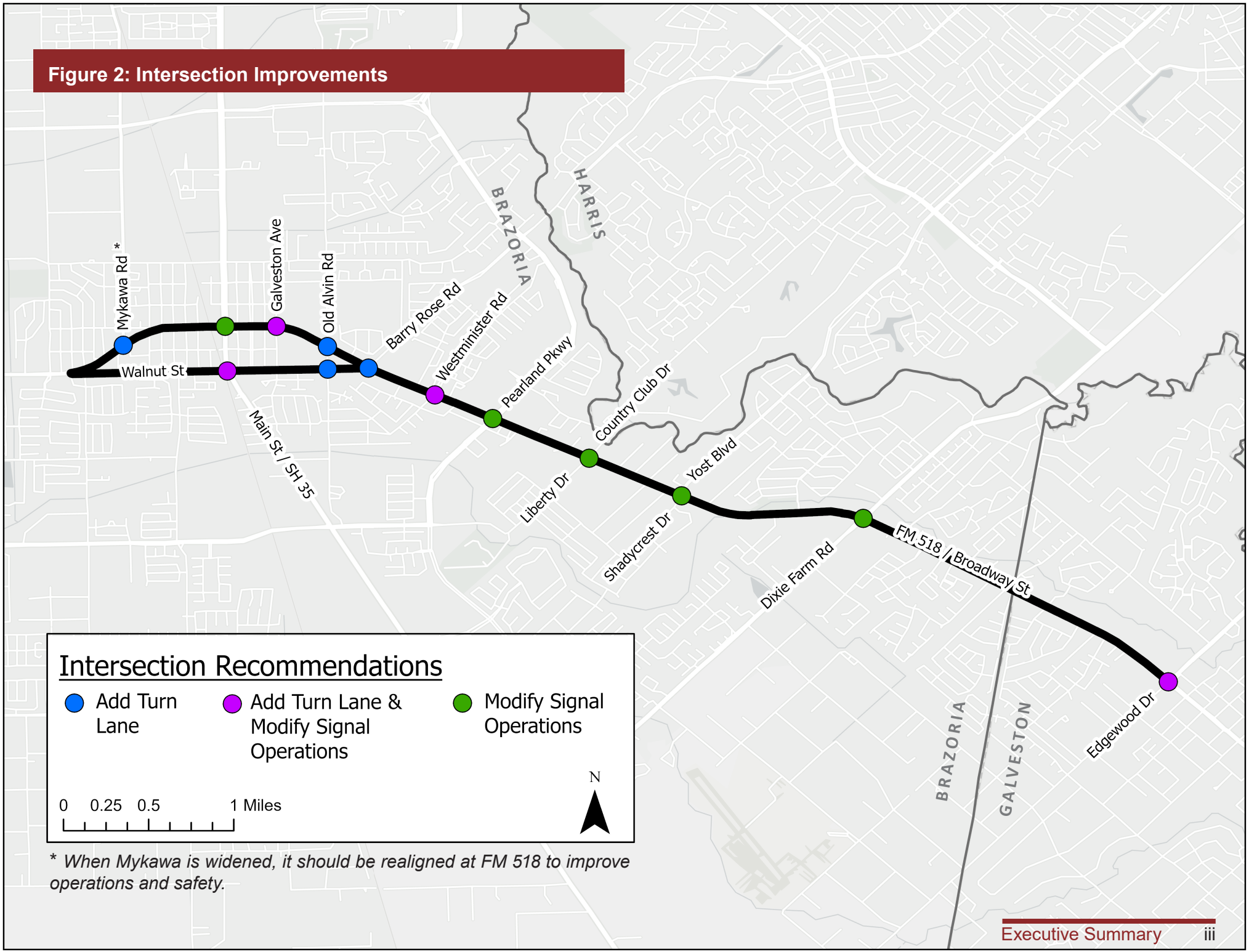


Figure 2: Intersection Improvements



** When Mykawa is widened, it should be realigned at FM 518 to improve operations and safety.*

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Long-Term

Long-term improvements analyzed as part of this study include one-way pair conversion, access management, and adding additional throughput capacity by adding additional lanes. These alternatives are would take greater than ten years to implement. Detailed information for long-term improvements can be found starting on page 45 in the document. Direct comparisons, including cost estimates, are provided on page 58.

Alternative 1: One-Way Pair

The One-Way Pair Alternative would convert FM 518 to one-way west bound and Walnut Street to one-way east bound from McLean Road to Barry Rose Road (Figure 5). It includes three travel lanes in each direction on each of the aforementioned roadways.

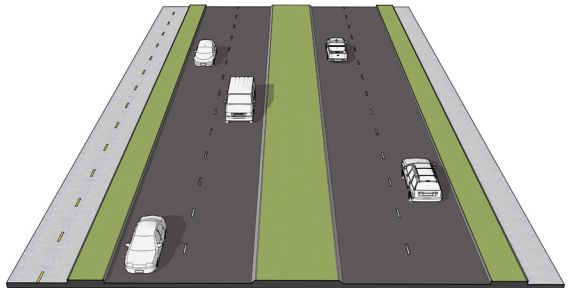
Two different One-Way Pair Alternatives were established:

- **Scenario A** with FM 518/Walnut Street one-way pair from McLean Road to Barry Rose Road, and 4-lane from Barry Rose Road to E. Edgewood Drive.
- **Scenario B** with FM 518/Walnut Street one-way pair from McLean Road to Barry Rose Road, and 6-lane from Barry Rose Road to E. Edgewood Drive with a raised median.

Alternative 2: Access Management (4-lanes)

The Access Management Alternative includes the addition of raised medians from McLean Road to the Friendswood City Limits, where raised medians currently exist (see). Walnut Street would remain a 2-lane facility. Figure 3 below illustrates a cross section of the corridor with a raised median, and Figure 6 is a map of the alternative.

Figure 3: Alternative 2 Cross Section



FM 518 (Broadway Street) From McLean Road to Friendswood City Limits with four lanes and a raised median

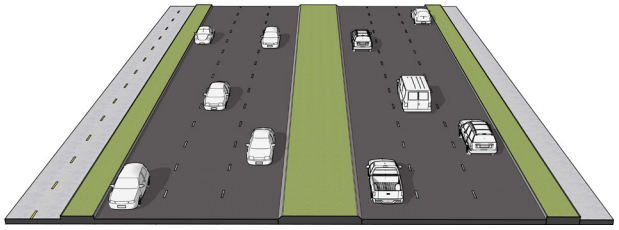
Alternative 3: Six-Lane Capacity Improvement (with raised medians)

The Six-Lane Capacity Improvement Alternative includes adding an additional lane in each direction and installing a raised median from Barry Rose Road to E. Edgewood Drive. Walnut Street would remain a 2-lane facility, as it is today.

According to TxDOT, adding a lane to FM 518 (Broadway Street) in each direction from McLean Road to Barry Rose Road would not be feasible due to the presence of historical properties.

Figure 4 below illustrates a cross section for alternative 3, and Figure 7 shows the location for the six-lane capacity Improvement with raised medians.

Figure 4: Alternative 3 Cross Section



FM 518 (Broadway Street) From Barry Rose Road to E. Edgewood Drive with six lanes and a raised median

Figure 5: Alternative 1

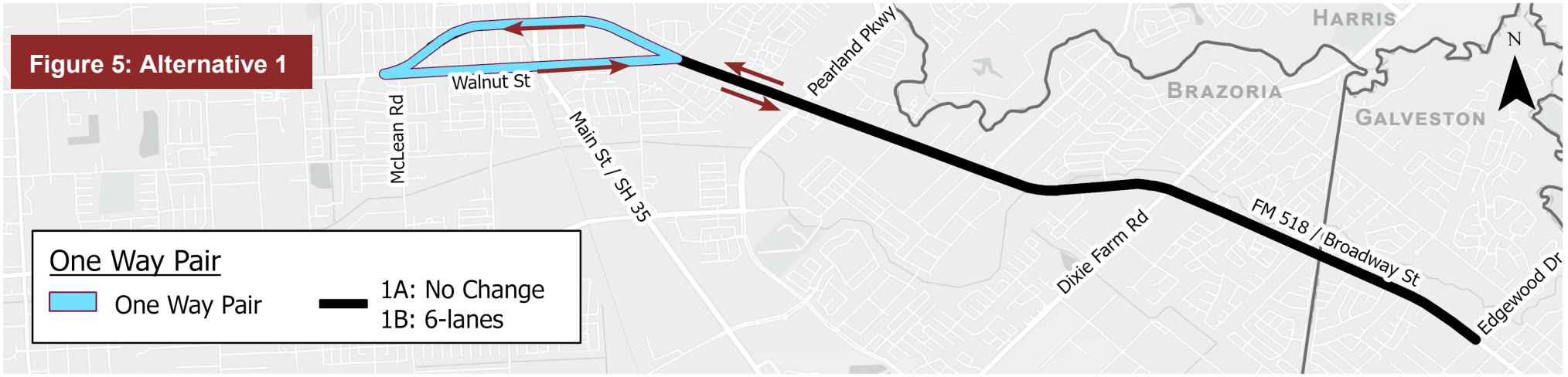


Figure 6: Alternative 2

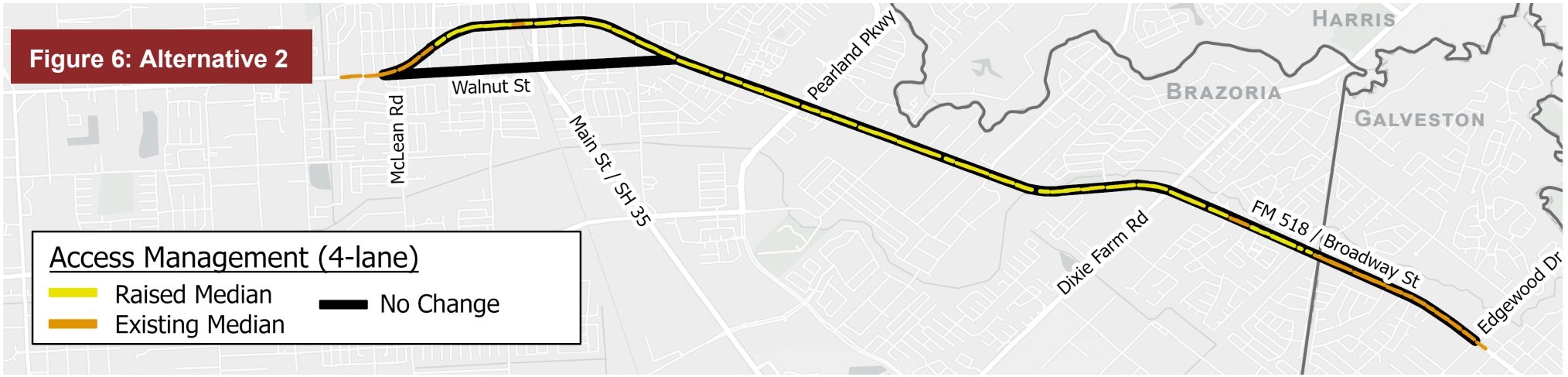
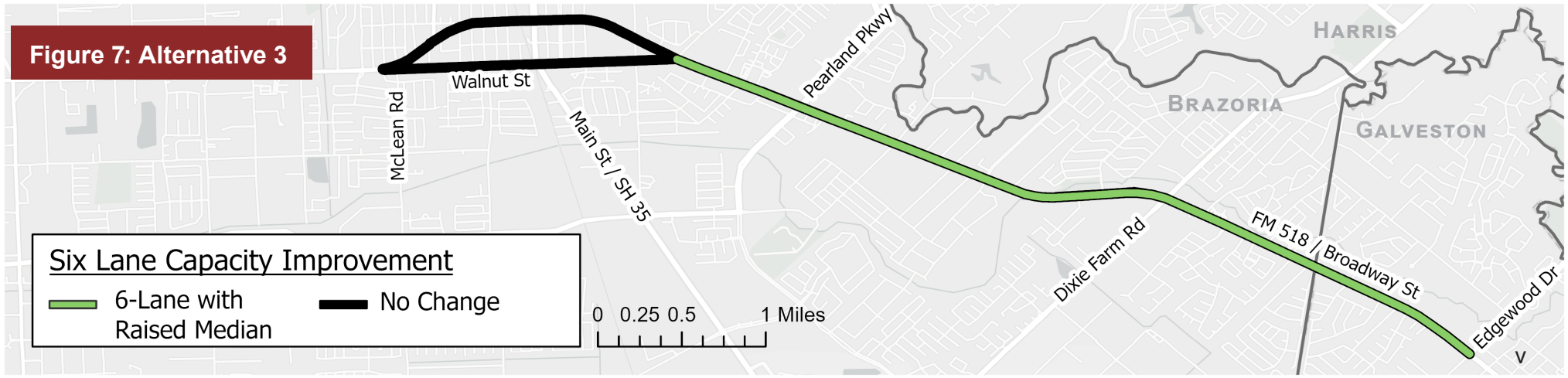


Figure 7: Alternative 3



Recommendations

General Recommendations

Safety Countermeasures

- Regular maintenance of pavement and striping
- Install intersection and street lighting
- Installation of retroreflective backplates
- Adjust clearance intervals as needed
- Implement leading pedestrian intervals
- Update for ADA accessibility

Multimodal Recommendations

- Pedestrian Signal Head with push button
- High Visibility Crosswalks
- ADA accessible ramps with tactile warning surfaces

All long term improvement alternatives include:

- Sidewalks: Six-foot in width, with a six-foot buffer, on the south side of the roadway.
- Side paths: Ten-foot in width, six-foot buffer, on the north side of the roadway

Intersection Recommendations

If the City of Pearland and TxDOT move forward with implementing the short- and medium-term intersection improvements, it is advisable that ROW be acquired and preserved where necessary to develop the additional turn lanes. Since each intersection improvement impacts the level of service at surrounding intersections, it is suggested to implement them all to fully realize the benefits.

Long-Term Recommendations

When comparing the results of the analysis, Alternative 1B, or the one-way pair of FM 518 (Broadway Street)/Walnut Street from McLean Road to Barry Rose Road and 6-lanes with a raised median on FM 518 (Broadway Street) from Barry Rose Road to E. Edgewood Drive, demonstrated the best results.

Table 1: Alternative Evaluation at A Glance

Alternative		Improvement in Safety	Improvement in Operation
1A	One Way Pair Scenario A	Yes	No
1B	One Way Pair Scenario B	Yes	Yes
2	Access Management (4-lanes)	Yes	Neutral
3	Six-Lane Capacity Improvement (with raised median)	Yes	Yes
-	No Build	No	No

Alternative 1B is recommended for long-term implementation out of the alternatives presented in this study. However, there are many other factors that influence the suitability of the alternative, and there are other potential improvements that can be analyzed for comparison to Alternative 1B.

Next Steps

The City of Pearland, along with TxDOT, will determine the appropriate course of action to pursue for the future of the corridor. This will require coordination, potential ROW acquisition, funding allocation and advancement in project delivery processes, whether for one of the alternatives presented in this study or studies to follow.