

Final Report

Fredericksburg Relief Route Study

Gillespie County, Texas

September 2020

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1.0 Introduction

The City of Fredericksburg and Gillespie County, in partnership with the Texas Department of Transportation (TxDOT), conducted the Fredericksburg Relief Route Study (the "Study") to evaluate the feasibility of constructing a United States Highway (US) 290 relief route around the City of Fredericksburg (the "Fredericksburg Relief Route"). The Study, which was initiated in early 2018, was overseen by the Gillespie County Relief Route Task Force (the "Task Force").

Existing US 290 is an east-west highway that passes through downtown Fredericksburg and its Main Street (US 290) tourist area. Discussions about a possible relief route have been ongoing in the Gillespie County area for many years. As traffic volumes and congestion continue to increase, the need for a relief route has become an important safety and quality-of-life issue for the community.

This Final Report documents the Fredericksburg Relief Route Study process and findings. The process included identification, development and evaluation of Route Options; identification of a Technically Preferred Route Option; and development of a preliminary design schematic for the Technically Preferred Route Option. Other aspects of the Study, also documented in this report, included public involvement and outreach as well as the preparation of Environmental Existing Conditions Reports, traffic modelling, and an historic resources survey.

2.0 Proposed Facility and Design Assumptions

If ultimately constructed, the Fredericksburg Relief Route would be operated by TxDOT as a U.S. Highway on the State Highway System. It would be constructed in compliance with federally required criteria for a multi-lane, rural highway. The Relief Route would be a controlled access, four-lane divided highway (two 12-foot-wide lanes in each direction) with 4-foot wide inside shoulders and 10-foot wide outside shoulders (a total pavement width of 38 feet in each direction of travel).

For planning purposes, it is assumed that directions of travel would be separated by a wide (grassy) center median. The wide median would both increase safety and accommodate slopes as needed for elevation differences between the directions of travel. Studies indicate that wider medians between directions of travel reduce the occurrence of head-on crashes and the severity of such crashes. Wider medians also reduce the effect that headlights have on the vision of drivers in the opposing direction. TxDOT design criteria call for a desirable median width of 76 feet for divided rural highways.

In addition, the highway would include frontage roads, where needed, for local access. Each frontage road would typically consist of two 12-foot lanes, a 4-foot inside shoulder and an 8-foot outside shoulder. Separation of 50 feet or more between the main lanes and frontage roads would be provided for increased safety and to accommodate access ramps to connect the main lanes to the frontage roads. Additional width of 30 to 40 feet to the outside of the frontage roads would accommodate drainage ditches and slopes for elevation differences between the pavement and adjacent existing ground.

The combination of these various design features of the proposed highway resulted in an (initial) right-of-way planning width of approximately 400 feet. Although a 400-foot-wide right-of-way was initially assumed, it is always TxDOT's goal to minimize project-related impacts. To that end, the "Study Team" (consisting of the engineering consultant and sub-consultants working through a contract with TxDOT) completed a preliminary assessment of frontage road and access needs for each of the route options. The goal of that assessment was to identify those locations where frontage roads would be anticipated to maintain access to adjacent properties and connectivity with the local roadway network. Right-of-way assumptions for each route option were then adjusted accordingly. In areas where frontage roads are anticipated on both sides of the roadway, a 400-foot-wide right-of-way is assumed (**Figure 1**). In areas were frontage roads are anticipated on only one side (**Figure 2**), a 325-foot-wide right of way is assumed. In areas were frontage roads are not anticipated, the right-of-way was reduced to 250-feet (**Figure 3**).

Figure 1: Conceptual Layout with Two Frontage Roads

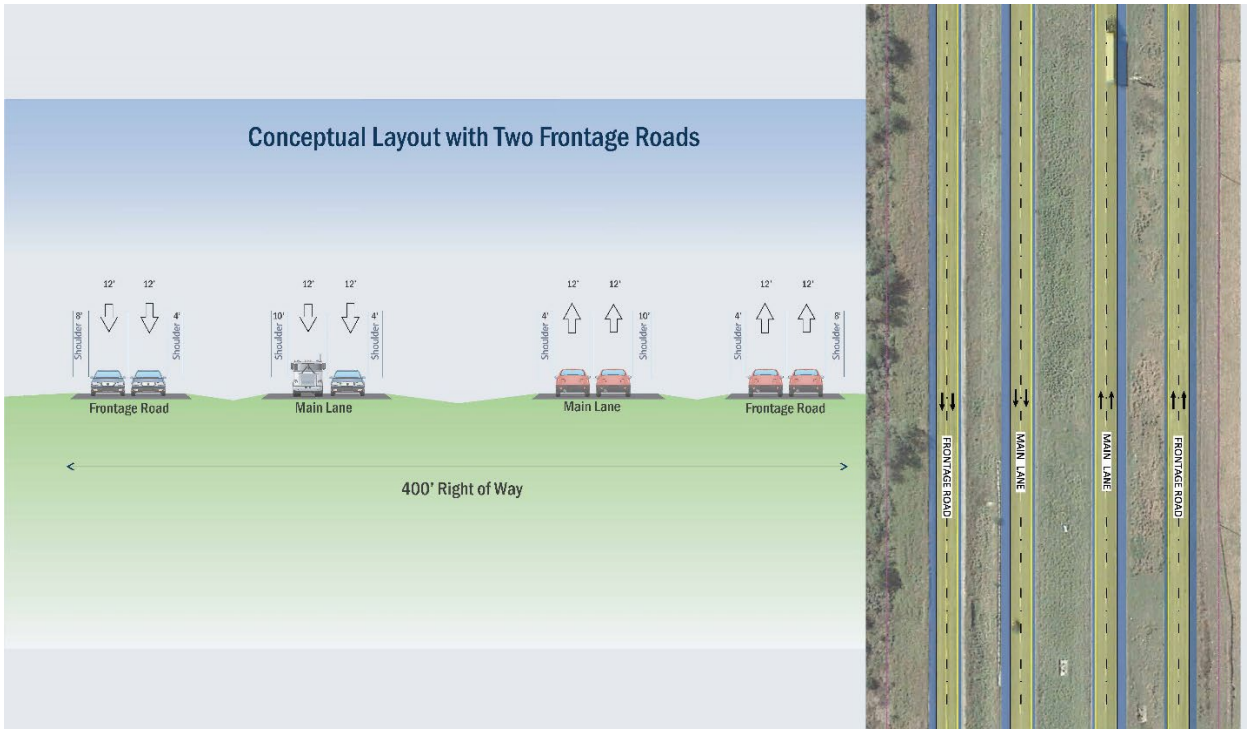


Figure 2: Conceptual Layout with One Frontage Road

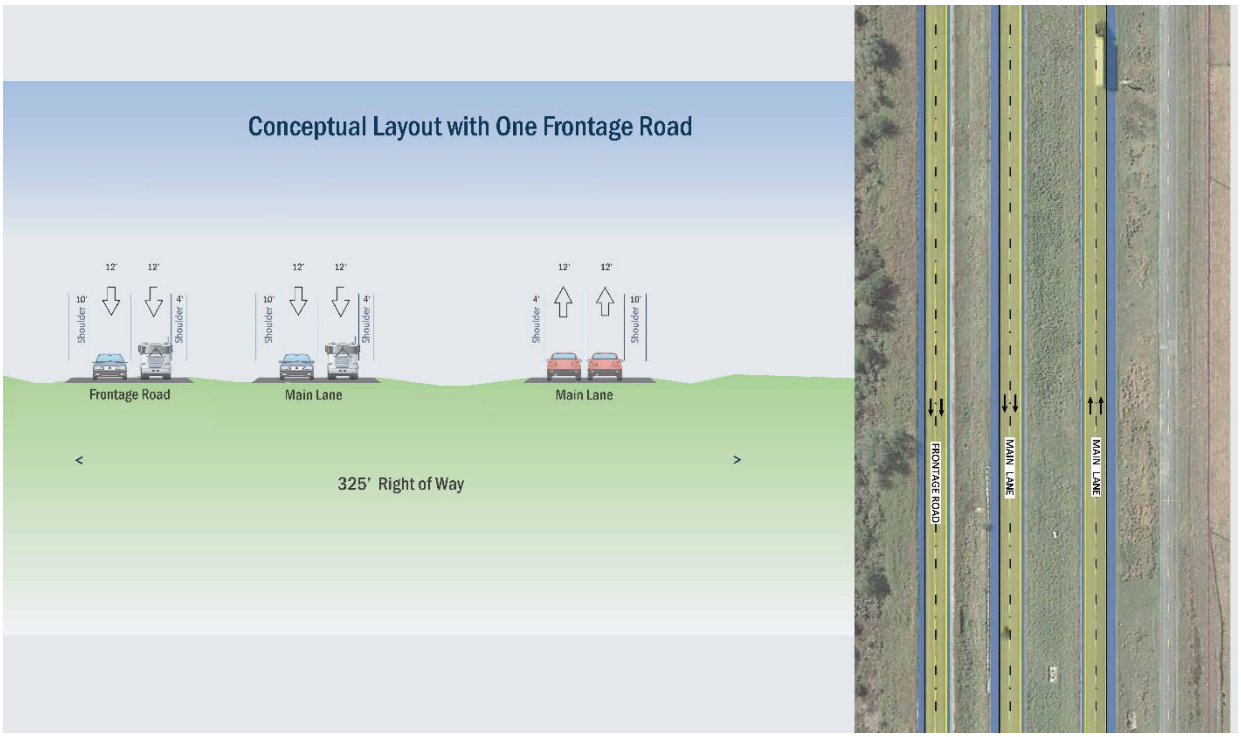
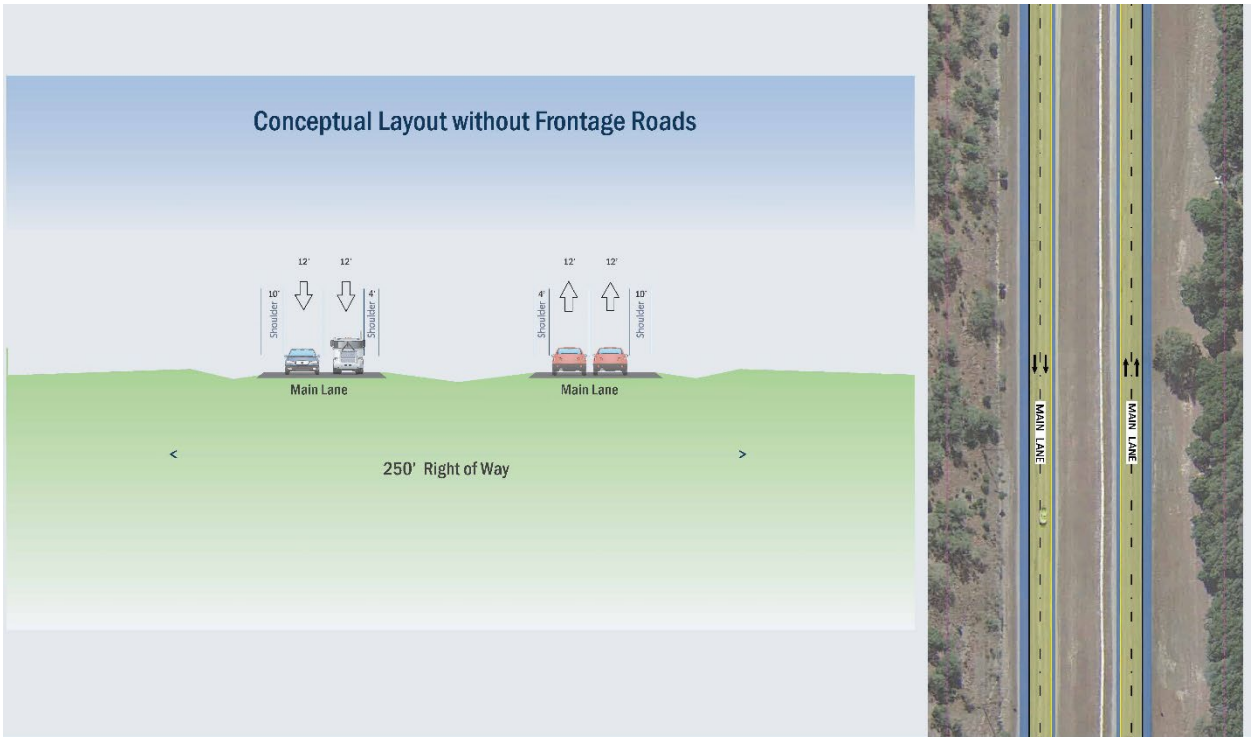


Figure 3: Conceptual Layout without Frontage Roads



3.0 Process Overview

3.1 Gillespie County Relief Route Task Force

From the beginning, the intent was for the Study to be community-driven; thus, the Study was overseen by the Gillespie County Relief Route Task Force. The Task Force, which was established in 2013, includes members appointed by the City of Fredericksburg, Gillespie County, Fredericksburg Chamber of Commerce, Gillespie County Economic Development Commission, Gillespie County Farm Bureau and the Fredericksburg Convention and Visitor Bureau. Members and their appointing organizations are listed in **Table 1**. The Task Force and Study Team met eight times during the course of the Relief Route Study. Meetings were held at key milestones and as necessary to keep the Task Force informed and engaged in the Study process. **Table 2** shows the dates of the meetings and topics discussed at each.

Table 1: Gillespie County Relief Route Task Force Membership

Name	Appointing Organization
Peggy Matli	Gillespie County Farm Bureau
County Commissioner Donnie Schuch	Gillespie County
County Commissioner Charles Olfers	Gillespie County
Cord Switzer	Gillespie County
Kory Keller	City of Fredericksburg
Mayor Linda Langerhans	City of Fredericksburg
Bobby Watson	City of Fredericksburg
Jim Jarreau	Fredericksburg Chamber of Commerce
Tim Lehmberg	Gillespie County Economic Development Commission
Larry Jackson	Fredericksburg Convention and Visitor Bureau

Table 2: Gillespie County Relief Route Task Force Meetings

Date	Topic
January 31, 2018	Reviewed Project History and Discussed Path Forward
March 28, 2018	Traffic Data, Goals and Objectives and Study area
August 20, 2018	Modified Goals and Objectives; Conceptual Route Options
November 15, 2018	Preliminary Route Options
March 6, 2019	Preliminary Route Options Modifications
June 25, 2019	Screen One Results; Identification of Primary Route Options
September 19, 2019	Project Updates
January 14, 2020	Screen Two Results; Identification of Technically Preferred Alternative

3.2 Public Outreach

Public outreach occurred at key milestones throughout the Study process. Outreach included three public workshops, two open houses, a downtown merchants meeting and an access workshop. Each outreach event is discussed below.

Public Workshop #1

May 31, 2018 (Hill Country University Center)

Public Workshop #1 served as the official public kick-off for the Relief Route Study. At this workshop, information about the Study and the need for a relief route was presented. The Study goals and objectives were presented for public review and comments. In addition, maps showing environmental and other constraints within the Study area were presented and attendees were asked to make route suggestions on the maps. Approximately 425 people attended the workshop 108 comments (letters, emails, completed comment forms) were received, and 186 online survey responses were submitted.

Downtown Merchants Meeting

September 18, 2018 (Pioneer Museum Sanctuary, Gillespie County Historical Society)

The Downtown Merchants Meeting was held to gather input about the project from Main Street merchants and property owners. The purpose of the meeting was to provide attendees with an interactive opportunity to learn more about the study and provide suggestions regarding Main Street safety; strategies for promoting tourism; preserving historic sites; and planning for the relief route around the city. Approximately 32 people attended the meeting and 75 comments (letters, emails, completed comment forms) were received.

Public Workshop #2

September 24, 2018 (Fredericksburg High School)

Public Workshop #2 provided a forum for the public to learn more about the Relief Route Study, view and provide comments on the "conceptual route options" (developed from suggestions received during the first public workshop), and see how public input was used to refine the Study's goals and objectives. Approximately 272 people attended the workshop, 113 comments (letters, emails, completed comment forms) were received, and 310 online survey responses were submitted.

Public Workshop #3

January 24, 2019 (Pioneer Museum Sanctuary, Gillespie County Historical Society)

Between Public Workshops #2 and #3, the range of route options under consideration was narrowed to a set of eight "preliminary route options." Workshop #3 included a presentation documenting the process which led to identification of the eight preliminary route options. The public was again asked to provide input regarding the potential relief route and, specifically, regarding the preliminary route options. Approximately 430 people attended the workshop, 276 comments (letters, emails, completed comment forms) were received, and 1,298 online survey responses were submitted.

Public Open House #1

July 23, 2019 (Pape Event Center, Gillespie County Farm Bureau)

Public Open House #1 focused on the results of the initial ("Screen One") evaluation of the route options and the resulting five "primary route options." Attendees were asked to provide input on the primary route options through an online survey, by leaving suggestions and comments on maps and by submitting comment forms. Approximately 494 people attended the open house, 344 comments (letters, emails, completed comment forms) were received, and 1,358 online survey responses were submitted.

Access Workshop

September 19, 2019 (Pape Event Center, Gillespie County Farm Bureau)

The Access Workshop was held to provide interested members of the public with an opportunity to learn more about the project and discuss the need for access along the relief route. Attendees worked in small groups to develop recommendations about access and identify suggested locations for overpasses, entrance points and exit points along the relief route. Recommendations were considered by the Study Team as the project was developed further and the preliminary design schematic was developed. Approximately 70 people attended the meeting.

Public Open House #2

January 14, 2020 (Pape Event Center, Gillespie County Farm Bureau)

Public Open House #2 focused on the results of the second ("Screen Two") evaluation of the route options and the resulting "technically preferred route option." Attendees were asked to provide input by leaving suggestions and comments on maps and submitting comment forms. Approximately 450 people attended the open house and 103 comments (letters, emails, completed comment forms) were received.

3.3 Goals and Objectives

At the January 31, 2018, Task Force meeting, the Study Team gathered input from the group regarding issues of importance to the community and priorities to be considered during the planning process. Using that input, the Study Team developed draft goals and objectives. The draft goals and objectives were presented to the Task Force at its March 28, 2018 meeting. At that meeting, the Task Force reviewed and made modifications to the goals and objectives. The draft goals and objectives, as modified by the Task Force, were then presented to the public for review and comment at Public Workshop #1 on May 31, 2018.

Comments received from the public were considered by the Study Team and, when appropriate, modifications were made to the relief route goals and objectives. The modified goals and objectives were presented to the Task Force at its August 20, 2018, meeting. The Task Force concurred with the modifications and officially adopted the goals and objectives. The goals and objectives were a foundational element of the study process as they became the basis on which the evaluation criteria were later developed.

Table 3 shows the goals and objectives as adopted by the Task Force on August 20, 2018.

Table 3: Relief Route Goals and Objectives

Goals	Objectives
Protect and Preserve Property	Minimize potential displacements (residential and commercial)
	Minimize number of divided parcels
	Minimize right of way required
	Minimize potential for noise and neighborhood impacts
Enhance Accessibility and Mobility	Facilitate local (intracity) trips
	Accommodate bicyclists
Accommodate Existing and Projected Traffic Volumes	Reduce volume of trucks using Main Street to travel through downtown
	Help reduce congestion on Main Street
	Accommodate projected increases in traffic
Enhance Safety	Reduce number of large trucks on Main Street
	Reduce potential for vehicular/pedestrian conflicts on Main Street
Support Economic Development	Minimize negative impacts to existing businesses
	Maintain accessibility for deliveries to businesses
	Support “new growth” opportunities
Preserve Unique Character of Downtown	Maintain Main Street as a tourist destination and business center
	Reduce traffic noise
	Protect historic resources from residual effects of traffic
Protect and Preserve Environmental Resources	Minimize potential impacts to Environmental Justice populations
	Minimize potential impacts to natural environmental features
	Minimize potential impacts to protected species
	Minimize impacts to parks and other known Section 4(f) facilities including historic properties

3.4 Environmental Mapping and Reports

Environmental Constraints Map

Early in the study process, using online and publicly available data sources, the Study Team developed an environmental constraints map. The map showed land use (including public parks, known historic sites, churches, cemeteries, schools, and governmental and civic facilities) and natural features (such as creeks, rivers, waterways, and habitat for protected species). The map was produced on an aerial photograph of the study area, so homes, businesses and other structures were readily identifiable. The map was ground-truthed to identify major discrepancies and obvious omissions in the data sources. The map covered the entirety of the Study area. The constraints map was used throughout the study process as a tool for collecting data and public input. The map was also used by the Study Team to solicit route suggestions from the public.

Environmental Existing Conditions Reports

In conjunction with the Relief Route Study, a series of reports was prepared documenting existing environmental conditions within the study area. An Environmental Summary Report was prepared in May 2020. Reports included:

- Ecological Resources Existing Conditions Report – December 2019
- Hazardous Materials Existing Conditions Report – December 2019
- Community Resources Existing Conditions Report – November 2019
- Cultural Resources Background Study – November 2019

3.5 Study Area

One of the first steps in the Study process was to identify the recommended limits of the potential relief route and identify a study area. A preliminary computer-based (origin and destination) traffic analysis (see **Appendix A**) revealed that nearly twice as many vehicles would use a relief route connecting US 87 north of Fredericksburg to US 290 east of Fredericksburg if the route is located south (rather than north) of town. The (original) study area was established accordingly and is shown in **Figure 4**. The route development process, described in **Section 3.6**, resulted in an expansion of the study area. The expanded study area is shown in **Figure 5**.

Figure 4: Original Study area Map

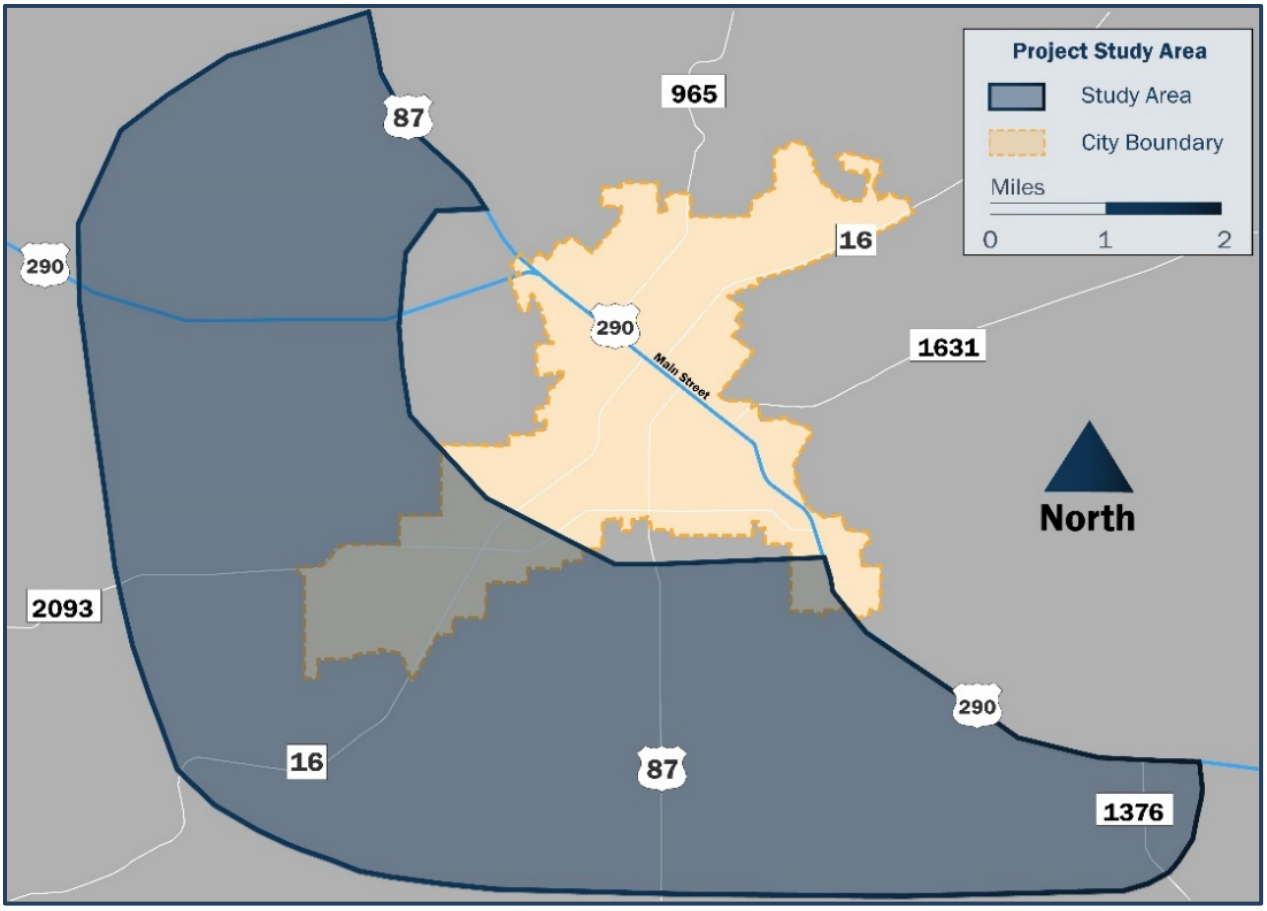
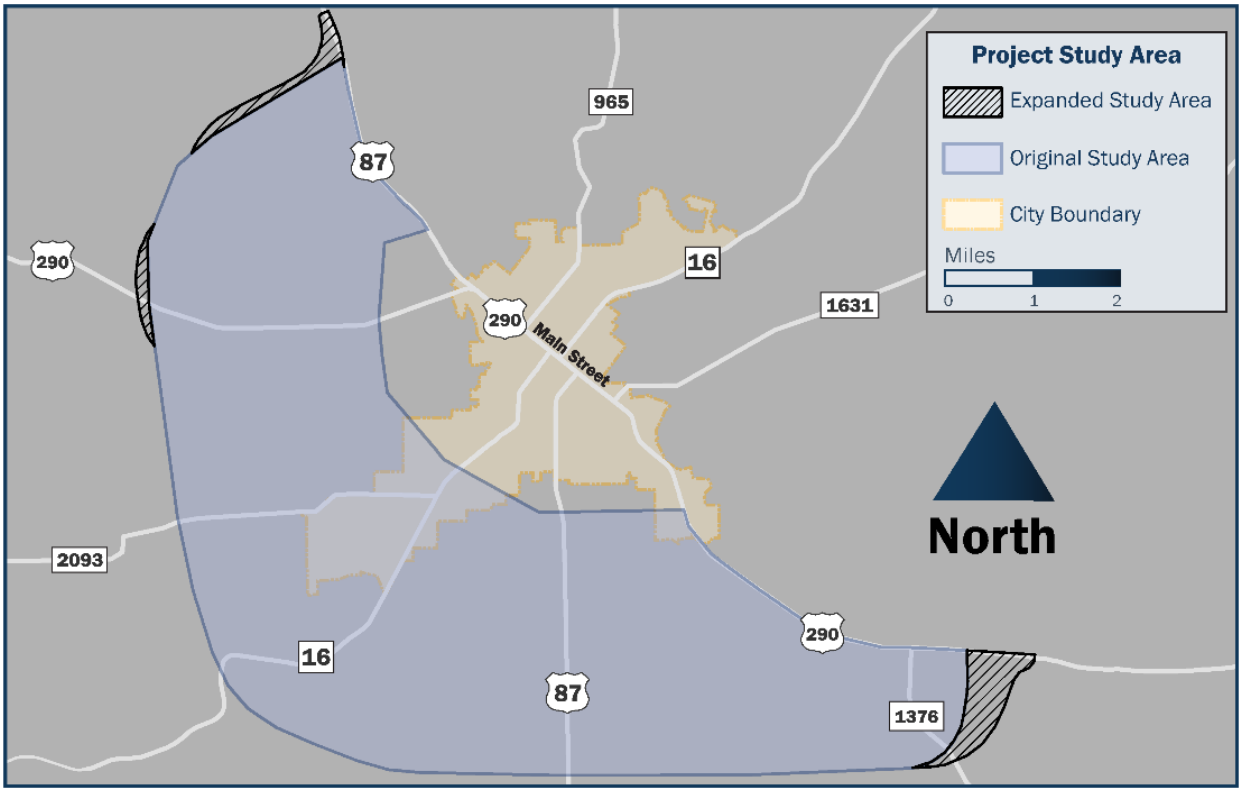


Figure 5: Expanded Study area



3.6 Route Options Development

A multi-step process was used to identify and develop the route options for the Fredericksburg Relief Route and, subsequently, identify the Technically Preferred Route Option. At each step, concurrence of the Task Force was obtained, and public input and feedback was solicited.

a. Conceptual Route Options

Attendees at the May 2018 public workshop were asked to provide route suggestions on large-scale versions of the constraints map. In addition, attendees were asked to identify constraints that were not already reflected on the maps. **Figures 6-8**, below, are a representative sampling of the route suggestions (with yellow highlighting added for ease of identification) and input received from the public. **Figure 9** shows a compilation of all suggested route options.

Figure 6: Route Suggestions and Comments

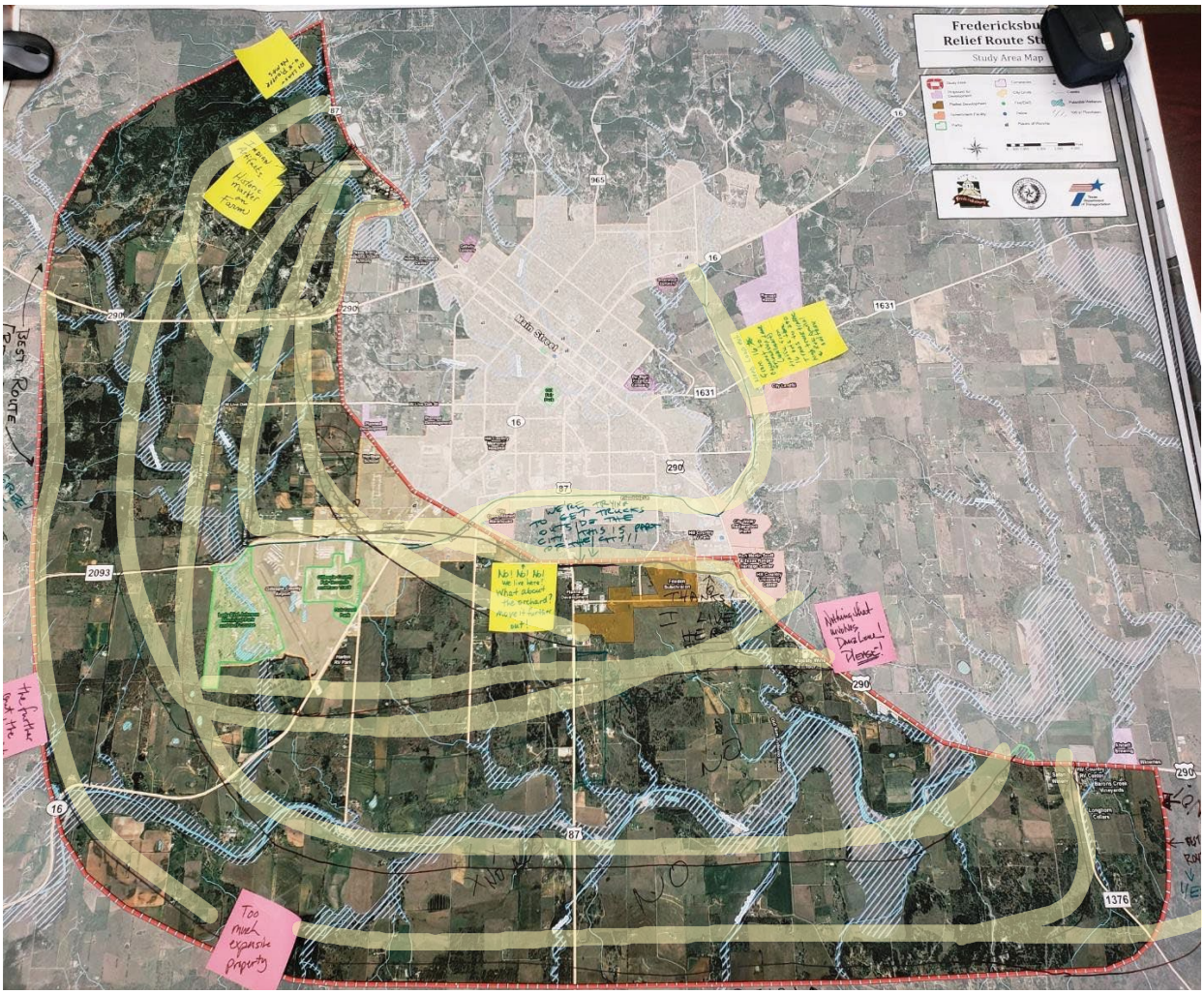


Figure 7: Route Suggestions and Comments



Figure 8: Route Suggestions and Comments

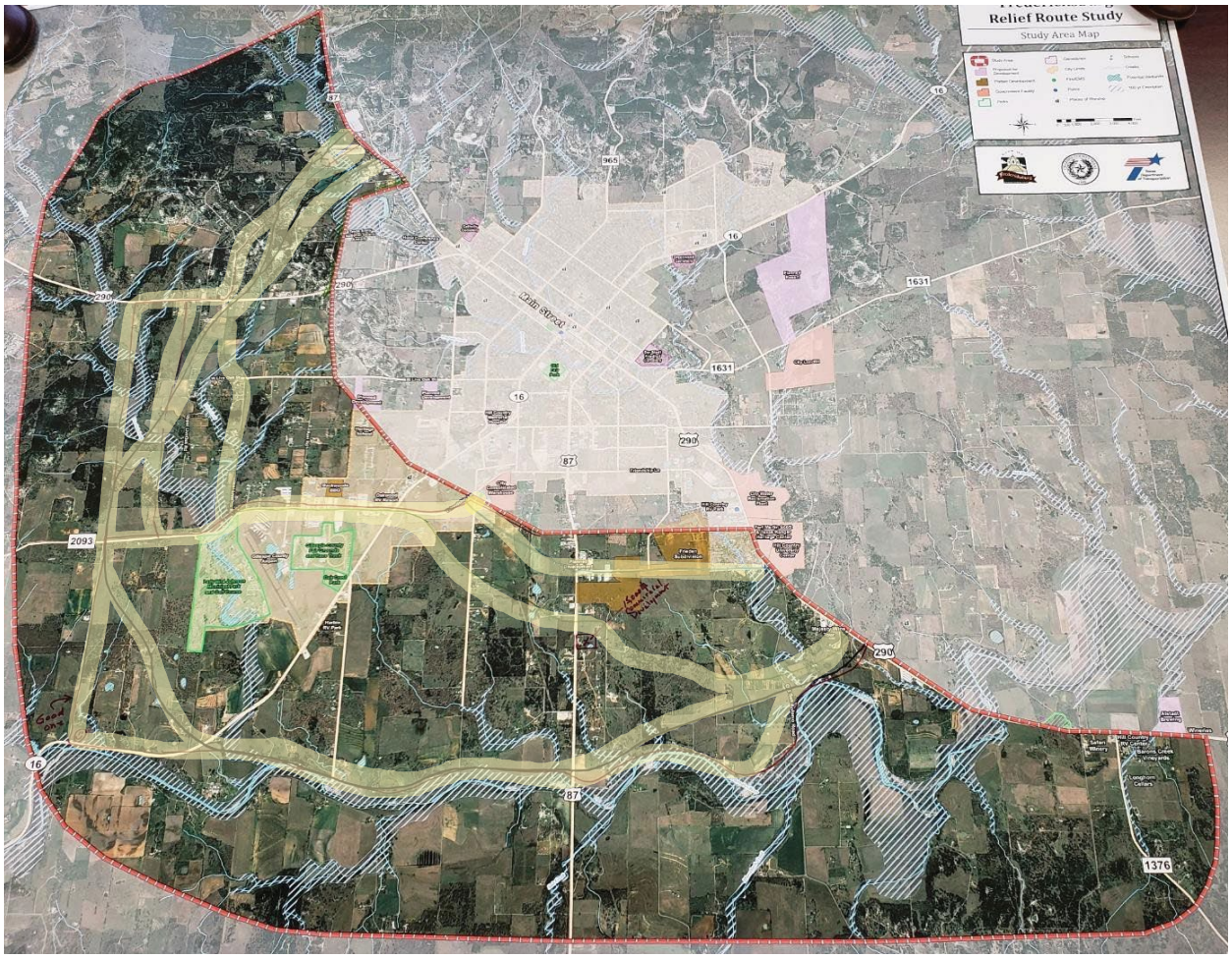
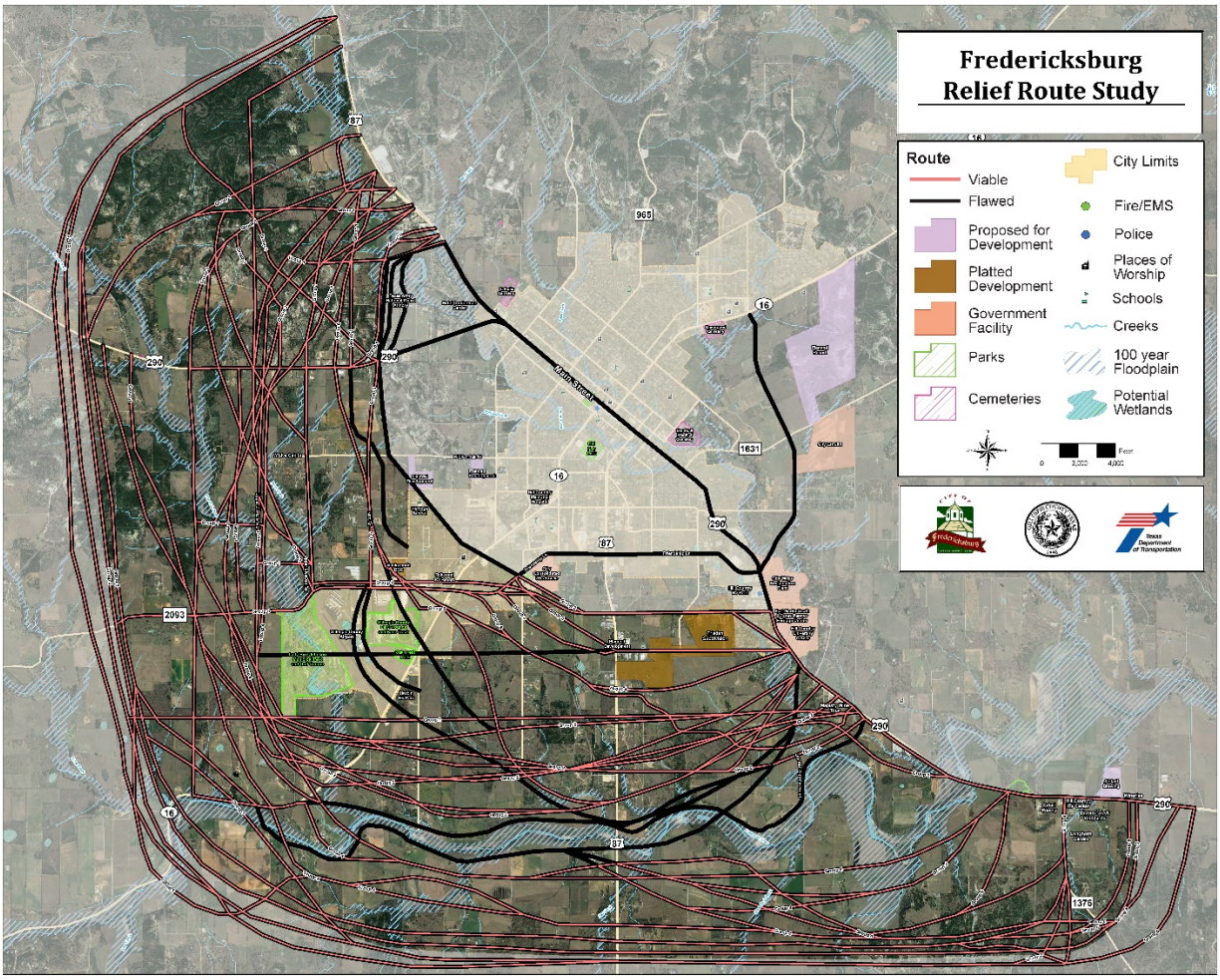


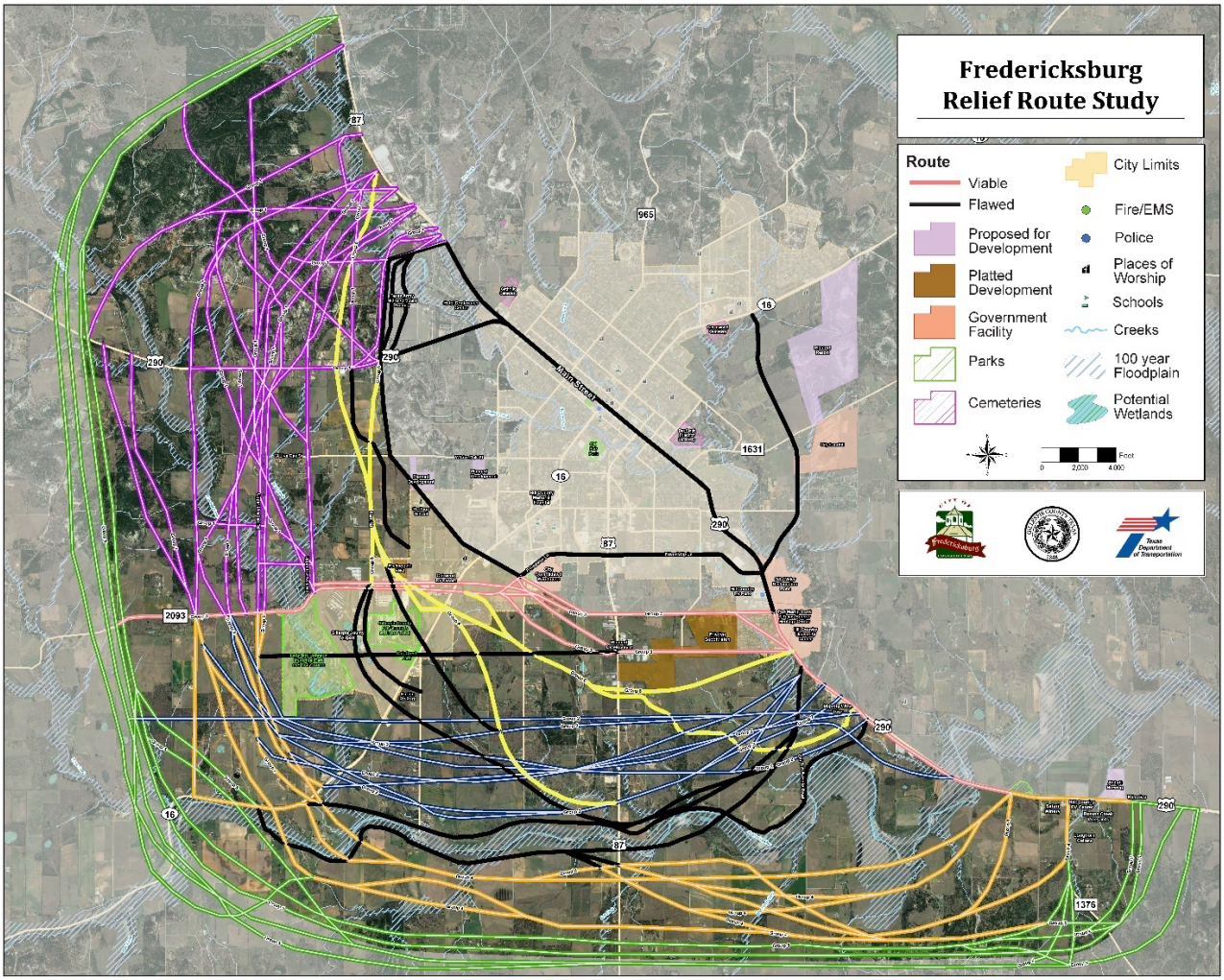
Figure 9: All Route Suggestions



Next, the Study Team identified route suggestions that were fatally or severely flawed. Examples of fatally flawed routes were those that impacted the park, fairgrounds or airport. The severely flawed group included routes that meandered along the river and would result in greater impacts to floodplains and waterways, requiring more structures. In addition, the Study Team identified routes that were non-compliant with the Study's guiding principles (reflected in the facility and design assumptions described in **Section 2.0**) as agreed upon by TxDOT, the City and County prior to initiation of the Study. The non-compliant routes included routes utilizing Friendship Lane and Main Street. The fatally flawed, severely flawed and non-compliant routes, which are shown in black on **Figure 9** (above) and **Figure 10** (below), were eliminated from further consideration.

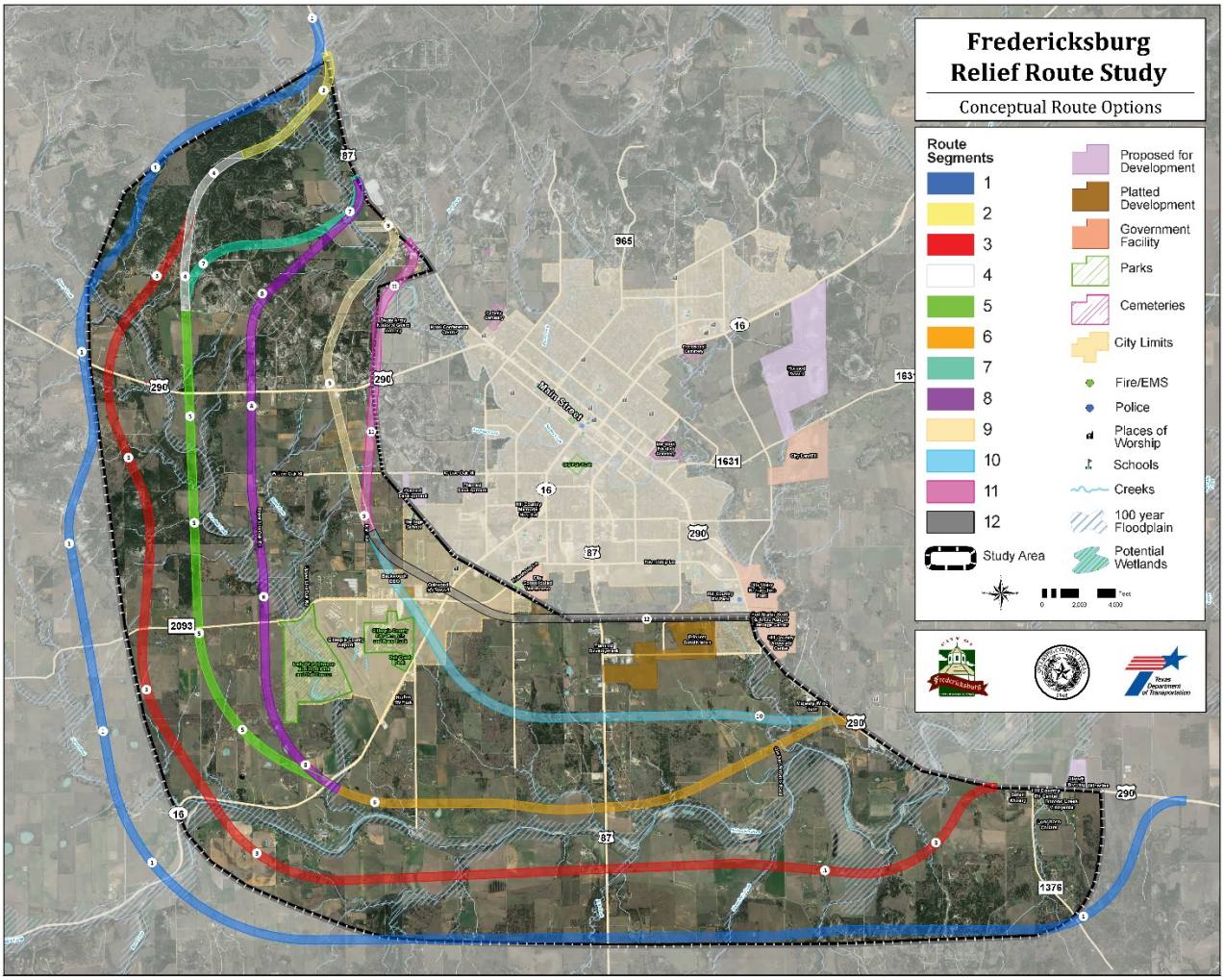
The Study Team then looked for geographic commonalities within the remaining route options. Six themes – or six groupings of similar ideas – were identified. Each group is shown in a different color on **Figure 10**.

Figure 10: Grouped Public Route Suggestions



The next step in the route identification process was to develop a representative route for each of the six groups. At this point, engineering requirements were considered (such as design speed and maximum curvature) and, when possible, efforts were made to minimize impacts by avoiding structures, following existing property lines and minimizing impacts to creeks, floodplains and natural resources. As reflected in **Figure 11**, the six groups were subdivided into 12 distinct segments with common begin/end points. This approach ensured flexibility by allowing the segments to be mixed-and-matched into numerous configurations. The 12 segments were referred to as the "Conceptual Route Options."

Figure 11: Conceptual Route Options



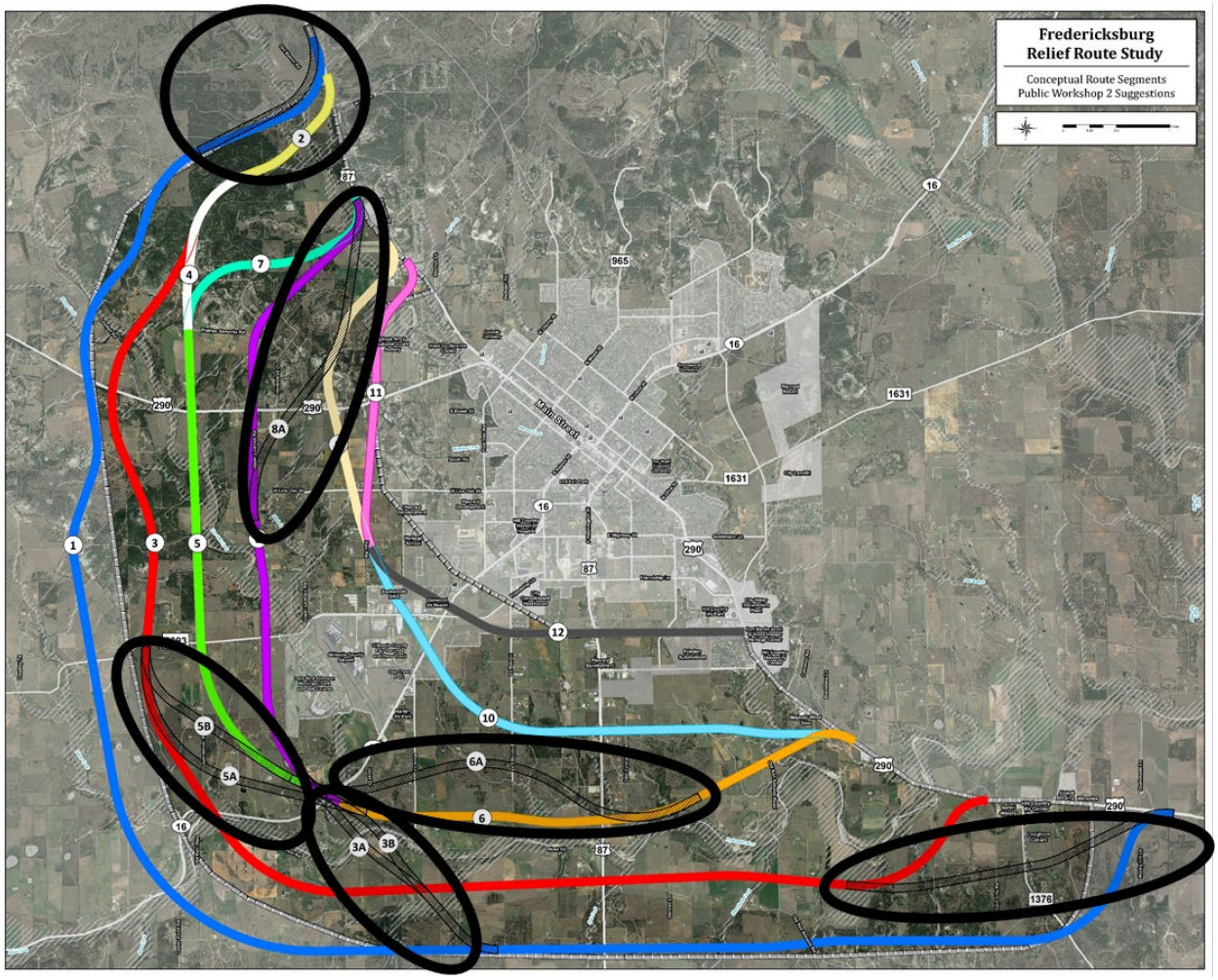
b. Preliminary Route Options

The Conceptual Route Options (segments), shown above, were the primary focus of the public workshop held on September 24, 2018. Input and suggestions received in conjunction with the public workshop led to modification of some Conceptual Route Options, elimination of several options, and, in some cases, adjustments to those that remained.

Route Modifications

At the September 2018 Public Workshop, attendees suggested modifications to the Conceptual Route Options at six locations. The suggested modifications are shown as black hatched lines (and circled) on **Figure 12.**

Figure 12: Suggested Modifications to the Conceptual Route Options

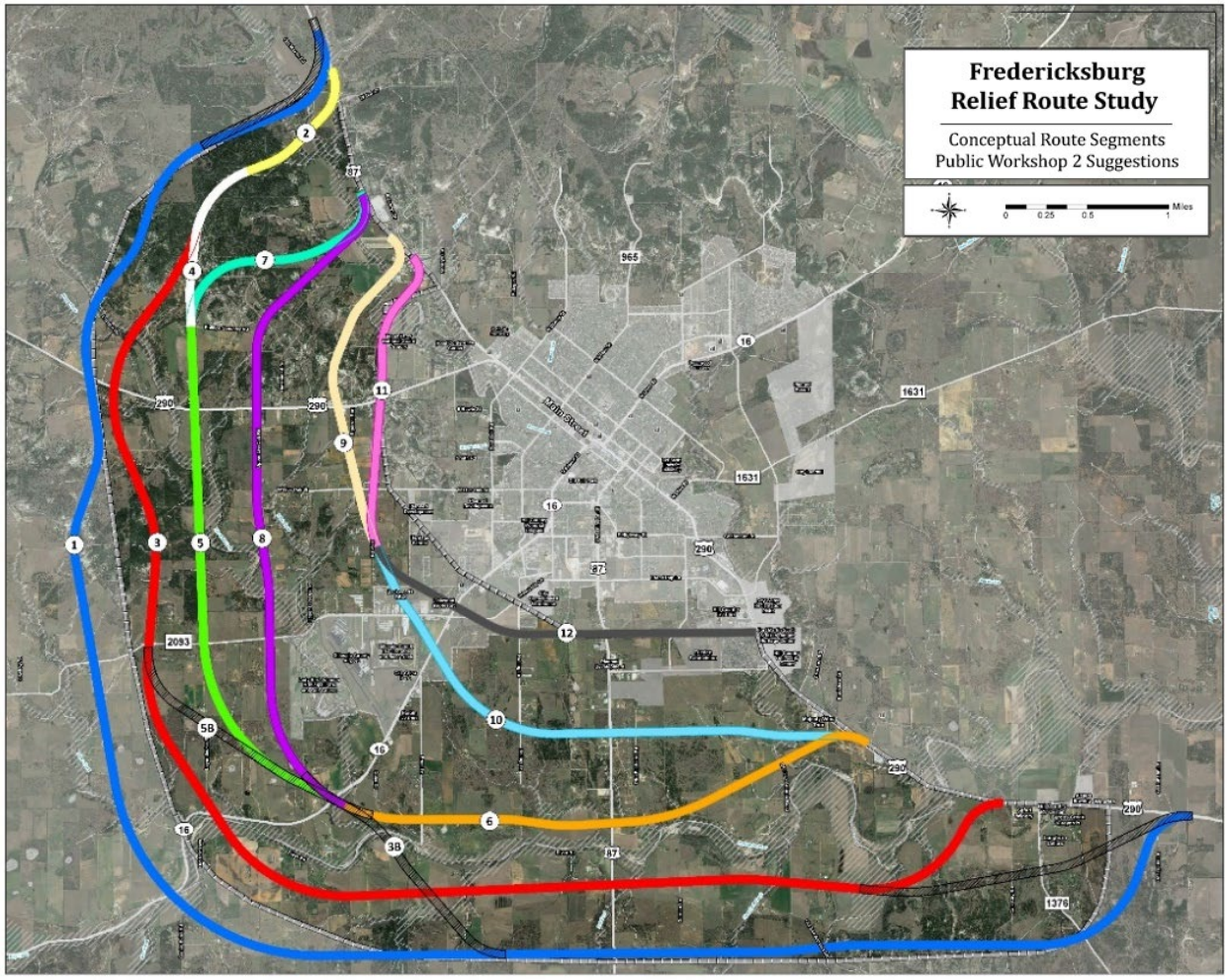


Following the public workshop, each of the suggested modifications was evaluated by the Study Team. When evaluating the suggested modifications, the Study Team considered the number of affected land parcels, number of bisected parcels, number of displacements and other factors. Generally, when a suggested modification resulted in fewer impacts than the original route, the modification was made. When the suggested modification resulted in increased impacts, the original route was retained. The following modifications to the Conceptual Route Options were made in response to public suggestions:

- Blue Route (Route Segment #1) was modified to avoid an airstrip south of US 87 (north);
- On the east end, a new connection to US 290 (east) was added between the Red Route (Route Segment #3) and the Blue Route (Route Segment #1);
- A connection between the Red (Route Segment #3) and Blue (Route Segment #1) routes, south and east of SH 16, and the more-central routes were added; and
- In the area between FM 2093 and SH 16, a connection was added from the Purple (Route Segment #8) and Green (Route Segment #5) routes to the Red Route (Route Segment #3).

Figure 13 shows the post-public workshop Conceptual Route Options as modified and approved by the Task Force at its November 15, 2018 meeting.

Figure 13: Post-Public Workshop #2 Conceptual Route Options



Eliminations

The Study Team then considered written comments (comment forms, letters and emails) and survey results to assess the level of public support or opposition to the various Conceptual Route Options. Based on public input, six route segments were eliminated and six were retained for further consideration.

Eliminated from Consideration:

- Yellow (Route Segment #2)
- Red (Route Segment #3)
- White (Route Segment #4)
- Green (Route Segment #5)
- Aqua (Route Segment #7)
- Purple (Route Segment #8)

Retained for Further Consideration:

- Blue (Route Segment #1)
- Orange (Route Segment #6)
- Tan (Route Segment #9)
- Lt. Blue (Route Segment #10)
- Pink (Route Segment #11)
- Gray (Route Segment #12)

Route Adjustments

Subsequent to the September 2018 Public Workshop, the Study Team recommended adjustments to two of the retained route options: Orange Route (Route Segment #6) and Blue Route (Route Segment #1).

Although, as discussed above, the Red Route (Route Segment #3) was eliminated from consideration based on public input, the Study Team recommended that a portion of the Red Route, south of US 290, be used to connect the Orange Route to the outer most route (Blue Route); thereby, maintaining the viability of the Orange Route. Because most of the opposition to the Red Route was directed toward the area north of US 290 (the Settler's Ridge Subdivision area), this recommendation was deemed to be consistent with the spirit and intent of the public input regarding the Red Route. The portion of the Red Route recommended as a connection between the Orange Route and the Blue Route was located south of US 290 and away from the area of greatest concern to the public.

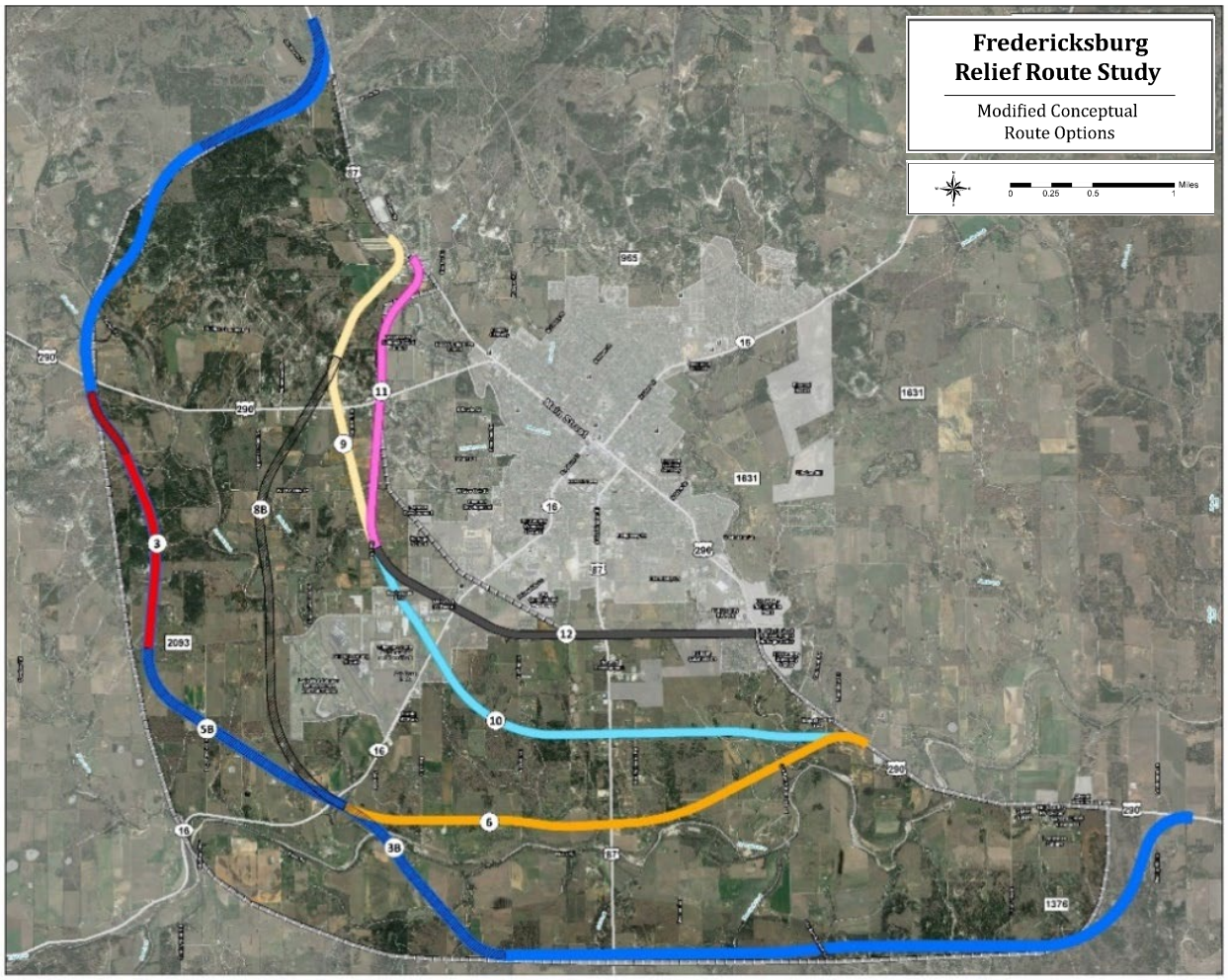
The second adjustment recommended by the Study Team pertained to the Blue Route. Throughout the Study process, comments were received from the public encouraging efforts to minimize cost and the amount of right-of-way that would be required. Because the Blue Route was largely located outside of the Study area, its length, right-of-way requirements and cost were affected. The Study

Team recommended that a large portion of the Blue Route be shifted inward; thereby, reducing its length, cost and right-of-way requirement.[1]

At its meeting on November 15, 2018, the Task Force agreed that the adjustments recommended by the Study Team, as discussed above, were consistent with the spirit and intent of the public input; thus, the Task Force concurred with the adjustments. In addition, to maintain flexibility in the planning process (preserving an option west of Lady Bird Johnson Municipal Park, the Gillespie County Fairgrounds and the Gillespie County Airport), the Relief Route Task Force elected to provide a connection from the Orange Route (Route Segment #6) to the Tan Route (Route Segment #9) – the inner route east of the Settler's Ridge Subdivision.

Figure 14 shows the Conceptual Route Options (segments) that were retained, as adjusted.

Figure 14: Remaining Conceptual Route Options, as modified

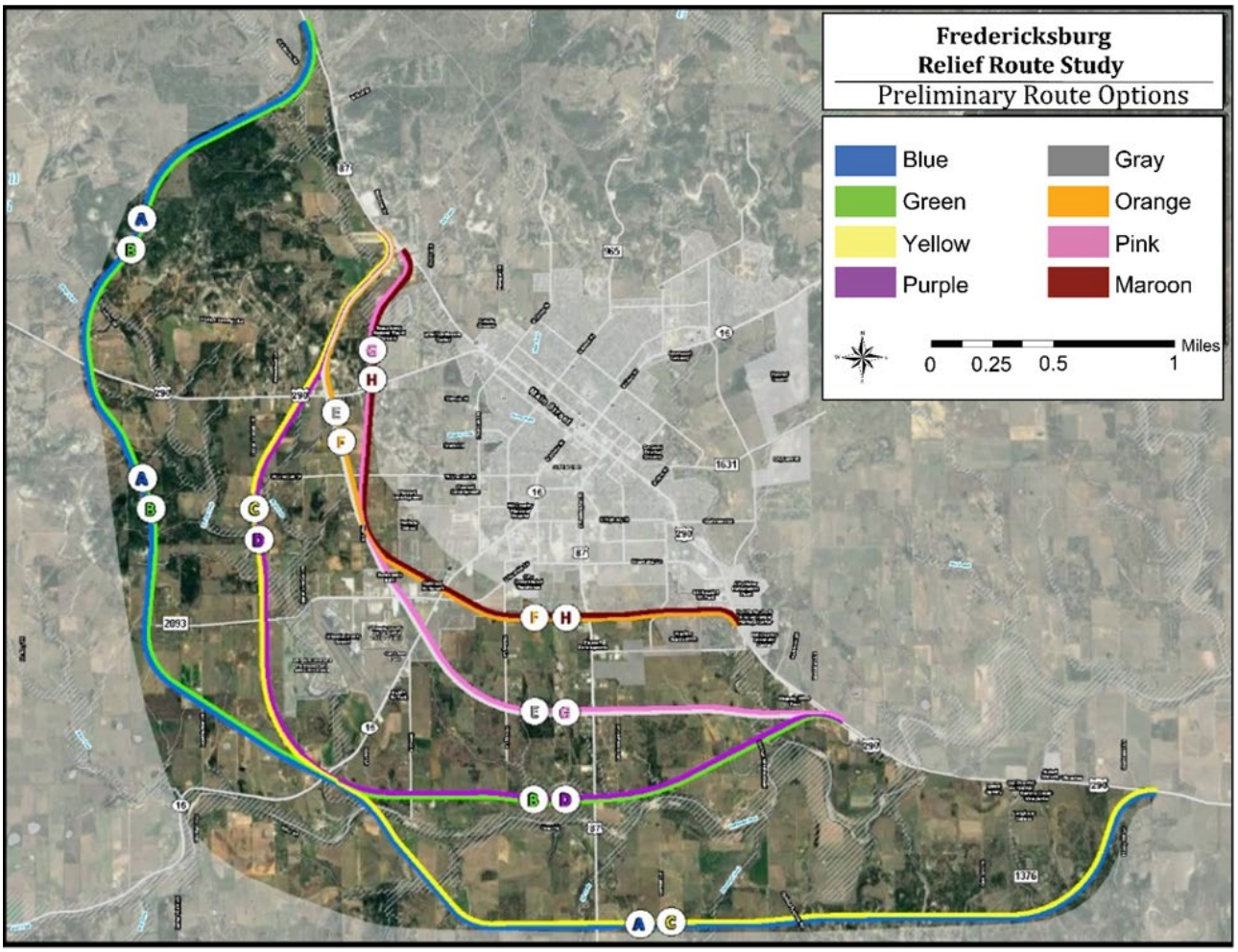


[1] Even after this adjustment, portions of the Blue remained outside of the Study area. For that reason, the Study area was expanded – see **Figure 5.**

Identification of Preliminary Route Options

When considering all possible combinations of the modified Conceptual Route Options (segments), eight end-to-end route options were created. These eight route options, referred to as the "Preliminary Route Options" are shown in **Figure 15**. For ease of reference, each of the Preliminary Route Options was assigned a distinct color and letter indicator. The Preliminary Route Options were presented for public review and comment at a Public Workshop held on January 24, 2019. Attached to this report is a copy of the presentation from the Public Workshop (**Appendix B**). The presentation contains additional detail about the process that led to identification of the Preliminary Route Options.

Figure 15: Preliminary Route Options

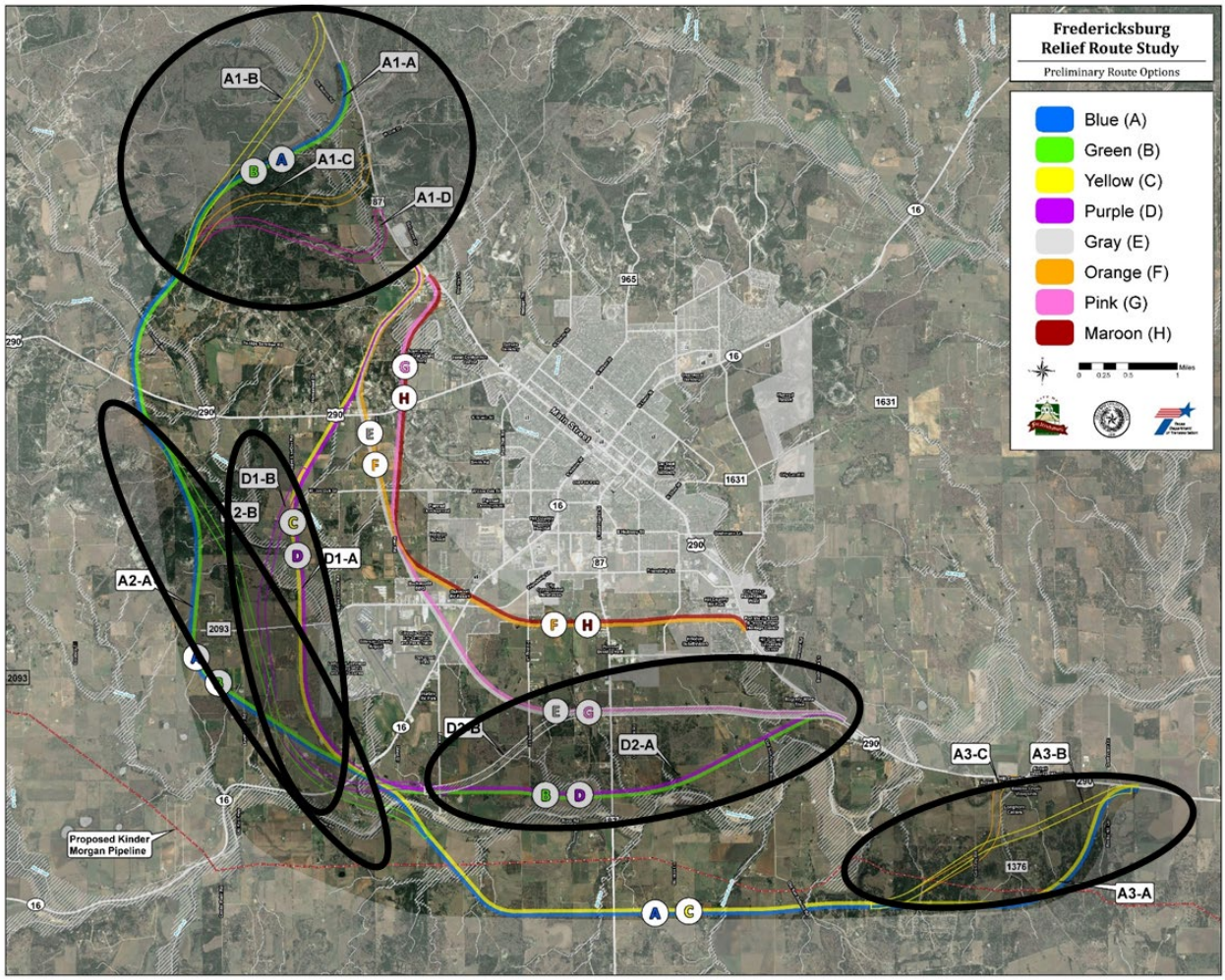


Preliminary Route Options Modifications

During the Public Workshop on January 24, 2019, suggestions for route modifications affecting five areas were received. The suggested modifications are circled on **Figure 16**. The Study Team evaluated each of the suggested modifications, considering factors such as the amount of ROW required, number of impacted parcels, and number of displacements, among others. The Study

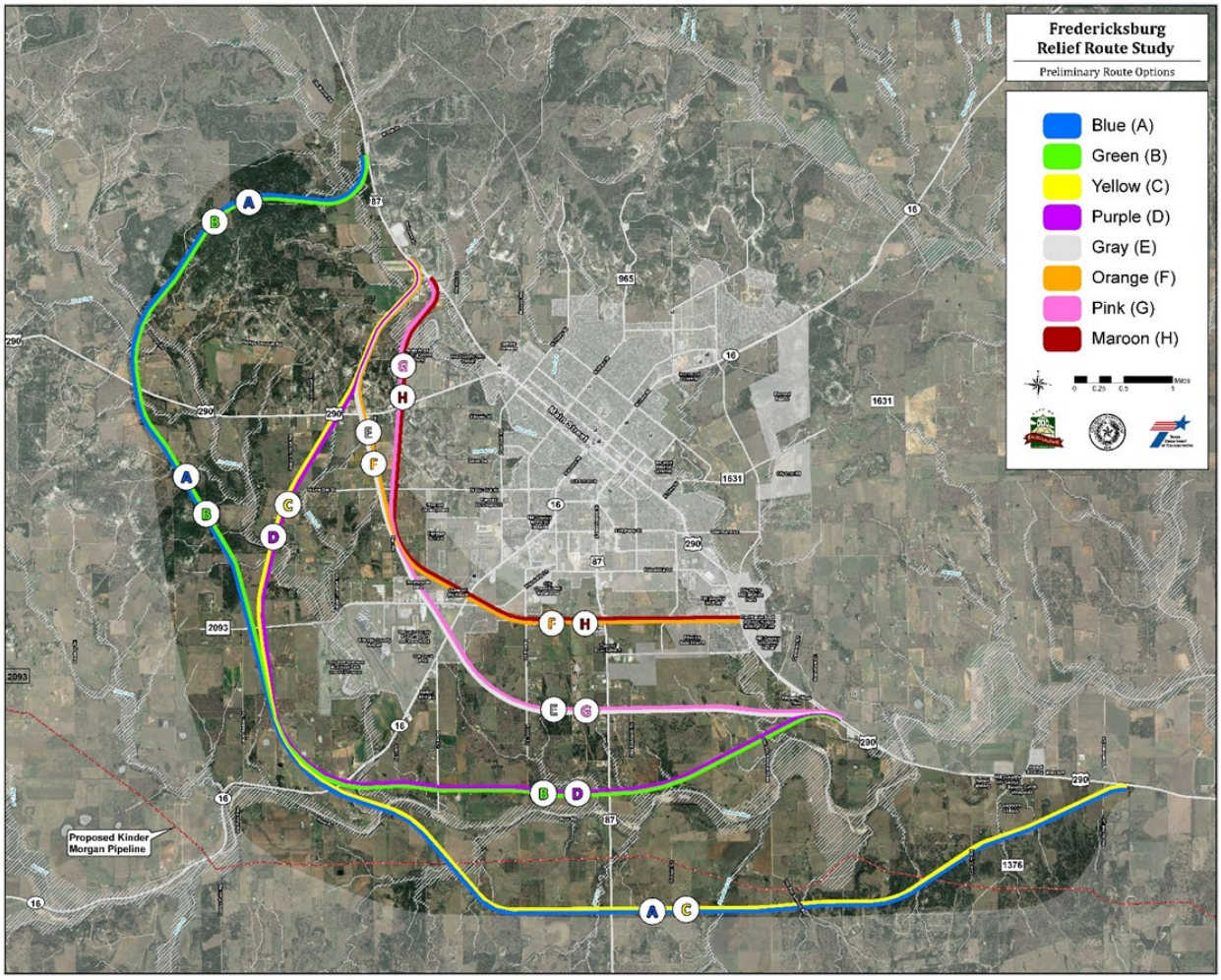
Team presented its findings and recommendations to the Task Force at its meeting on March 6, 2019, and the Task Force concurred with the Study Team recommendations.

Figure 16: Suggested Modifications to the Preliminary Route Options



The Preliminary Route Options, as modified, are shown in **Figure 17**. The modified Preliminary Route Options were advanced to the screening and evaluation process.

Figure 17: Modified Preliminary Route Options



c. Screening Process

A two-stage process was used to screen the route options. During each screen, raw data was collected to assess the potential effects of each route option. The raw data was then assigned a score.

Screen One was used to compare, contrast and evaluate the eight Preliminary Route Options. Screen One scores led to the identification of five "Primary Route Options." During Screen Two, the Primary Route Options were evaluated in greater detail. A Screen Two score was calculated for each of the Primary Route Options. The route option with the lowest (best) overall score at the end of Screen Two was identified as the Technically Preferred Route Option.

Criteria used during the screening process directly correlates to the goals and objectives, adopted by the Task Force, and vetted publicly (see **Table 3**).

The following sections will go into more detail on the screening process.

Access Assumptions and Cost Estimates

Access and cost were important considerations in the planning and route evaluation process. Concerns about access, costs and the tax implications of funding the Relief Route, were frequently voiced by the public. Access and costs are interrelated as access along controlled access facilities, such as the potential Relief Route, is generally provided via frontage roads. Frontage roads increase the cost of a project both in terms of right-of-way (land) costs and construction cost (the cost of constructing the additional lanes). To address these issues and better inform the decision-making process, the Study Team performed a preliminary assessment of access needs and developed preliminary construction cost estimates.

The purpose of the preliminary assessment of access needs was to identify those locations were frontage roads and/or bridges (overpasses or underpasses) would likely be required to maintain existing access and roadway network connectivity. In some areas, particularly in the more developed areas closer to Fredericksburg, the preliminary assessment revealed that frontage roads would likely be required on both sides of the roadway. In other areas, frontage roads would likely be needed on only one side of the roadway. While, in still other areas, frontage roads would not be necessary. **Figures 1, 2** and **3** depict these various frontage road scenarios.

To gather public input on the access assumptions and better understand the public's desires and priorities regarding access, a Public Access Workshop was held on September 19, 2019. Input received from the public generally validated the results of the preliminary assessment of access needs conducted by the Study Team. The acreage of right-of-way needed for each of the Preliminary Route Options, as reported during the Screen One evaluation, reflects the frontage road/access assumptions developed by the Study Team.

Preliminary construction cost estimates were developed for each of the Preliminary Route Options. The cost includes the construction of two main lanes in each direction and frontage roads as identified during the preliminary assessment of access needs. Grade separated interchanges with access to/from the Relief Route using a conventional "diamond" ramp configuration were assumed at US 290 (west), FM 2093, SH 16 and US 87 (south). Interchanges with direct connectors ("flyovers") to/from the Relief Route were assumed at US 290 (east) and US 87 (north). Bridges (grade separations with no access to/from the Relief Route) were assumed at Armory Road/Royal Oaks Lane, W Live Oak Street, Boos Lane, Holmig Lane, Old San Antonio Road, Danz Lane and Hillvew Lane, except when a route options provided frontage road access to these streets. As shown in **Table 4**, the preliminary construction cost estimates range from a low of $224.9 million for Preliminary Route Option F to a high of $334.6 million for Preliminary Route Option A.

Table 4: Preliminary Cost Estimate

	Route A (Blue)	Route B (Green)	Route C (Yellow)	Route D* (Purple)	Route E* (Gray)	Route F* (Orange)	Route G* (Pink)	Route H* (Maroon)
Preliminary Cost (millions)	334.6	288.3	313.8	266.8	226.3	224.9	250.9	249.9

* Route Options D, E, F, G, and H were subsequently identified as the Primary Route Options. Additional detail about the preliminary construction cost estimates for these options and the assumptions made when developing the estimates can be found in **Appendix C.**

The costs reflected in **Table 4** are for construction only. The cost of right-of-way is not included. Instead of estimating right-of-way costs, which are variable, change over time, and are sensitive to economic conditions, only the amount of additional right-of-way needed was considered during the evaluation process. Estimated right-of-way costs were not calculated.

d. Screen One Results

During Screen One, scores ranged from one (best/least impact) to eight (worst/greatest impact). A matrix was used to document the raw data (anticipated impacts) of each criterion as well as the 1 through 8 ranking. The route option that performed the best for a criterion was ranked #1 for that criterion, the option that performed second best was ranked #2, etc. In the event of a tie, the options that performed the same shared the corresponding ranking. Rankings were then summed to calculate the overall score for each of the route options, with the best performing route options receiving the lowest scores.

The Screen One evaluation criteria as well as the corresponding goals and objectives for each criterion, are shown in **Table 5**. (Note: Consideration of criteria shaded in gray was deferred to Screen Two.) **Table 6** shows the completed Screen One evaluation matrix (as presented at Open House #1).

Table 5: Screen One Evaluation Criteria

OBJECTIVES	EVALUATION CRITERIA
	Goal: PROTECT AND PRESERVE PROPERTY
Minimize potential displacements (residential and commercial)	Number of homes within the anticipated right of way
	Number of commercial properties within the anticipated right of way
Minimize number of divided parcels	Number of properties that would be divided by the route (leaving a property owner with property on both sides of the road)
Minimize right of way required	Acres of right of way required
Minimize potential for noise and neighborhood impacts	Number of residences within 250 feet of route option (does not include residences located within the anticipated right of way)
	Goal: ENHANCE ACCESSIBILITY AND MOBILITY
Facilitate local (intracity) trips*	Evaluation Deferred to Screen Two
Accommodate bicyclists*	Compliance with TxDOT bike/pedestrian policy (Pass/Fail)
	Goal: ACCOMMODATE EXISTING AND PROJECTED TRAFFIC VOLUMES
Reduce the number of trucks using Main Street to travel through downtown	Evaluation Deferred to Screen Two
Help reduce congestion on Main Street	Evaluation Deferred to Screen Two
Accommodate projected increases in traffic	Evaluation Deferred to Screen Two
	Goal: ENHANCE SAFETY
Reduce number of large trucks on Main Street	Evaluation Deferred to Screen Two
Reduce potential for vehicular/pedestrian conflicts on Main Street*	Evaluation Deferred to Screen Two
	Goal: SUPPORTS ECONOMIC DEVELOPMENT
Minimizes negative impacts to existing businesses	Number of commercial properties within the anticipated right of way
Maintain accessibility for deliveries to businesses*	Maintains access to existing businesses (Pass/Fail)
Support "new growth" opportunities	Percentage of length where route encompasses existing roadways (requiring frontage roads)
	Percentage of currently undeveloped land at US and State highway intersections (assumes a 1-mile diameter development node around these intersections)
	Goal: PRESERVE UNIQUE CHARACTER OF DOWNTOWN
Maintain Main Street as a tourist destination and business center*	Maintains Main Street as a tourist destination and business center (Pass/Fail)
Reduce traffic noise	Evaluation Deferred to Screen Two
Protect historic resources from residual effects of traffic*	Evaluation Deferred to Screen Two
	Goal: PROTECT AND PRESERVE ENVIRONMENTAL RESOURCES
Minimize potential impacts to Environmental Justice (low income and minority) populations	Percentage of length within Environmental Justice (EJ) areas as identified by United States Census data
Minimize potential impacts to natural environmental features (floodplains, wetlands and waterways)	Number of river/creek crossings
	Acres of potential wetland impacts
	Acres of potential floodplain impacts
Minimize potential impacts to protected species	Acres of potential impacts to protected (Federal or State-listed threatened endangered or candidate) species habitat as identified on TPWD's Natural Diversity Database***
Minimize impacts to parks and other known Section 4(f) facilities including historic properties	Acres of public parkland and recreational areas impacted by anticipated right of way
	Number of historic properties impacted by anticipated right of way. (Includes properties that are listed on the National Register of Historic Places as well as properties known to be eligible for listing.)
	OTHER EVALUATION FACTORS
Length	Length of route
Facilitates utilization	Preliminary (round trip) travel time savings (in minutes) when compared to traveling on existing US 290
Provides a cost-effective solution	Preliminary cost estimate (in millions)
Public support	Screen One rankings based on survey results and comments received from January 2019 public workshop. Screen Two rankings based on survey results and comments received from July 2019 public open house.

*Traffic modelling is required to effectively evaluate this objective. Traffic modelling/operational analysis of the five Primary Route Options occurred subsequent to Screen One; results were captured in Screen Two. .

**All route options satisfied this "pass/fail" criteria. Since all options passed (resulting in an eight-way tie), these criteria were not ranked.

***Corrected description; differs from that shown on Open House #1 Brochure

It should be noted that three of the Screen One criteria (Accommodate Bicyclists; Maintain Accessibility for Deliveries to Businesses; and Maintain Main Street as a Tourist Destination) were considered to be "pass/fail." This meant that all of the options would achieve the objective, but the degree to which that would occur, could not be quantitatively measured or such a measurement is beyond the scope of the Relief Route Study. Because, pass/fail criteria resulted in an eight-way tie (and all options would receive the same ranking), those criteria were not included in the matrix as they would not aid in the differentiation of the route options.

Table 6: Screen One Evaluation Matrix

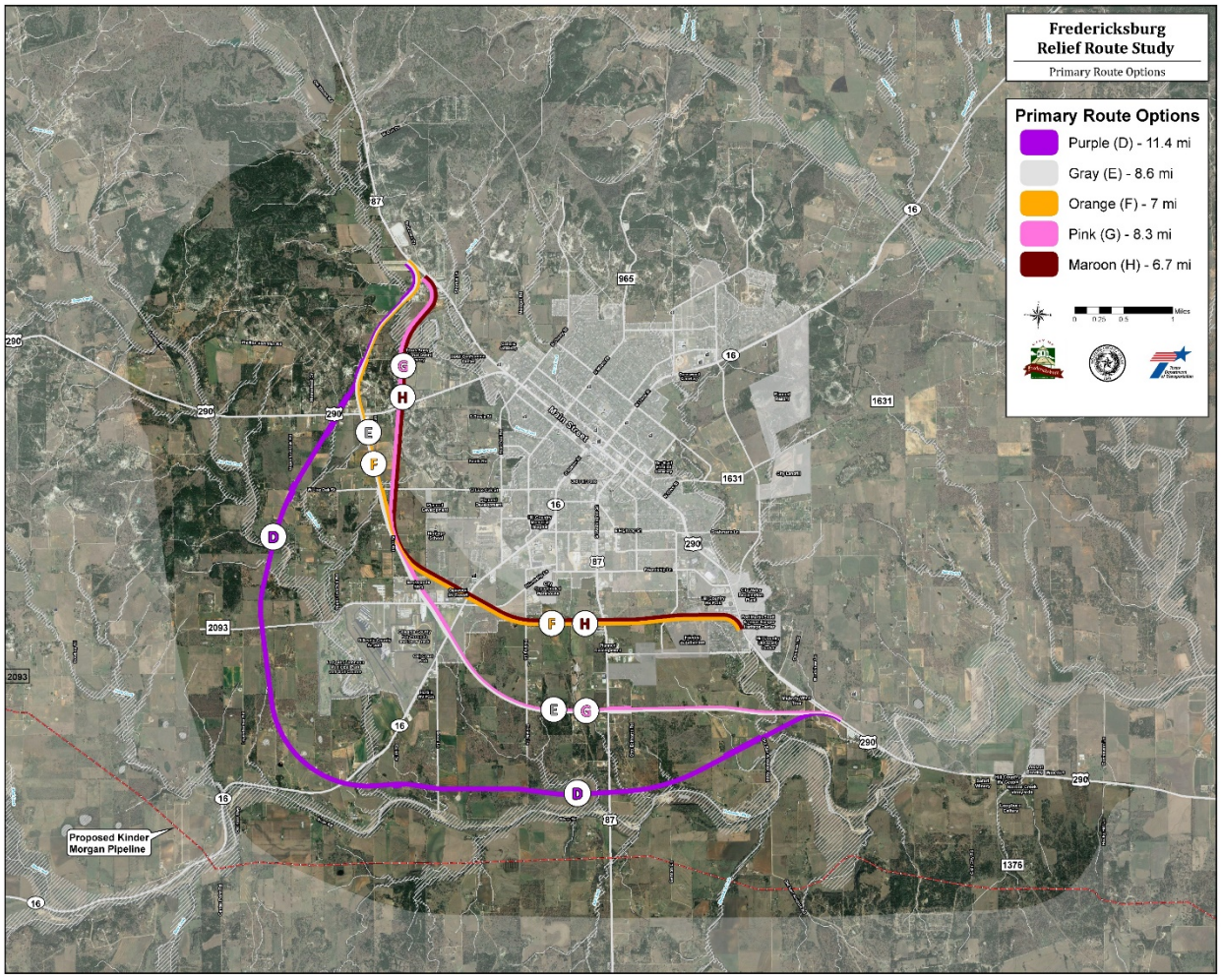
EVALUATION SUMMARY

	ROUTE A (Blue)		ROUTE B (Green)		ROUTE C (Yellow)		ROUTE D (Purple)		ROUTE E (Grey)		ROUTE F (Orange)		ROUTE G (Pink)		ROUTE H (Maroon)	
Residential Displacements	1	8	2	10	3	13	4	15	5	19	6	28	7	39	8	48
Commercial Displacements	1	0	1	0	3	2	3	2	5	3	7	22	6	10	8	29
Divided Parcels	7	57	5	49	7	57	6	54	3	41	2	36	3	41	1	34
Additional Right of Way Required (acres)	8	537	6	417	7	478	5	358	2	294	1	292	4	311	3	309
Residences Within 250 feet	1	29	2	35	3	45	4	51	5	58	7	83	8	92	6	68
Percent of Existing Roadways Utilized	8	1	6	2	6	2	4	3	1	4	4	3	1	4	1	4
Percent Undeveloped Land at Intersections	1	92.4	2	90.3	3	82.7	4	80.6	5	75.5	7	72.5	6	75.3	8	72.4
Creek Crossings	8	25	7	21	6	18	5	14	4	9	2	5	3	7	1	3
Wetland Impacts (acres)	6	2.4	2	1.5	4	1.9	1	1	5	2	8	5.7	2	1.5	7	5.2
Floodplain Impacts (acres)	7	25.8	8	26.7	5	22.1	6	23	2	10.5	1	8.8	4	20	3	18.3
Natural Diversity Database (NDD) Impacts (acres)	7	.9	1	0	7	.9	1	0	1	0	1	0	1	0	1	0
Length (miles)	8	17.3	6	13.8	7	14.9	5	11.4	4	8.6	2	7	3	8.3	1	6.7
Percent of Length Within Environmental Justice Areas	3	1.4	4	1.8	1	0	1	0	5	9.7	6	15.7	7	28.7	8	39.7
Park Impacts (acres)		0		0		0		0		0		0		0		0
Known National Register of Historic Places (NHRP)-Eligible Property Impacts		0		0		0		0		0		0		0		0
Preliminary Travel Time Savings (minutes)	7	11	8	10	5	12	5	12	1	16	1	16	1	16	1	16
Preliminary Cost (millions)	8	334.6	6	288.3	7	313.8	5	266.8	2	226.3	1	224.9	4	250.9	3	249.9
Public Input	6	14	6	14	6	14	5	10	3	7	3	7	1	2	2	4
TOTAL	87		72		80		64		53		59		61		62	

- Numbers in black represent the raw data in each evaluation criteria category. (e.g. Primary Route Option A (Blue) has 8 Residential Displacements)
- Numbers in orange represent the ranking of each route for each evaluation criteria, with 1 being the highest (best) and 8 being the lowest (worst). (e.g. Primary Route Option A (Blue) includes the fewest Residential Displacements and therefore is ranked 1)
- Public input scores were derived from written comments as well as ratings and comments given by online survey participants.
- The bottom line labeled "TOTAL" represents the sum score for each route. Lower numbers indicate higher ranked routes.
- On the bottom line, the top five (best ranking) options are highlighted in green. These five options are the Primary Route Options that will be considered further.
- Evaluations were based on publicly available data; no field work has been conducted.

As can be seen from a review of the completed Screen One Matrix, the scores for the route options ranged from a low of 53 (Route Option E) to a high of 87 (Route Option A). At its meeting on June 25, 2019, the Task Force decided to eliminate the highest scoring (poorest performing) route options, Preliminary Route Options, A, B and C, from further consideration. The Task Force decided to carry the five remaining options (Preliminary Route Options D, E, F, G and H) forward for further study. These five options were subsequently considered the Primary Route Options and are shown in **Figure 18.**

Figure 18: Primary Route Options



e. Primary Route Options

The next step in the study process was the Screen Two evaluation of the five Primary Route Options. During Screen Two, the Primary Route Options were evaluated in greater detail, factoring in the results of the historic resources survey (conducted by TxDOT during the summer/fall of 2019), traffic modelling/operation analysis, additional land use information and input received during Open House #1.

Historic Resources Survey

In May 2019, TxDOT contracted with Mead and Hunt, Inc. to conduct historic resource investigations and surveys focusing on the five Primary Route Options. The effort included extensive data collection, outreach to owners of historic-age properties and a preliminary assessment of National Register of Historic Places (NRHP) eligibility of historic-age properties. The survey focused on properties that would be adjacent to or impacted by the right-of-way footprint of a Primary Route Option. In total, 120 properties were identified which contained historic-age (50+ years old) resources (such as houses, cemeteries, barns, and other outbuildings and structures). Several of the properties contained more than one historic-age resource.

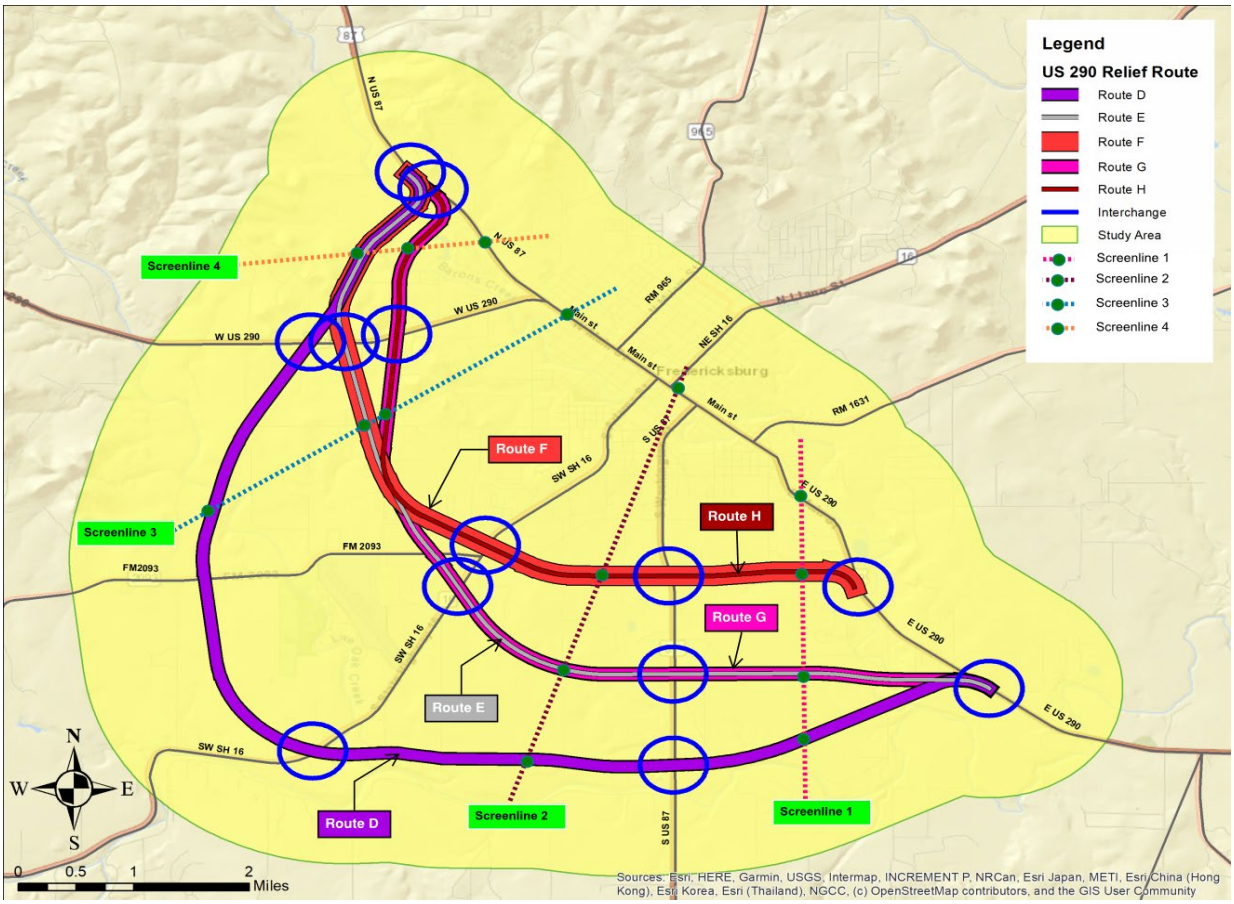
Each property was assessed for NRHP-eligibility. Each was determined to have either a high, medium or low potential for eligibility. Because those with low potential were considered not eligible for the NRHP, only those with high or medium potential for NRHP-eligibility were factored into the Screen Two evaluation.

For purposes of Screen Two, for each of the Primary Route Options, the total number of properties having either a medium or high probability of NRHP-eligibility was determined and reported as the raw data number in the Screen Two evaluation matrix. With regard to potential impacts to historic properties, Route Option F scored the best. Route Option F would potentially impact six properties with a medium/high probability of NRHP-eligibility. Route Option D, which would potentially impact 19 properties with a high/medium probability of NRHP-eligibility, scored the worst. A copy of the Historic Resources Constraints Assessment (survey report) is found in **Appendix D.** Appendix C of that report, which consists of approximately 380 pages of survey forms, is not included in this report due to its length. A complete copy of the Historic Resources Constraints Assessment is on file and available for review at the office of the City of Fredericksburg's Historic Preservation Officer.

Traffic Modelling/Operational Analysis

As a part of the evaluation effort, travel demand models were developed for each of the five Primary Route Options for the year 2040. In addition to the east (US 290 east) and west (US 87 north) termini, it was assumed that interchanges would be provided at US 87 (south), FM 2093, SH 16 (south) and US 290 (west). The study area used for modelling purposes differs from the Relief Route Study area. The traffic modelling study area, shown in **Figure 19**, incorporates the five Primary Route Options as well as existing US 290/Main Street through downtown Fredericksburg. The traffic modelling study area includes a one-mile-wide buffer around the outer extremes (Route Option D and existing US 290/Main Street) of the route options/existing highway.

Figure 19: Traffic Modelling Study area



Methodology

Consistent with TxDOT planning procedures, the Texas Statewide Analysis Model Version 3 (SAM-V3) was utilized as the basis for the travel demand modelling effort. Separate traffic models were created for each Primary Route Option. The 2040 socio-demographic data included with SAM-V3 were utilized to develop the travel demand models. No additional network improvement or socio-demographic updates were considered for the evaluation process. It should also be noted that no recalibration of the travel demand models was conducted as part of this study.

Six scenarios were run as part of the study: the no-build scenario and five build scenarios. The five build scenarios reflect each of the five route options combined with the existing State Highway System network (US Highways, State Highways, Ranch-to-Market Roads, etc).

Performance Measures

In addition to daily volume, the travel demand modelling process focused on three measures of transportation system performance, including:

Vehicle Miles of Travel

Vehicle-miles of travel (VMT) is a measure of cumulative distance travelled by all of the trips within the study area. It provides a measure of the total magnitude of travel in a given area.

Vehicle Hours of Travel

Vehicle-hours of travel (VHT) is a measure of cumulative duration of all the trips within the study area. It provides an indication of system delay, speed and congestion impacts.

Volume-to-Capacity

Volume-to-capacity (V/C) is a conventional performance measure for roadways, comparing roadway demand (vehicle volumes) with roadway supply (carrying capacity).

Travel Demand Model Result Summary

Table 7 and **Table 8** summarize the 2040 forecasts of total volume and heavy truck (five or more axles) volume at different key locations in the study area, respectively.

Table 7: Year 2040 Total Traffic Volume Forecasts

Roadway	Location	Daily Traffic Volume (vpd) (Difference Compared to the No-Build Scenario)					
		No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
E US 290	North of Schmidtzinsky Rd	15,700 (-)	17,800 (+2,100)	18,800 (+3,100)	18,100 (+2,400)	18,700 (+3,000)	17,800 (+2,100)
E US 290	East of North Olive St	15,700 (-)	12,300 (-3,400)	10,600 (-5,100)	11,300 (-4,400)	10,600 (-5,100)	10,800 (-4,900)
E US 290	East of S US 87	27,700 (-)	25,000 (-2,700)	23,600 (-4,100)	24,200 (-3,500)	23,600 (-4,100)	23,800 (-3,900)
Main St	East of NE SH 16	35,100 (-)	30,500 (-4,600)	28,700 (-6,400)	29,500 (-5,600)	28,700 (-6,400)	29,400 (-5,700)
Main St	East of SW SH 16	35,600 (-)	31,000 (-4,600)	29,200 (-6,400)	30,000 (-5,600)	29,200 (-6,400)	29,800 (-5,800)
Main St	West of N Milam St	18,300 (-)	15,500 (-2,800)	15,100 (-3,200)	15,200 (-3,100)	15,100 (-3,200)	15,200 (-3,100)
W US 290	West of N US 87	2,200 (-)	500 (-1,700)	500 (-1,700)	500 (-1,700)	600 (-1,600)	600 (-1,600)
N US 87	North of W US 290	4,300 (-)	3200 (-1100)	2700 (-1600)	2,800 (-1,500)	2,700 (-1,600)	2,800 (-1,500)
S US 87	South of E US 290	13,200 (-)	11,400 (-1,800)	11,000 (-2,200)	11,200 (-2,000)	11,000 (-2,200)	11,800 (-1,400)
NE SH 16	North of Main St	20,300 (-)	20,100 (-200)	20,000 (-300)	20,000 (-300)	20,000 (-300)	20,100 (-200)
SW SH 16	South of Main St	20,700 (-)	17,500 (-3,200)	18,600 (-2,100)	17,900 (-2,800)	18,500 (-2,200)	18,300 (-2,400)
Relief Route	Between E US 290 and S US 87	n/a (-)	5,600 (+5,600)	8,200 (+8,200)	6,900 (+6,900)	8,100 (+8,100)	7,100 (+7,100)
Relief Route	Between S US 87 and SW SH 16	n/a (-)	6,700 (+6,700)	9,500 (+9,500)	7,800 (+7,800)	9,400 (+9,400)	8,300 (+8,300)
Relief Route	Between SW SH 16 and W US 290	n/a (-)	2,700 (+2,700)	3,100 (+3,100)	2,900 (+2,900)	2,900 (+2,900)	2,700 (+2,700)
Relief Route	Between N US 87 and W US 290	n/a (-)	1,200 (+1,200)	1,900 (+1,900)	1,800 (+1,800)	1,900 (+1,900)	1,800 (+1,800)

Table 8: Year 2040 Heavy Truck Volume Forecasts

Roadway	Location	Daily Traffic Volume (vpd) (Difference Compared to the No-Build Scenario)					
		No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
E US 290	North of Schmidtzinsky Rd	1,560 (-)	1,750 (+190)	2,040 (+480)	1,920 (+360)	2,010 (+450)	1,870 (+310)
E US 290	East of North Olive St	1,560 (-)	300 (-1,260)	230 (-1,330)	230 (-1,330)	230 (-1,330)	220 (-1,340)
E US 290	East of S US 87	2,090 (-)	800 (-1,290)	710 (-1,380)	730 (-1,360)	720 (-1,370)	730 (-1,360)
Main St	East of NE SH 16	2,990 (-)	1,510 (-1,480)	1,380 (-1,610)	1,410 (-1,580)	1,380 (-1,610)	1,440 (-1,550)
Main St	East of SW SH 16	2,410 (-)	940 (-1,470)	820 (-1,590)	840 (-1,570)	820 (-1,590)	830 (-1,580)
Main St	West of N Milam St	1,740 (-)	360 (-1,380)	300 (-1,440)	300 (-1,440)	300 (-1,440)	320 (-1,420)
W US 290	West of N US 87	1,070 (-)	80 (-990)	60 (-1,010)	70 (-1,000)	70 (-1,000)	80 (-990)
N US 87	North of W US 290	480 (-)	100 (-380)	50 (-430)	50 (-430)	50 (-430)	50 (-430)
S US 87	South of E US 290	1,070 (-)	850 (-220)	840 (-230)	850 (-220)	830 (-240)	900 (-170)
NE SH 16	North of Main St	1,230 (-)	1200 (-30)	1,170 (-60)	1,170 (-60)	1,160 (-70)	1,190 (-40)
SW SH 16	South of Main St	810 (-)	650 (-160)	630 (-180)	620 (-190)	620 (-190)	610 (-200)
Relief Route	Between E US 290 and S US 87	n/a (-)	1,450 (+1,450)	1,810 (+1,810)	1,690 (+1,690)	1,790 (+1,790)	1,650 (+1,650)
Relief Route	Between S US 87 and SW SH 16	n/a (-)	1,610 (+1,610)	2,010 (+2,010)	1,880 (+1,880)	1,990 (+1,990)	1,830 (+1,830)
Relief Route	Between SW SH 16 and W US 290	n/a (-)	1,370 (+1,370)	1,330 (+1,330)	1,260 (+1,260)	1,180 (+1,180)	1,120 (+1,120)
Relief Route	Between N US 87 and W US 290	n/a (-)	410 (+410)	540 (+540)	520 (+520)	550 (+550)	510 (+510)

To understand the impact of the relief route on the adjacent major roadways in the study area, VMT and VHT were calculated. The network in SAM-V3 is composed of state highways, such as US 87, SH 16 and US 290, and major farm-to-market roads. **Table 9** shows the aggregated daily performance in terms of VMT and VHT for these roadways inside the traffic modelling study area. The results show that the total VMT in the study area increases under all build scenarios when compared with the No-Build scenario.

Table 9: Network Performance in the Study area (VMT/VHT)

Performance Measure	Value						Difference Compared to No-Build Scenario				
	No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
Total Vehicle Miles Traveled	344,631	358,859	365,538	357,293	365,038	361,286	+4.1%	+6.1%	+3.7%	+5.9%	+4.8%
Total Vehicle Hours Traveled	6,999	6,866	6,815	6,862	6,819	6,776	-1.9%	-2.6%	-2.0%	-2.6%	-3.2%
Heavy Truck Vehicle Miles Traveled	26,172	31,277	30,468	29,136	30,475	29,022	+19.5%	+16.4%	+11.3%	+16.4%	+10.9%
Heavy Truck Vehicle Hours Traveled	754	470	478	471	479	465	-37.7%	-36.6%	-37.5%	-36.5%	-38.3%

Table 10 summarizes the volume-to-capacity ratios at a daily level across four screenlines (shown on **Figure 19**). It should be noted that the capacities used in **Table 9** and **Table 10** are computed at a high-level for typical facility types across the state and do not explicitly consider on-street parking and other unique aspects of Main Street in Fredericksburg. Further, the traffic volumes are arithmetic sums of passenger cars and trucks—no adjustments were made to account for differences between the two types (e.g., a passenger car equivalent factor). **Table 11** shows the peak period volume-to-capacity ratio on Main Street, east of NE SH 16.

Table 10: Network Performance in the Study area (V/C)

Screenline	Location	Daily Capacity (veh/day)	Daily Traffic Volume (veh/day)						Daily V/C					
			No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)	No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
1	E US 290	120,000	15,700	17,800	18,800	18,100	18,700	17,800	0.13	0.08	0.09	0.08	0.09	0.08
	Relief Route	178,000	-	5,600	8,200	6,900	8,100	7,100						
2	Main St	84,000	35,100	30,500	28,700	29,500	28,700	29,400	0.42	0.14	0.14	0.14	0.14	0.14
	Relief Route	178,000	-	6,700	9,500	7,800	9,400	8,300						
3	Main St	84,000	18,300	15,500	15,100	15,200	15,100	15,200	0.22	0.07	0.07	0.07	0.07	0.07
	Relief Route	178,000	-	2,700	3,100	2,900	2,900	2,700						
4	N US 87	66,000	4,300	3,200	2,700	2,800	2,700	2,800	0.07	0.02	0.02	0.02	0.02	0.02
	Relief Route	178,000	-	1,200	1,900	1,800	1,900	1,800						

Table 11: Peak Period Volume-to-Capacity Ratio on Main Street, East of NE SH 16

Time Period	2020 Model	2040 Model					
		No-Build	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
AM Peak (6:30 AM – 8:30 AM)	0.64	0.93	0.77	0.70	0.72	0.70	0.73
PM Peak (2:30 PM – 6:30 PM)	0.62	0.88	0.75	0.69	0.73	0.69	0.71
Weighted Average	0.63	0.90	0.76	0.69	0.73	0.69	0.72

The results summarized in **Tables 7** through **11** indicate:

- On Main Street, east of SH 16, one of the most congested sections of Main Street, Option E and Option G show the greatest reduction in total traffic (6,400 vpd), and Option D shows the smallest reduction in total traffic (4,600 vpd), when compared to the No-Build scenario.
- On Main Street, east of SH 16, Option E and Option G show the greatest reduction in heavy trucks (1,610 trucks per day), and Option D shows the smallest reduction in heavy trucks (1,480 trucks per day) when compared to the No-Build scenario.
- In the traffic modelling study area, Option E shows the greatest increase (6.1 percent) in total VMT, and Option F shows the smallest increase (3.7 percent) in total VMT when compared to the No-Build scenario.

- In the traffic modelling study area, Option D shows the greatest increase (19.5 percent) in heavy truck VMT, and Option H shows the smallest increase (10.9 percent) in heavy truck VMT when compared to the No-Build scenario.

- In the traffic modelling study area, Option H shows the greatest decrease (3.2 percent) in total VHT, and Option D shows the smallest decrease (1.9 percent) in total VHT when compared to the No-Build scenario.

- In the traffic modelling study area, Option H shows the greatest decrease (38.3 percent) in heavy truck VHT, and Option G shows the lowest decrease (36.5 percent) in heavy truck VHT when compared with the No-Build scenario.

- On Main Street, east of SH 16, Option E and Option G show the greatest improvement (a V/C of 0.69), and Option D shows the smallest improvement (a V/C of 0.76), when compared to the No-Build scenario (a V/C of 0.9).

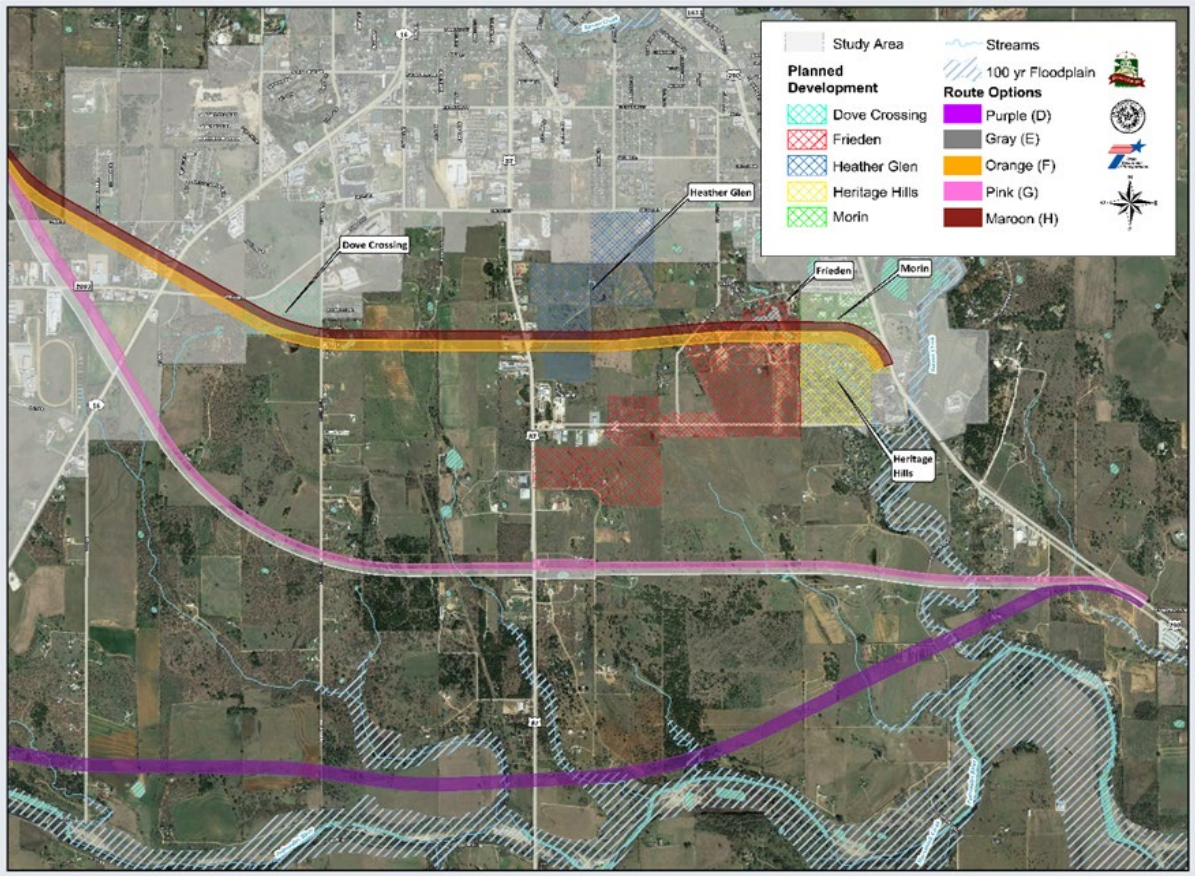
More detail about traffic and the modelling effort is documented in the Travel Demand Forecast Development and Route Evaluation Memorandum prepared for the Relief Route Study. The memo can be found in **Appendix E.**

Additional Land Use

To ensure that both existing and proposed development was considered during the planning process, at the direction of the Task Force, Screen Two included an assessment of impacts to planned developments. City staff provided copies of platted developments. The Study Team then met with Gillespie County planning officials to review the plat information provided by the city and identify other planned developments. No additional developments were identified through coordination with the County.

Figure 20, below, shows the location of platted developments in relation to the Primary Route Options. As can be seen, these future developments are concentrated in the eastern portion of the Study area and are impacted by two of the route options (Options F and H).

Figure 20: Platted Developments



For purposes of the Screen Two evaluation, the acreage of the developments that would be impacted by the primary route options was calculated. Routes D, E and G would not impact planned development. Routes F and H would each result in an impact of 58.2 acres.

Input Received From Public Open House #1

During Open House #1, held on July 23, 2019, the public was asked to provide input about the five Primary Route Options. The Study Team considered written comments (comment forms, letters and emails) and survey results when assessing the level of public support or opposition to the various Conceptual Route Options. For each (written comments and survey results) the number of comments expressing support and the number of comments expressing opposition were considered.

Some interesting trends were observed in the data. Specifically, written comments (comment forms, letters and emails) generally showed more support/less opposition to route options closer to town. Survey results showed the opposite (more support/less opposition to routes further from town).

For purposes of Screen Two, each route was given two public input rankings (one based on written comments and one based on survey results). Unlike Screen One, for which the two public involvement rankings were combined to get a single public involvement score, for Screen Two each was reported separately. As illustrated in **Table 12**, combining the two would have reflected a three-

way tie involving Route Options D, E and G. Although mathematically the end result is the same, the decision was made to show the two data points separately so that it was abundantly clear that all input was considered and reflected in the final recommendation.

Table 12: Screen Two Public Involvement Rankings

	Route D (Purple)	Route E (Gray)	Route F (Orange)	Route G (Pink)	Route H (Maroon)
	Ranking	Ranking	Ranking	Ranking	Ranking
Public Input (From Open House #1 – Survey Results)	5	4	2	3	1
Public Input (From Open House #1 – Written Comments)	1	2	5	3	4
Combined Score	6	6	7	6	5

f. Screen Two Results/Identification of the Technically Preferred Route Option

The Screen Two evaluation process mirrored the Screen One process. For Screen Two, scores ranged from one (best/least impact) to five (worst/greatest impact). As was done for Screen One, a matrix was used to document the Screen Two raw data (anticipated impacts) for each criterion as well as the 1 through 5 ranking. The route option that performed the best for a criterion was ranked #1 for that criteria, the option that performed second best was ranked #2, etc. As was done for Screen One, in the event of a tie, the options that performed the same shared the corresponding ranking. Rankings were then summed to calculate the Screen Two score for each of the Primary Route Options. Again, the best performing route options received the lowest scores.

The Screen Two evaluation criteria as well as the corresponding goals and objectives for each criterion, are shown in **Table 13**. (Note: The Screen One criteria are shaded gray.) **Table 14** shows the completed Screen Two evaluation matrix as presented at Open House #2.

Table 13: Screen Two Evaluation Criteria

OBJECTIVES	EVALUATION CRITERIA
Goal: PROTECT AND PRESERVE PROPERTY	
Minimize potential displacements (residential and commercial)	Evaluated During Screen One
	Evaluated During Screen One
Minimize number of divided parcels	Evaluated During Screen One
Minimize right of way required	Evaluated During Screen One
Minimize potential for noise and neighborhood impacts	Evaluated During Screen One
Goal: ENHANCE ACCESSIBILITY AND MOBILITY	
Facilitate local (intracity) trips*	Number of intracity trips per day (Pass/Fail)
Accommodate bicyclists*	Evaluated During Screen One
Goal: ACCOMMODATE EXISTING AND PROJECTED TRAFFIC VOLUMES	
Reduce the number of trucks using Main Street to travel through downtown	Number of trucks per day on Main Street (based on computer-based traffic modelling)
Help reduce congestion on Main Street	Number of vehicles per day on Main Street (based on computer-based traffic modelling)
Accommodate projected increases in traffic	Percentage of unused traffic capacity on Main Street (based on computer-based traffic modelling)
Goal: ENHANCE SAFETY	
Reduce number of large trucks on Main Street	Number of large trucks per day on Main Street (based on computer-based traffic modelling)
Reduce potential for vehicular/ pedestrian conflicts on Main Street*	Number of vehicle/pedestrian conflicts on Main Street (Pass/Fail)
Goal: SUPPORTS ECONOMIC DEVELOPMENT	
Minimizes negative impacts to existing businesses	Evaluated During Screen One
Maintain accessibility for deliveries to businesses*	Evaluated During Screen One
Support "new growth" opportunities	Evaluated During Screen One
	Evaluated During Screen One
Goal: PRESERVE UNIQUE CHARACTER OF DOWNTOWN	
Maintain Main Street as a tourist destination and business center*	Evaluated During Screen One
Reduce traffic noise	Not Evaluated (Effective evaluation of this criteria requires traffic noise modelling that is beyond the scope of the current study. If the project advances, traffic noise modelling would be conducted in conjunction with the detailed environmental studies and investigations.)
Protect historic resources from residual effects of traffic*	Reduces residual traffic-related effects (Pass/Fail)
Goal: PROTECT AND PRESERVE ENVIRONMENTAL RESOURCES	
Minimize potential impacts to Environmental Justice (low income and minority) populations	Evaluated During Screen One
Minimize potential impacts to natural environmental features (floodplains, wetlands and waterways)	Evaluated During Screen One
	Evaluated During Screen One
	Evaluated During Screen One
Minimize potential impacts to protected species	Evaluated During Screen One
Minimize impacts to parks and other known Section 4(f) facilities including historic properties	Evaluated During Screen One
	Evaluated During Screen One
OTHER EVALUATION FACTORS	
Length	Evaluated During Screen One
Facilitates utilization	Evaluated During Screen One
Provides a cost-effective solution	Evaluated During Screen One
Public support	Degree of support or opposition reflected in Open House #1 written comments and surveys
Minimize impacts to historic resources	Number of potentially impacted resources with a medium or high probability of being eligible for the National Register of Historic Places (based on results of the Historic Resources Constraints Analysis Survey)
Minimize impacts to planned development	Acres of impact to planned developments

*All route options satisfied these "pass/fail" criteria. Since all options passed (resulting in a five-way tie), these criteria were not ranked.

It should be noted that three of the Screen Two criteria (Facilitate local [intracity] trips; Reduce potential for vehicular/pedestrian conflicts on Main Street; Protect historic resources from residual effects of traffic) were considered to be "pass/fail." This meant that all of the options would achieve the objective, but the degree to which that would occur, could not be quantitatively measured or such a measurement is beyond the scope of the Relief Route Study. Because, pass/fail criteria resulted in an all-way tie (and all options would receive the same ranking), those criteria were not included in the matrix as they would not aid in the differentiation of the route options. It should also be noted that a noise analysis was not conducted during the Relief Route Study. Effective evaluation of noise impacts requires traffic noise modelling that is beyond the scope of the current study. If the project advances, traffic noise modelling would be conducted in conjunction with the detailed environmental studies and investigations. Additionally, it should be noted that for Screen Two, all categories were ranked from 1 to 5. This was done to ensure that the routes eliminated in Screen One did not influence the outcome of the Screen Two.

As can be seen from a review of **Table 14**, at the end of Screen Two, the overall scores for the Primary Route Options ranged from a low of 50 (Route Option E) to a high of 74 (Route Option D). Because a lower score indicates better performance and few overall impacts, Route Option E was identified as the Technically Preferred Route Option for the Gillespie County Relief Route.

Table 14: Screen Two Results

	Route D		Route E		Route F		Route G		Route H	
Screen One Results										
	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data
Residential Displacements	1	15	2	19	3	28	4	39	5	48
Commercial Displacements	1	2	2	3	4	22	3	10	5	29
Divided Parcels	5	54	3	41	2	36	3	41	1	34
Additional ROW Required (Acres)	5	358	2	294	1	292	4	311	3	309
Residences within 250'	1	51	2	58	4	83	5	92	3	68
% of Existing Roadways Utilized	1	3	3	4	1	3	3	4	3	4
% Undeveloped Land at Intersections	1	80.6	2	75.5	4	72.5	3	75.3	5	72.4
Creek Crossings	5	14	4	9	2	5	3	7	1	3
Wetland Impacts (Acres)	1	1	3	2	5	5.7	2	1.5	4	5.2
Floodplain Impacts (Acres)	5	23	2	10.5	1	8.8	4	20	3	18.3
NDD Impacts (Acres)		0		0		0		0		0
Length (Miles)	5	11.4	4	8.6	2	7	3	8.3	1	6.7
% of Length Within EJ Areas	1	0	2	9.7	3	15.7	4	28.7	5	39.7
Park Impacts (Acres)		0		0		0		0		0
NRHP-Listed Property Impacts		0		0		0		0		0
Preliminary Travel Time Savings (Minutes)	5	12	1	16	1	16	1	16	1	16
Preliminary Cost ($ Million)	5	266.8	2	226.3	1	224.9	4	250.9	3	249.9
Public Input (From Public Workshop #3)	5	10	3	7	3	7	1	2	2	4
Screen One Score	47		37		37		47		45	
	Route D		Route E		Route F		Route G		Route H	
Screen Two Results										
	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data	Ranking	Raw Data
Reduce # of Trucks on Main Street (Per Day)	5	-1480	1	-1610	3	-1580	1	-1610	4	-1550
Reduce Congestion on Main Street (Per Day)	5	-4600	1	-6400	4	-5600	1	-6400	3	-5700
Accommodate Projected Increases in Traffic (% Unused Main Street Capacity)	5	24	1	31	4	27	1	31	3	28
Impacts to Proposed Development (Acres)	1	0	1	0	4	58.2	1	0	4	58.2
Impacts to Potentially Historic Properties	5	19	3	9	1	6	4	10	2	7
Public Input (From Open House #1 – Survey Results)	5		4		2		3		1	
Public Input (From Open House #1 – Written Comments)	1		2		5		3		4	
Screen Two Score	27		13		23		14		21	
Combined Score	74		50 ★		60		61		66	

g. Technically Preferred Route Option

Route E was presented as the Technically Preferred Route Option at Public Open House #2 on January 14, 2020. Route E, as presented, would be 8.6-miles-long and would require the acquisition of 294 acres of additional right-of-way. It would result in the displacement of 19 homes and three businesses. The estimated construction cost of Route E is $226.3 million.

Modified Technically Preferred Route Option

At Public Open House #2, additional information was received regarding historic resources in the vicinity of the intersection of Route E and US 87. These comments led to the identification of a potential rural historic district. Using the additional information, the Historic Resources Constraints Analysis was updated, and an addendum was prepared. A copy of the Addendum is included in **Appendix D**.

To avoid the potential historic district, the Technically Preferred Route Option was shifted to the east about ¼ mile. This modification affected the last (approximately) one mile of the alignment. The modified route served to reduce the length of Route Option E by approximately .10 miles. It reduced the number of residential displacements by three, while increasing the number of commercial displacements by two. It also affects four more parcels than the original alignment of Option E. Overall, the anticipated impacts of the modified Option E are of similar magnitude as the original Option E. The preliminary schematic of the Technically Preferred Route Option, as modified, is shown in **Appendix F.**

4.0 Next Steps

This report and the preliminary schematic of the Technically Preferred Route Option represent the final deliverables for the Fredericksburg Relief Route Study. Should the community, in partnership with TxDOT, decide to pursue further development of the Relief Route, the next step would be to secure funding for required environmental studies. It is anticipated that the Technically Preferred Route Option would be the starting point for the required environmental studies.

In keeping with TxDOT's policy of protecting and preserving the environment, during the environmental study process efforts would be made to avoid environmental impacts, when feasible, and minimize unavoidable impacts. To accomplish this objective, it is anticipated that the Technically Preferred Route Option will be modified and further refined as more detailed investigations are undertaken, field investigations are conducted, and more information is learned. In conjunction with the required environmental studies, the final design schematic of the preferred alternative will be developed. Until such time as required environmental studies are complete and the final design schematic is produced/approved, the alignment remains tentative and subject to change.

Appendix A

Preliminary Traffic Study Memorandum (Origin-Destination Study)

Preliminary Traffic Study Memorandum

US 290 Fredericksburg Relief Route Study – Origin-Destination Study

TxDOT – Transportation Planning and Programming Division

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Introduction

The US 290 Fredericksburg Relief Route Study seeks to evaluate potential relief routes surrounding the City of Fredericksburg in Gillespie County, Texas. Potential routes are proposed north and south of Downtown Fredericksburg, connecting US 290, US 87, and SH 16.

The feasibility study includes an origin-destination (O-D) analysis using the StreetLight InSight tool to assess traffic patterns along US 290, US 87, and SH 16 in Fredericksburg. The O-D analysis portion of the study quantified "local" vs. "through" traffic patterns along the identified roadways to evaluate the potential benefit of each potential relief route around Downtown Fredericksburg. This technical memorandum summarizes the O-D study methodology and results and the preliminary evaluation of the proposed Fredericksburg relief route alternatives.

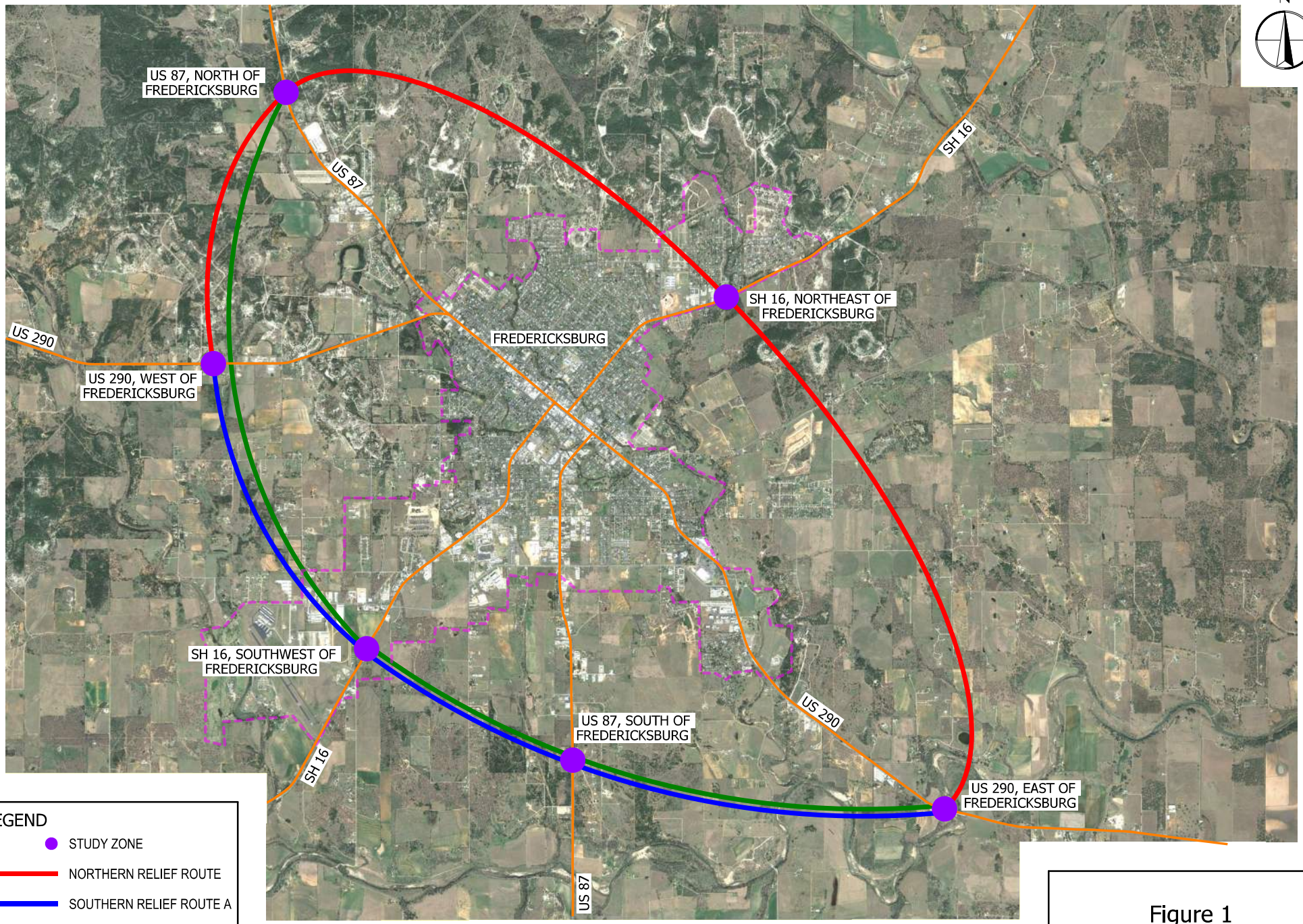
Study Area

Six study zones surrounding the Fredericksburg area were identified for the O-D analysis along US 290, US 87, and SH 16, as shown in Figure 1. The zones were placed at strategic locations to capture trips entering the Fredericksburg area along the three major roadways that would potentially use an alternative relief route. Existing traffic counts were collected at the six study zones and in Downtown Fredericksburg between Thursday, December 14, 2017, and Sunday, December 17, 2017 and between Thursday, August 16, 2018, and Sunday August 19, 2018. They are presented in Table 1. Additional data collection is proposed in the future.

The potential relief routes may divert traffic traveling through Downtown Fredericksburg, improving traffic conditions and reducing congestion in that area of town. The following three relief route alternatives connecting US 290 around Fredericksburg were considered:

- A northern route connecting US 290, east and west of Fredericksburg, re-routing "through" traffic to the north ("Northern Route")
- A southern relief route connecting US 290, east and west of Fredericksburg, re-routing "through" traffic south of the city ("Southern Route Option A")
- A southern relief route connecting US 290, east of Fredericksburg, to US 87, north of Fredericksburg, re-routing "through" traffic south of the city ("Southern Route Option B")

The general paths of the proposed relief route alternatives in relation to the six study zones are presented in Figure 1.



NOTE: RELIEF ROUTES SHOWN ARE NOT ALIGNMENTS AND ARE PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY.

Background Map Copyrighted by Google, 2018

Figure 1

Overall Study Area

Table 1: Fredericksburg Daily Traffic Counts

Location	Traffic Count (veh/day)							
	Thursday		Friday		Saturday		Sunday	
	12/14/17	8/16/18	12/15/17	8/17/18	12/16/17	8/18/18	12/17/17	8/19/18
Downtown Fredericksburg US 290/US 87 (Northwest of Lincoln St.)	15,902	11,793	18,708	13,530	16,365	12,587	14,554	11,140
N US 87 (North of Wilhelm Rd.)	9,661	6,348	10,578	8,311	7,958	4,826	7,364	4,735
S US 87 (South of Prairie View Tr.)	10,382	9,172	12,067	10,592	9,859	9,707	9,007	7,855
NE SH 16 (East of Frederick Rd.)	4,547	4,146	5,019	4,704	3,769	3,665	3,573	3,420
SW SH 16 (South of Friendship Ln.)	8,848	7,890	10,005	6,493	7,554	4,992	6,537	3,952
W US 290 (East of Homestead Dr.)	5,703	4,467	6,771	5,400	5,132	4,028	4,912	4,037
E US 290 (West of Cain City Rd.)	14,599	13,451	17,799	16,359	15,535	15,780	13,984	13,003

Methodology

The StreetLight InSight tool was used for the O-D analysis between the identified study zones. This tool uses collected real-world Location-Based Services data and GPS data to track trip origins, destinations, and routes to assess traffic and mobility patterns. GPS data was selected for the analysis due to its high spatial precision and ability to differentiate between personal and commercial trips. The resulting data from the StreetLight Insight tool was analyzed to evaluate each proposed relief route.

O-D Analysis

The study zones were created in StreetLight InSight for the identified roadway locations and Downtown Fredericksburg. Zones were set up as pass-through—meaning only trips passing

through the zone are considered—and directional—meaning only trips moving in the selected direction are considered. The six roadway study zones were set-up as directional pass-through road-segment zones, providing entry and exit "gates" for analysis. This allowed for the analysis of cars driving through the "gate" in each direction, creating both an origin and destination for each roadway study zone surrounding Fredericksburg.

To evaluate different relief routes, "local" versus "through" trips had to be differentiated. A "local" trip was defined as a trip that entered Fredericksburg via one roadway study zone and ended in the Fredericksburg area. A "through" trip was defined as a trip that entered one roadway study zone and exited another without a stopover exceeding five minutes. To study these traffic patterns, the large area of Fredericksburg encompassed by the identified study zones was defined as a non-pass-through zone to count the "local" trips ending in Fredericksburg within the zone limits. A trip is considered stopped when the Bluetooth device does not move more than five meters in five minutes or, for Navigation-GPS, when a vehicle is turned off.

To determine the amount of "through" trips in Downtown Fredericksburg, a small pass-through road segment zone, shown in Figure 2, was established along US 290 in Downtown Fredericksburg, encompassing Main Street; SH 16, north and south of Main Street; and US 87, south of Main Street.

An O-D analysis was run using the StreetLight InSight tool, producing O-D data in normalized index values for each of the six study zones surrounding Fredericksburg and the large zone encompassing Fredericksburg.

An O-D analysis with a Middle Filter was also run by limiting the O-D analysis to only those trips that passed through the pass-through zone in Downtown Fredericksburg. The Middle Filter analysis quantified the trips that passed through the Downtown Fredericksburg zone during a "through" trip between two of the six study area zones. This was done to determine the amount of "through" trips passing through Downtown Fredericksburg that would potentially be diverted by a relief route.

The resulting data was organized by vehicle type (personal and commercial vehicles) and day type (average weekday and average weekend day) for a 24-hour period. An "average weekday" was defined as Tuesday through Thursday, and an "average weekend day" was defined as Saturdays and Sundays.

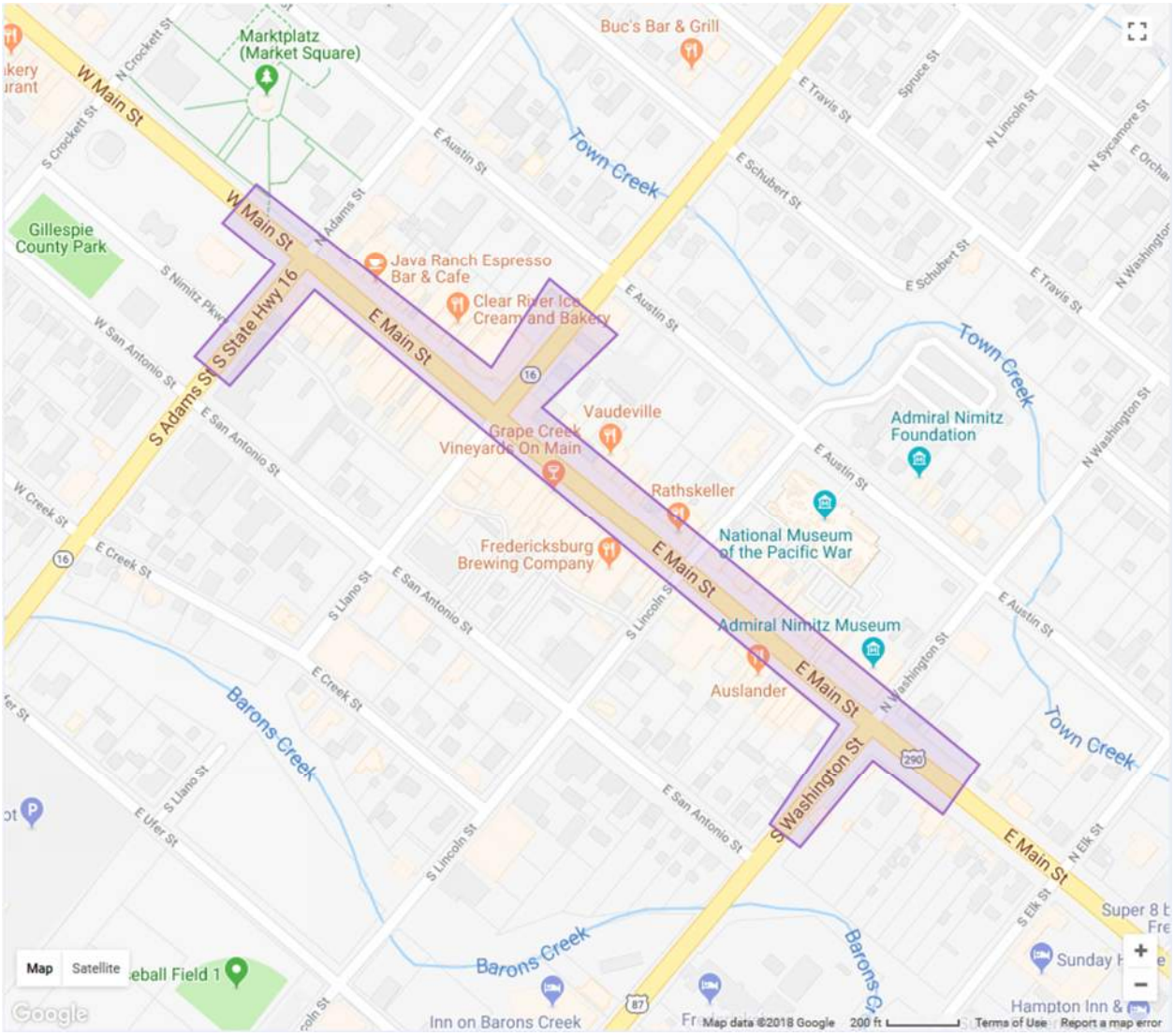


Figure 2: Downtown Pass-Through Zone

DATA ANALYSIS

Traffic pattern results were translated from normalized StreetLight index values to number of trips using traffic counts collected on Thursday, December 14th, 2017, and Saturday, December 16th, 2017, at the study zone locations. Traffic counts were also collected in August of 2018 and additional data collection is proposed in the future. The analysis will eventually be updated based on the full set of traffic counts in order to form a more complete picture of existing traffic conditions. From December 2017 tube count traffic data, the number of personal and commercial vehicles entering Fredericksburg from each of the study zone roadways was determined by applying heavy vehicle percentages from the Texas Department of Transportation's (TxDOT) Statewide Planning Map (Ref. 1), shown in Table 2, to the weekday counts. Weekend commercial trips were estimated by applying a reduction factor to weekday commercial trip values at each origin. This reduction factor was the ratio

of weekend to weekday commercial trip index values from StreetLight. The traffic counts from each study zone origin were then distributed to the study zone destinations using the O-D ratios from the StreetLight analysis.

Table 2: Heavy Vehicle Percentage of Daily Traffic Volumes

Location	Heavy Vehicle %
N US 87	12.4%
S US 87	7.0%
NE SH 16	12.0%
SW SH 16	7.4%
W US 290	10.9%
E US 290	10.9%

Source: TxDOT Statewide Planning Map (Ref. 1)

For each vehicle and day type, the percentage of "through" and "local" traffic was calculated at each origin to determine traffic patterns on US 290, SH 16, and US 87. These percentages were combined with the actual traffic counts to produce trips characterized by origin, vehicle type, day type, and trip type ("local" or "through").

The potential number of existing trips utilizing a certain relief route was estimated by summing the "through" trips whose origin and destination study zone roadways both connect to the proposed relief route; e.g., trips from north US 87 to south US 87 would be served by Southern Route Option B since the relief route connects to both termini. The trips potentially diverted from Downtown Fredericksburg by the relief route alternatives were estimated using the percentage of "through" trips from each origin that pass through Downtown via the Middle Filter and whose destination is served by the proposed relief route. The resulting data summarizes the number of trips that currently travel through Fredericksburg and would potentially use the proposed relief routes, organized by type of vehicle and weekday/weekend trips. The methodology does not account for route preferences, travel distance, or other factors that may affect the use of a potential relief route.

Origin-Destination Study Results and Analysis

Origin-destination traffic patterns for both personal and commercial vehicles approaching the Fredericksburg area from each study zone are presented in Table 3 and Table 4. The heaviest incoming traffic for personal vehicles is from US 290, east of Fredericksburg, but US 87, north and south of Fredericksburg, and SH 16, southwest of Fredericksburg, also are notable sources of personal trips during both weekdays and weekends. Based on the study, the majority of personal vehicles in the Fredericksburg area travel locally within Fredericksburg on both weekdays and weekends. During weekends, an influx of "local" trips

originate from US 290, east of Fredericksburg, while trips originating from southwest SH 16, west US 290, and north US 87 experience a decrease in "local" traffic percentages. Routes with a significant percentage of personal "through" trips in Fredericksburg are:

- US 87, north of Fredericksburg, to US 87, south of Fredericksburg (24 percent and 29 percent of incoming N US 87 traffic during the weekday and weekend, respectively)
- SH 16, southwest of Fredericksburg, to US 290, east of Fredericksburg (23 percent and 33 percent of incoming SW SH 16 traffic during the weekday and weekend, respectively)
- US 290, west of Fredericksburg, to US 290, east of Fredericksburg (26 percent and 37 percent of incoming W US 290 traffic during the weekday and weekend, respectively)

Commercial traffic makes up a small portion of traffic in Fredericksburg when compared to the personal vehicle trips. The largest amount of commercial traffic originates from US 290, east of Fredericksburg, and SH 16 provides the lowest amount of commercial traffic compared to the other roadways studied. Generally, the large majority of commercial vehicles are "through" traffic, with the exception of incoming traffic at SH 16, southwest of Fredericksburg. The roadway origins with the greatest "through" traffic percentages are US 290, west of Fredericksburg, and US 87, north of Fredericksburg. US 290, west of Fredericksburg, experiences the largest percentage change in the "local" and "through" traffic ratio, as it serves 7 percent less "local" traffic on the weekends. Routes with a significant percentage of commercial "through" trips in Fredericksburg are:

- US 87, north of Fredericksburg, to US 87, south of Fredericksburg (67 percent and 75 percent of incoming N US 87 traffic during the weekday and weekend, respectively)
- US 87, south of Fredericksburg, to US 87, north of Fredericksburg (37 percent and 45 percent of incoming S US 87 traffic during the weekday and weekend, respectively)
- SH 16, northeast of Fredericksburg, to US 87, south of Fredericksburg (33 percent and 37 percent of incoming NE SH 16 traffic during the weekday and weekend, respectively)
- SH 16, southwest of Fredericksburg, to US 290, east of Fredericksburg (23 percent and 30 percent of incoming SW SH 16 traffic during the weekday and weekend, respectively)
- US 290, west of Fredericksburg, to US 290, east of Fredericksburg (78 percent and 86 percent of incoming W US 90 traffic during the weekday and weekend, respectively)
- US 290, east of Fredericksburg, to US 290, west of Fredericksburg (25 percent and 33 percent of incoming E US 290 traffic during the weekday and weekend, respectively)

Table 3: Personal Vehicle Origin-Destination Summary

Origin	Day Type	Incoming Trips from Origin	Destination %							% Through	% Local
			Fredericksburg	N US 87	S US 87	NE SH 16	SW SH 16	W US 290	E US 290		
N US 87	Weekday	4,362	62%	-	24%	1%	6%	1%	7%	38%	62%
	Weekend	3,831	53%	-	29%	1%	2%	1%	15%	47%	53%
S US 87	Weekday	4,879	80%	6%	-	6%	4%	1%	4%	20%	80%
	Weekend	4,662	81%	5%	-	7%	1%	0%	6%	19%	81%
NE SH 16	Weekday	1,998	80%	0%	6%	-	7%	0%	6%	20%	80%
	Weekend	1,852	78%	0%	9%	-	5%	0%	8%	22%	78%
SW SH 16	Weekday	4,212	70%	1%	3%	3%	-	0%	23%	30%	70%
	Weekend	3,704	59%	1%	3%	4%	-	0%	33%	41%	59%
W US 290	Weekday	2,660	69%	0%	4%	1%	1%	-	26%	31%	69%
	Weekend	2,373	60%	0%	2%	0%	1%	-	37%	40%	60%
E US 290	Weekday	6,846	71%	2%	3%	2%	16%	6%	-	29%	71%
	Weekend	7,793	80%	2%	3%	1%	11%	3%	-	20%	80%

Table 4: Commercial Vehicle Origin-Destination Summary

Origin	Day Type	Incoming Trips from Origin	Destination %							% Through	% Local
			Fredericksburg	N US 87	S US 87	NE SH 16	SW SH 16	W US 290	E US 290		
N US 87	Weekday	617	17%	-	67%	0%	6%	2%	8%	83%	17%
	Weekend	291	13%	-	75%	0%	2%	1%	9%	87%	13%
S US 87	Weekday	367	45%	37%	-	6%	3%	2%	7%	55%	45%
	Weekend	293	44%	45%	-	3%	1%	2%	5%	56%	44%
NE SH 16	Weekday	272	41%	1%	33%	-	17%	2%	5%	59%	41%
	Weekend	56	36%	1%	37%	-	17%	2%	7%	64%	36%
SW SH 16	Weekday	337	60%	7%	4%	6%	-	1%	23%	40%	60%
	Weekend	94	60%	3%	3%	5%	-	0%	30%	40%	60%
W US 290	Weekday	325	16%	2%	3%	1%	1%	-	78%	84%	16%
	Weekend	205	9%	0%	3%	1%	0%	-	86%	91%	9%
E US 290	Weekday	838	43%	6%	8%	1%	18%	25%	-	57%	43%
	Weekend	598	39%	11%	3%	1%	13%	33%	-	61%	39%

The percentages of total Fredericksburg "through" traffic captured by each relief route alternative are summarized for personal and commercial vehicles in Table 5 and Table 6. By connecting US 87, north of Fredericksburg, the Southern Relief Route Option B captures 15 to 20 percent more personal "through" trips compared to the Southern Relief Route Option A, and the Northern Relief Route captures the least. There is no significant difference between the relief route capture for personal trips between the weekdays and the weekend.

The Southern Route Option B captures nearly all commercial "through" trips, with 90 percent and 95 percent of commercial "through" trips captured during a weekday and weekend, respectively. Commercial "through" trips are captured by the Southern Route Option B nearly three times as much as the Northern Route during weekdays. During both weekdays and weekends, Southern Route Option B captures almost double the amount of "through" Fredericksburg traffic than Southern Route Option A.

Table 5: Personal Vehicle Relief Route Capture Summary

Day Type	Through Trip Relief Route Capture		
	Northern Route	Southern Route - A	Southern Route - B
Weekday	25%	62%	78%
Weekend	23%	62%	80%

Table 6: Commercial Vehicle Relief Route Capture Summary

Day Type	Through Trip Relief Route Capture		
	Northern Route	Southern Route - A	Southern Route - B
Weekday	32%	50%	90%
Weekend	42%	51%	95%

Results based on a preliminary methodology indicated that approximately 6,500 total trips, including 1,000 commercial trips, could be diverted from Downtown with the Southern Route Option B; however, after further refinement of the methodology and updates to the assumed commercial vehicle percentages from TxDOT, the analysis results were updated and are provided in Tables 7 through 10.

Table 7 and Table 8 present the potential personal trip diversion of "through" trips, including those passing through Downtown Fredericksburg, during weekdays and weekends for each origin and each relief route alternative. This was determined by evaluating the percent of "through" trips captured by each relief route and the percent of "through" trips that could potentially be diverted from Downtown with the exclusion and inclusion, respectively, of the Middle Filter in the O-D analysis.

A southern route provides greater personal trip diversion during both weekdays and weekends compared to a northern route option, and the addition of US 87 North to form Southern Route Option B significantly increases the personal "through" trips diverted from the Fredericksburg area and Downtown Fredericksburg. The Southern Route Option B captures about three times as many "through" trips as the Northern Route and about 2,000 more trips than Southern Route Option A during both weekdays and weekends. The percentage of trips captured by the relief routes from each origin is generally low, as the majority of personal trips around Fredericksburg are "local" and may not use a relief route.

The majority of personal "through" trips potentially captured by the Northern Route currently pass through Downtown Fredericksburg. Southern Route Option A potentially diverts approximately the same number of trips from Downtown as the Northern Route, but Southern Route Option B potentially captures about 2,000 more daily trips from Downtown than each of the other two alternatives during weekdays and weekends. Southern Route Option B may divert almost 4,000 personal "through" trips passing through Downtown—roughly twenty-five percent of existing traffic on US 290 in Downtown Fredericksburg, based on collected traffic counts provided in Table 1.

Table 9 and Table 10 present the potential commercial trip diversion on both weekdays and weekends for all relief route alternatives. Southern Relief Route Option B is expected to serve almost three times and two times the amount of commercial "through" traffic as the Northern Route and Southern Route Option A, respectively. The connection of US 87, north of Fredericksburg, with a southern relief route doubles the potential trips diverted, as a large amount of commercial traffic passing through Fredericksburg originates from US 87 North.

Southern Route Option B diverts more than double the commercial traffic passing through Downtown during weekdays and weekends compared to Southern Route Option A and the Northern Route due to the connection of US 87 North.

During both the weekdays and weekends, the Southern Route Option B may divert about 30 percent of the total traffic on US 290/US 87 in Downtown Fredericksburg, based on the collected traffic counts provided in Table 1. It should be noted that a significant amount of "through" trips to and from the southern study zones are not accounted for when analyzing the trips passing through Downtown, indicating that other existing routes are being utilized

Table 7: Weekday Personal Trip Diversion by Relief Route

Origin	Relief Route Alternative								
	Northern Route			Southern Route - A			Southern Route - B		
	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown
N US 87	8%	350	291	0%	0	0	37%	1,632	1,447
S US 87	0%	0	0	9%	423	78	14%	705	360
NE SH 16	6%	128	96	0%	0	0	0%	0	0
SW SH 16	0%	0	0	26%	1,097	321	27%	1,149	351
W US 290	27%	716	716	30%	795	780	30%	795	780
E US 290	10%	708	647	25%	1,679	726	27%	1,817	864
Total	-	1,902	1,750	-	3,994	1,905	-	6,098	3,802

Table 8: Weekend Personal Trip Diversion by Relief Route

Origin	Relief Route Alternative								
	Northern Route			Southern Route - A			Southern Route - B		
	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown
N US 87	16%	630	600	0%	0	0	46%	1,765	1,677
S US 87	0%	0	0	7%	314	99	12%	556	333
NE SH 16	8%	144	93	0%	0	0	0%	0	0
SW SH 16	0%	0	0	36%	1,337	367	37%	1,357	376
W US 290	37%	879	879	40%	944	922	40%	944	922
E US 290	6%	458	419	17%	1,314	532	19%	1,456	673
Total	-	2,111	1,991	-	3,909	1,920	-	6,078	3,981

Table 9: Weekday Commercial Trip Diversion by Relief Route

Origin	Relief Route Alternative								
	Northern Route			Southern Route - A			Southern Route - B		
	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown
N US 87	10%	60	48	0%	0	0	83%	509	478
S US 87	0%	0	0	12%	44	16	49%	179	151
NE SH 16	9%	24	19	0%	0	0	0%	0	0
SW SH 16	0%	0	0	27%	91	25	34%	114	40
W US 290	80%	262	254	81%	265	262	83%	270	262
E US 290	32%	266	262	50%	420	271	56%	471	322
Total	-	612	583	-	820	574	-	1,543	1,253

Table 10: Weekend Commercial Trip Diversion by Relief Route

Origin	Relief Route Alternative								
	Northern Route			Southern Route - A			Southern Route - B		
	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown	% of Total Trips from Origin on Route	# of Trips from Origin	# of Trips Diverted from Downtown
N US 87	10%	29	25	0%	0	0	87%	254	245
S US 87	0%	0	0	8%	24	12	53%	156	144
NE SH 16	10%	6	4	0%	0	0	0%	0	0
SW SH 16	0%	0	0	33%	31	8	36%	34	10
W US 290	87%	179	178	90%	185	184	90%	185	184
E US 290	45%	268	266	49%	292	231	60%	359	298
Total	-	482	473	-	532	435	-	988	881

around the Downtown area. This disparity can be seen between the trip totals between the number of trips from each origin and the number of trips diverted from Downtown in Tables 7 through 10. For example, from Table 7 and Table 8, over 1,000 personal "through" trips from SH 16, southwest of Fredericksburg, are captured by the Southern Route Option B; however, less than 400 of those trips pass through Downtown Fredericksburg, suggesting that most of those "through" trips use an alternate route to cross the Fredericksburg area.

Conclusion

This memorandum summarizes the methodology undertaken to characterize personal and commercial traffic patterns in Fredericksburg, Texas, to evaluate potential relief routes connecting US 290, SH 16, and US 87. The study estimated "through" and "local" trips for personal and commercial vehicles to determine the potential trip diversion from Fredericksburg and the Downtown area due to the relief route alternatives. Results indicate:

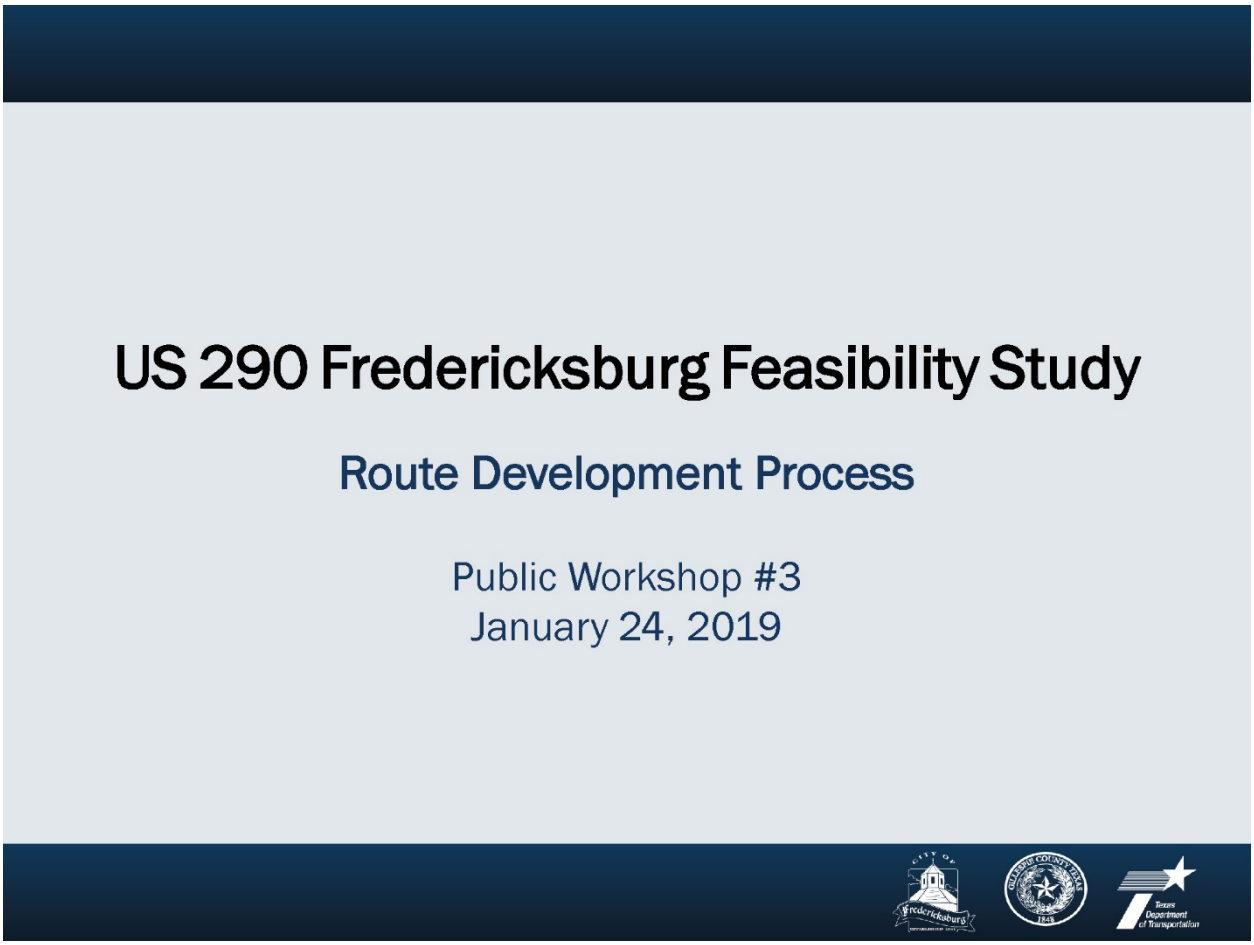
- The majority of personal trips in Fredericksburg are "local" trips with destinations in Fredericksburg
- The majority of commercial trips are "through" trips that may use a relief route circumventing the city
- A southern route connecting US 290 around Fredericksburg would serve more trips than a northern route
- Southern Relief Route Option B is similar to Option A, but offers a connection to US 87, north of Fredericksburg. This roadway could serve a significant amount of "through" traffic in Fredericksburg
- From all relief route alternatives proposed, the Southern Relief Route Option B has the potential to divert the greatest number of both personal and commercial "through" trips from the Fredericksburg area and Downtown Fredericksburg.

References

1. Statewide Planning Map, Texas Department of Transportation, Austin, Texas, txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html, accessed July 2018.

Appendix B

Presentation from Public Workshop #3

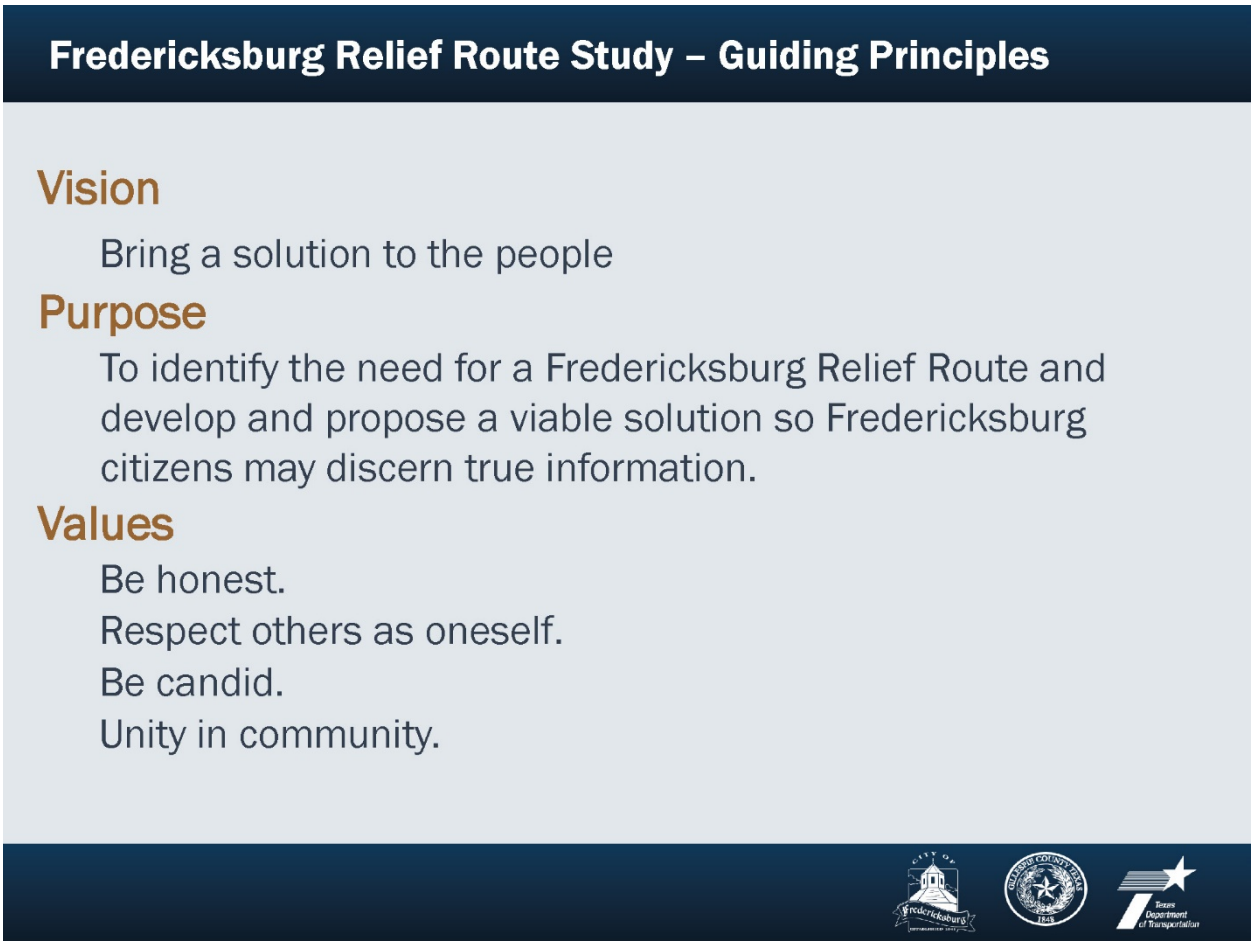


On behalf of the City of Fredericksburg, Gillespie County, and the Gillespie County Relief Route Task Force, welcome to the third public workshop of the Fredericksburg Relief Route Study. Financial support for this study is being provided by the City of Fredericksburg, Gillespie County and the Texas Department of Transportation.

Thank you for being here today. We are excited to hear your input as we continue working together to explore a potential US 290 relief route around Fredericksburg. The relief route will give people the option to travel around, rather than directly through, the city. As traffic volumes and congestion continue to increase, the need for a relief route has become an important safety and quality-of-life issue for the community.

Today we will walk you through the step-by-step process that led to the preliminary route options presented at this workshop. And, you will see how input from you and your neighbors has been used to guide the process.

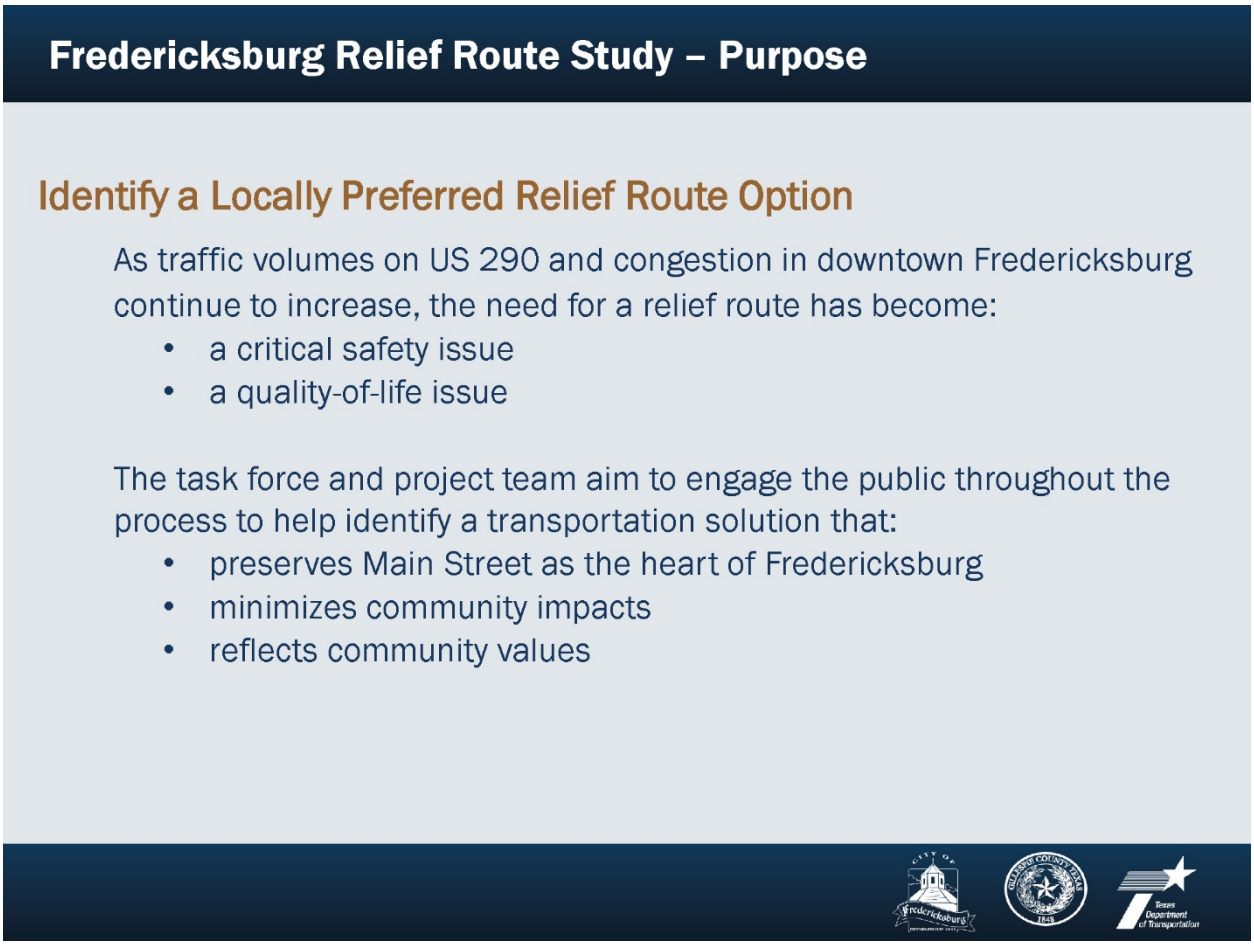
If you have questions after this presentation, we have staff available in the next room to visit with you. They will be happy to answer any questions you may have about the study or the preliminary route options. In the next room you will also be able to take a closer look at the remaining route options and provide input through an online survey or by filling out a comment form. We greatly value your participation and input.



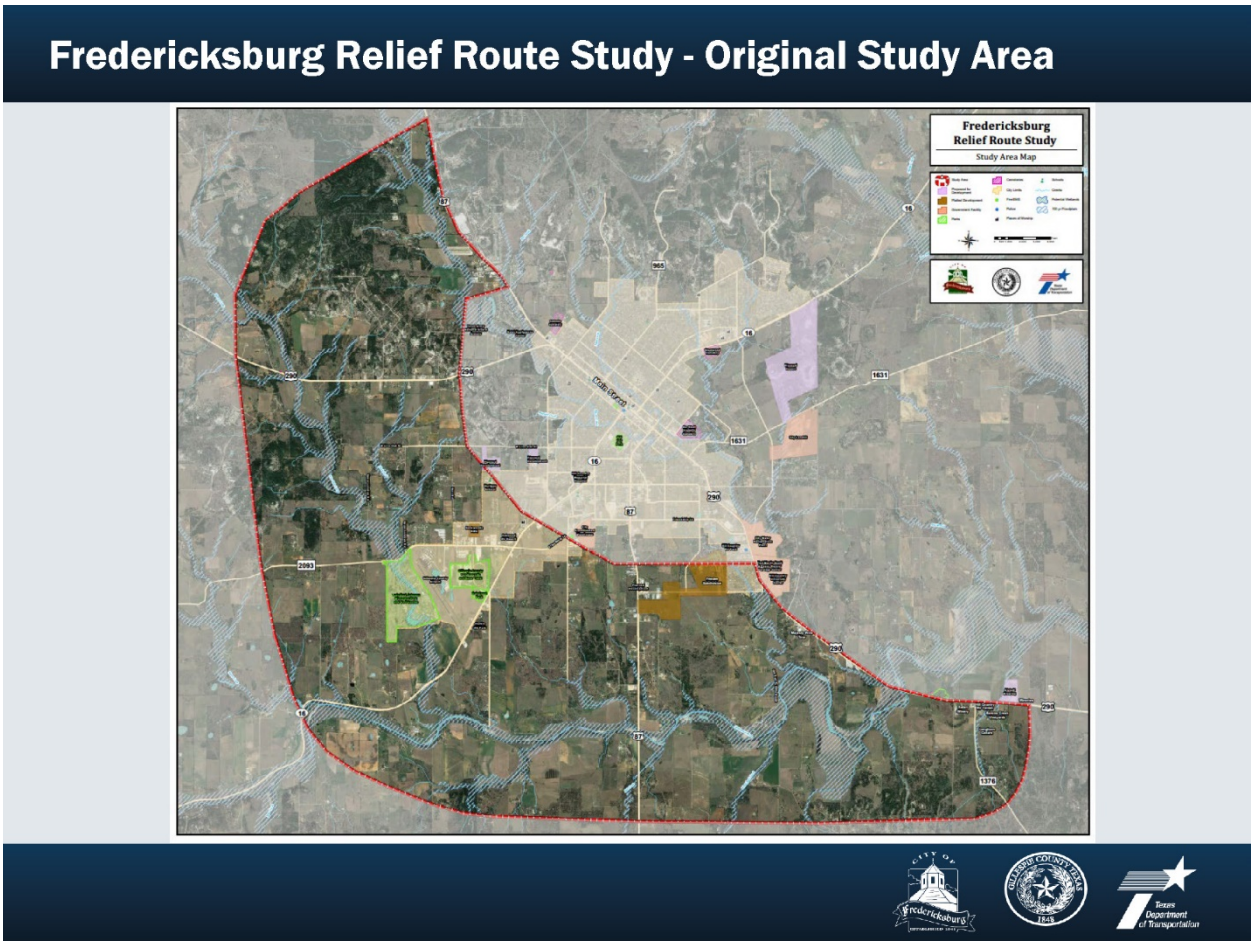
It is important for you to understand that the Fredericksburg Relief Route Study is a locally driven process – led by the Gillespie County Relief Route Task Force.

In 2013, prior to this feasibility study, the Gillespie County Relief Route Task Force was established. The task force includes representatives from the City of Fredericksburg, Gillespie County, the Fredericksburg Chamber of Commerce, the Gillespie County Economic Development Commission, the Fredericksburg Convention and Visitor Bureau, the Gillespie County Farm Bureau, and the general public.

The Task Force identified its Vision, Purpose, and Values—shown here—with the community in mind. It is the hope of the Task Force that a solution for a Relief Route will be proposed in a way that all citizens will be able to fully understand and be involved in the process, as well as receive all necessary information. The Task Force members believe in honesty, respect, being candid, and fostering unity in the community.

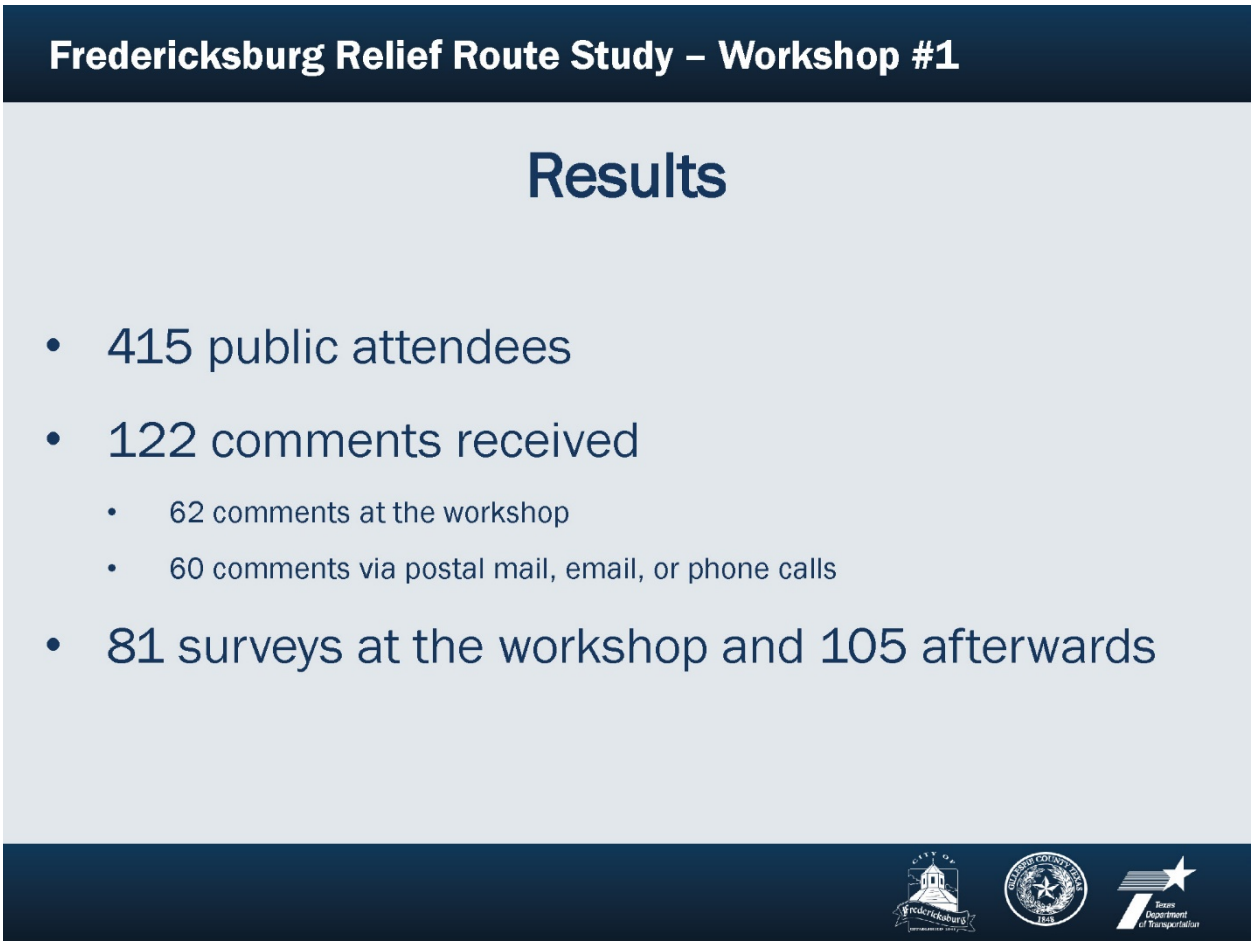


The purpose of the Relief Route Study is to identify a locally preferred route option that reflects community values and is consistent with the minimum requirements agreed to by TxDOT, the City of Fredericksburg, and Gillespie County.



One of the first steps in the process was to determine the general area to be studied. Preliminary traffic studies were performed along the major highways surrounding Fredericksburg and at various areas within town to determine the traffic volumes on each of the surrounding major highways. Results showed that the most efficient placement of a proposed Relief Route would be on the southern side of the city with a connection to US 87 on the north.

This slide shows the study area as presented for public review and comment at the first public workshop which was held in May 2018.



At the May workshop, the public was asked to provide input about the project goals and objectives, help to identify study area constraints, and participate in an on-line survey. 122* comments were received at the workshop or via mail. 186 people participated in the online survey.

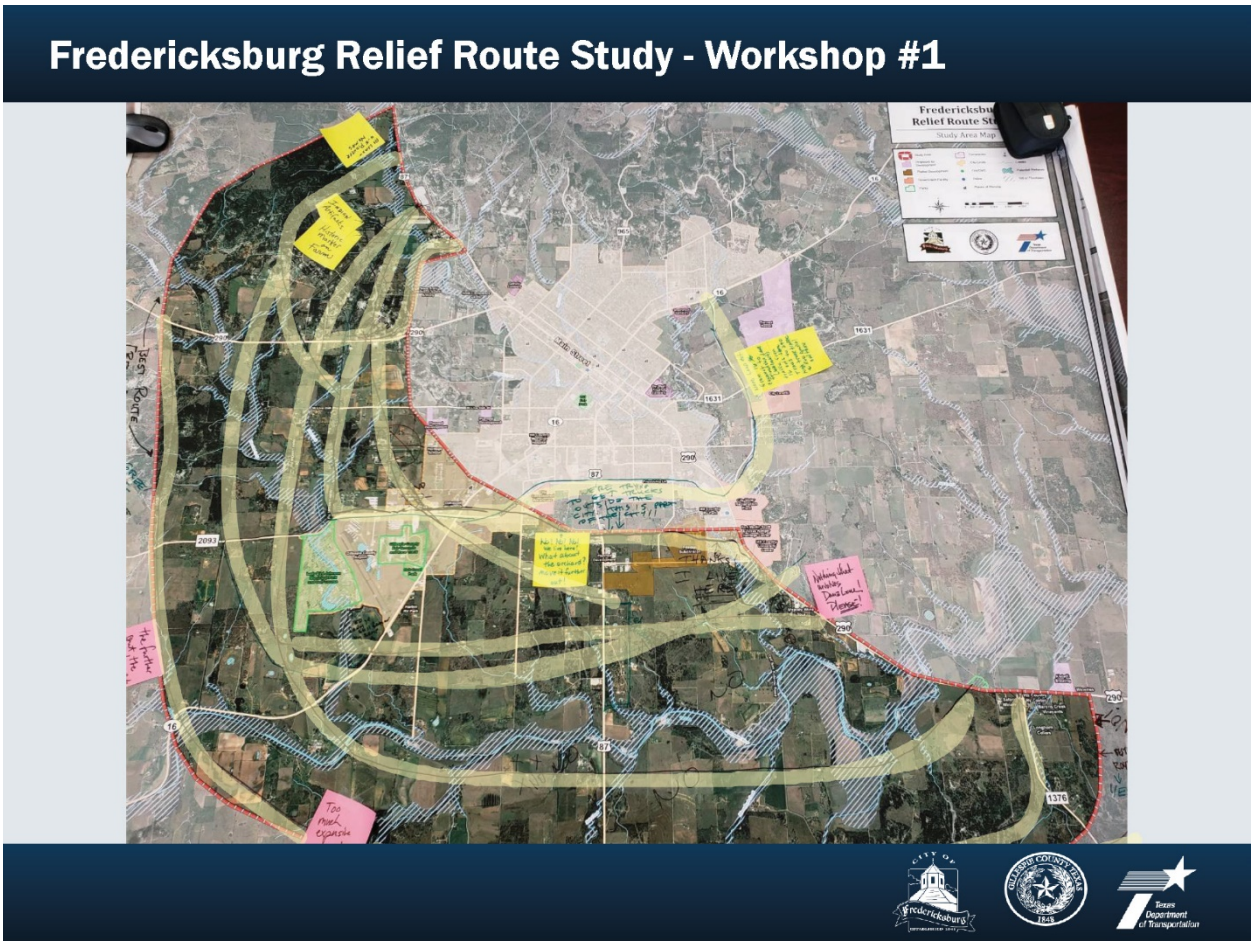
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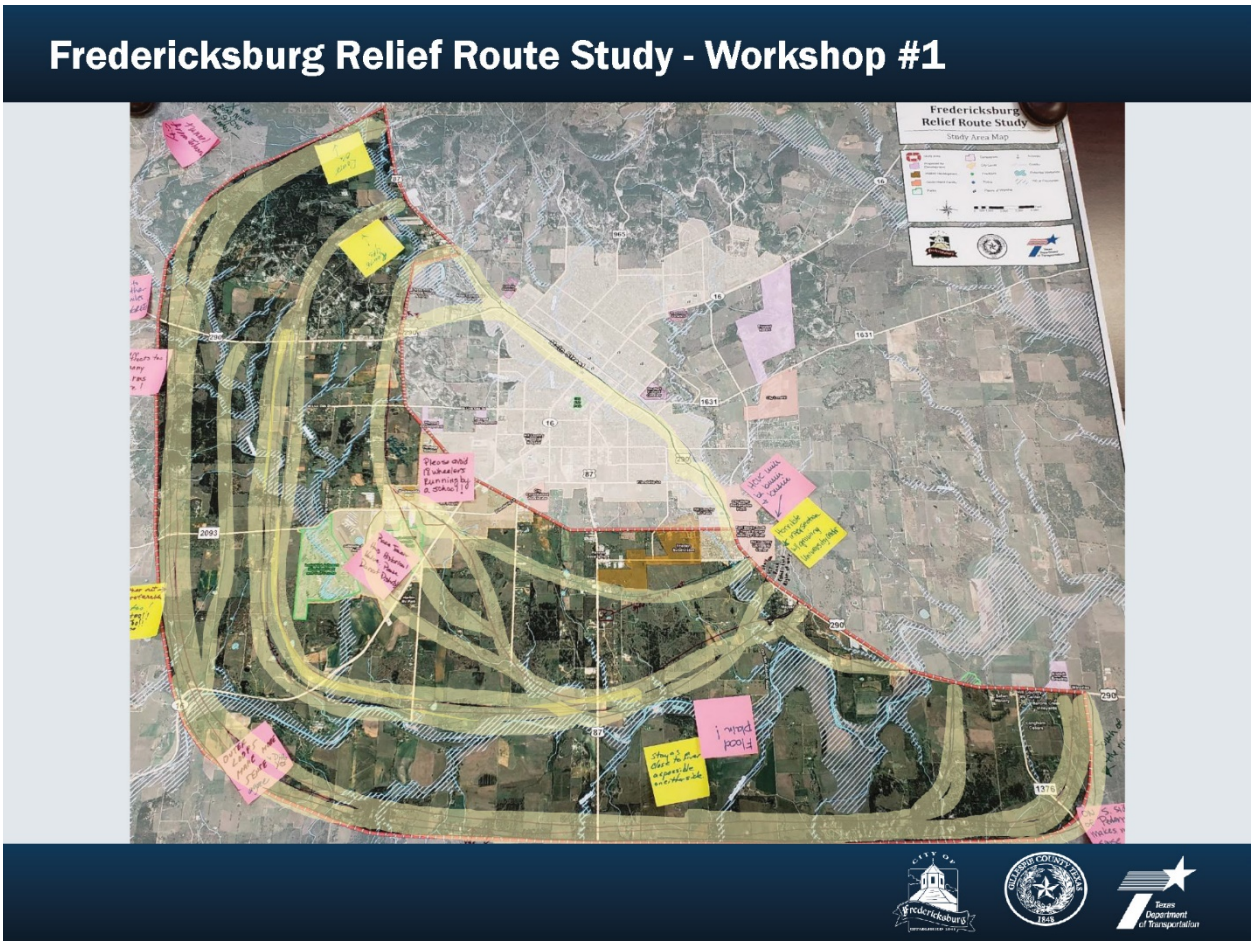
In addition, using the study area map as the backdrop, public workshop participants were asked to provide route suggestions.



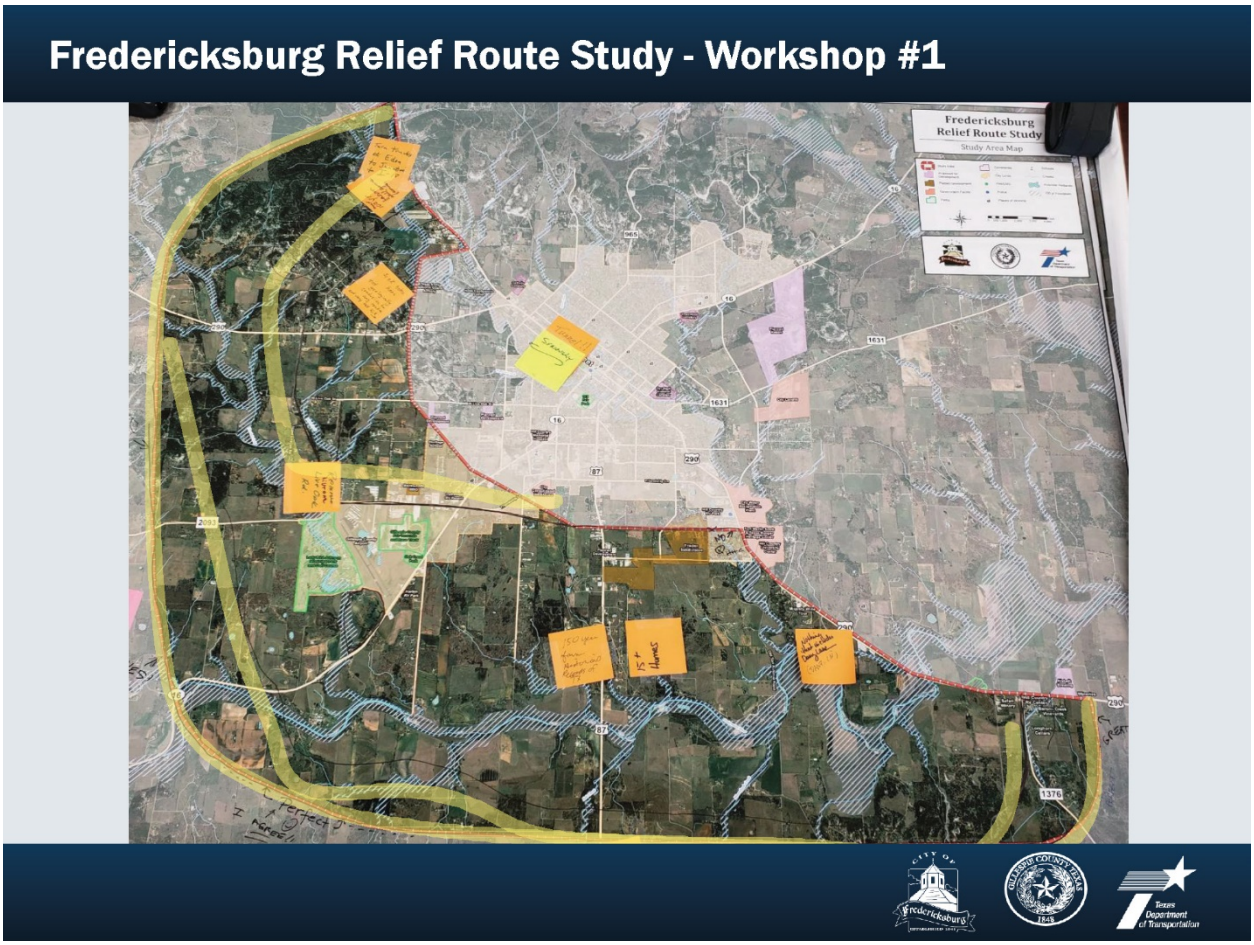
As you can see from these photos, we received many, many suggestions. (flip through slides)



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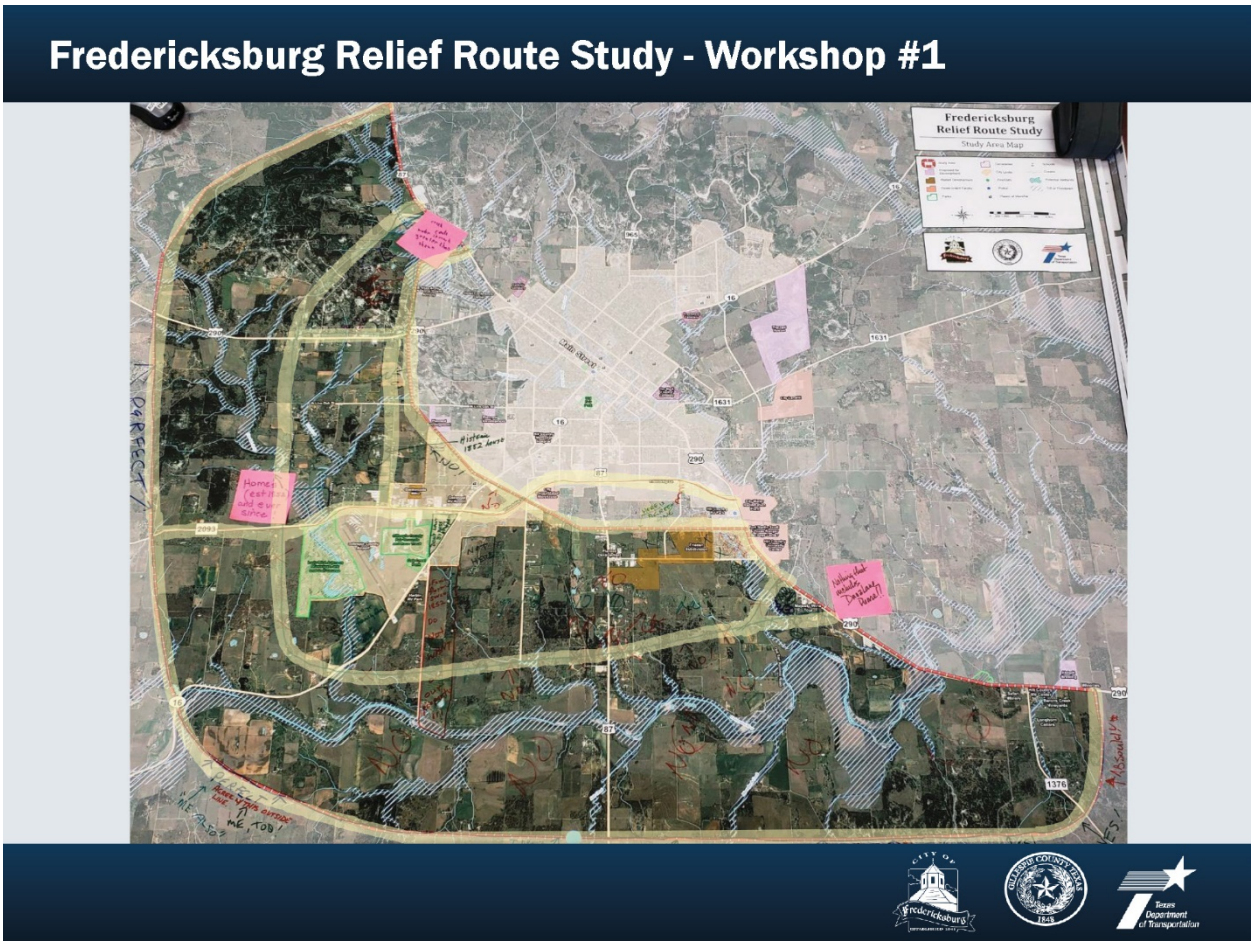
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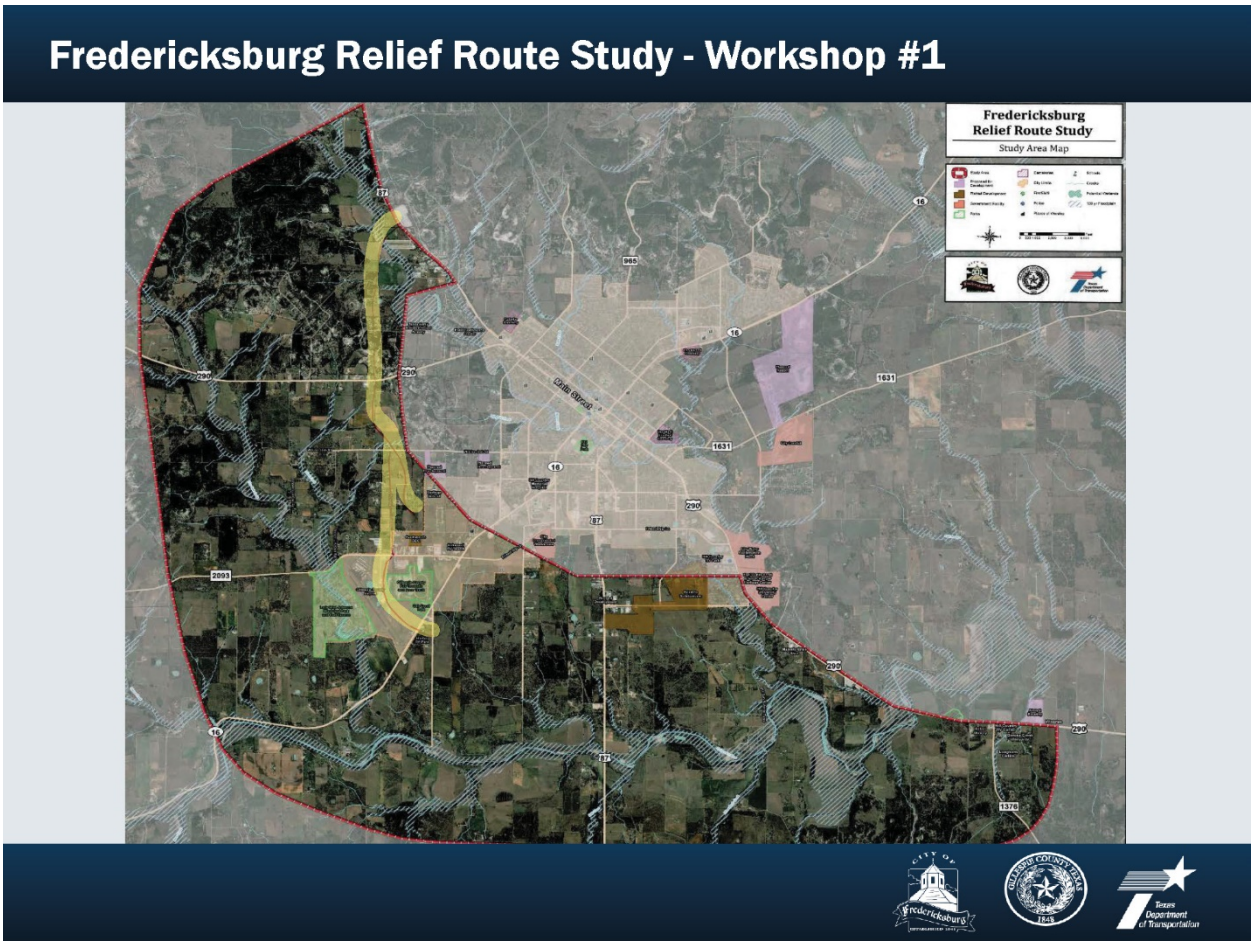
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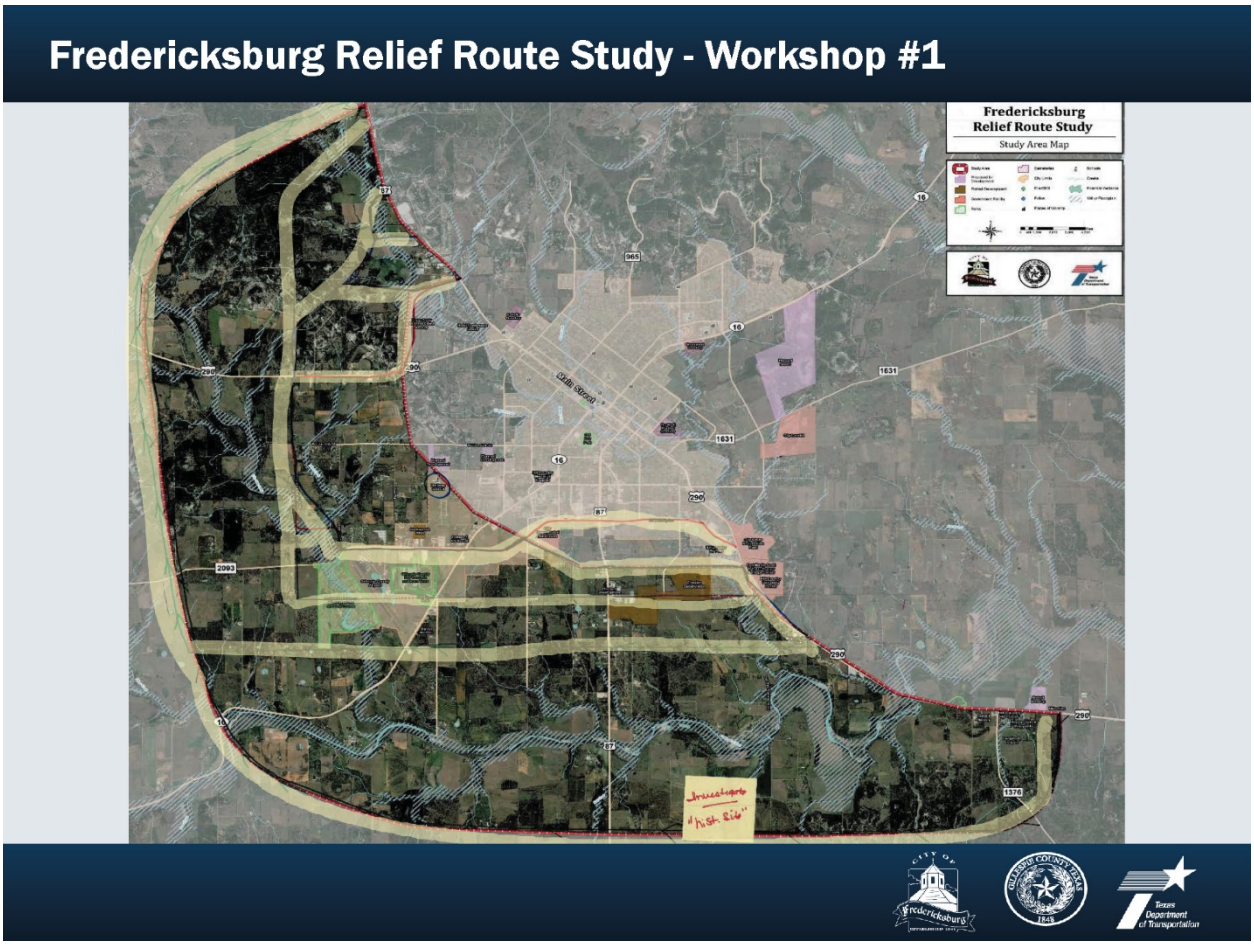
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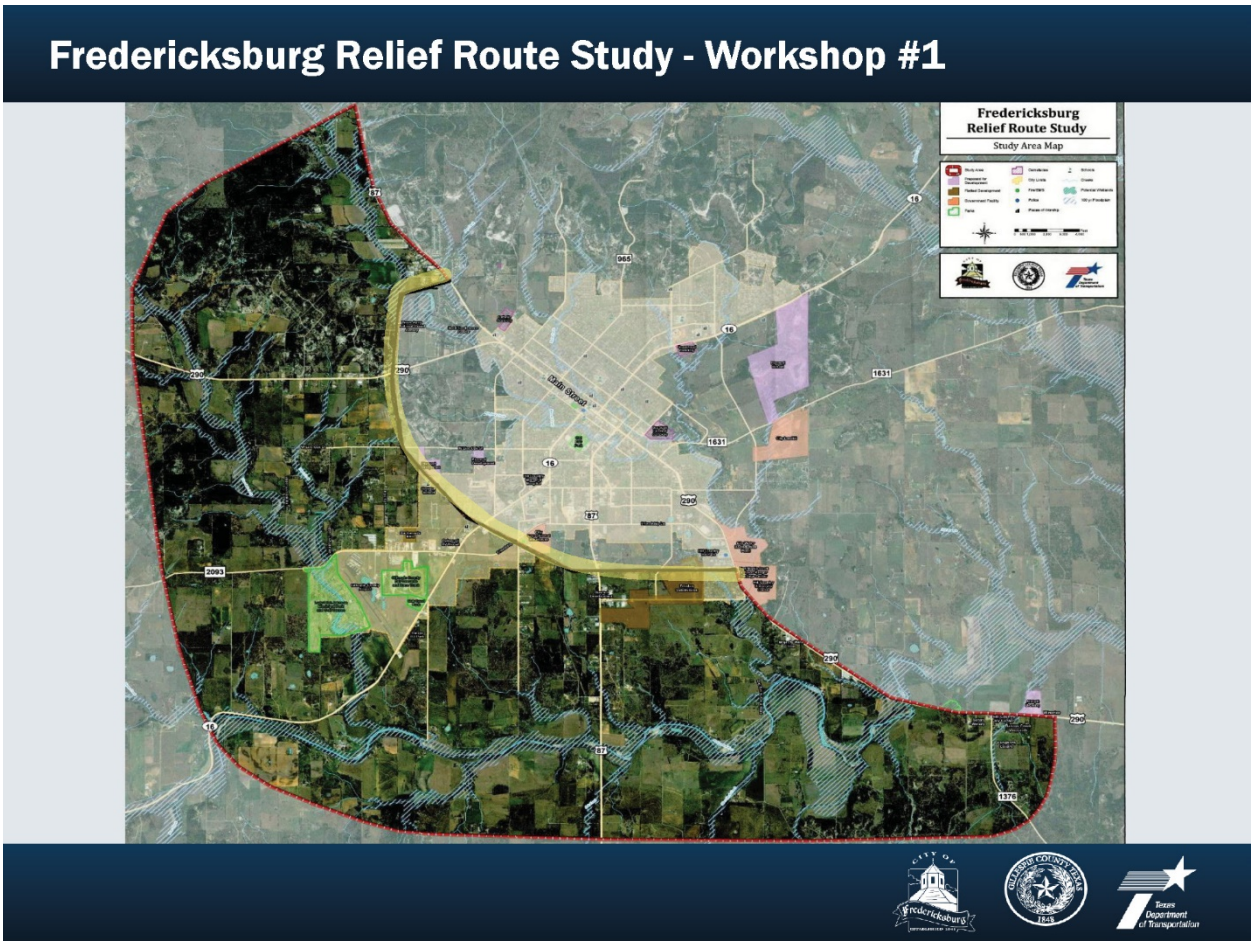
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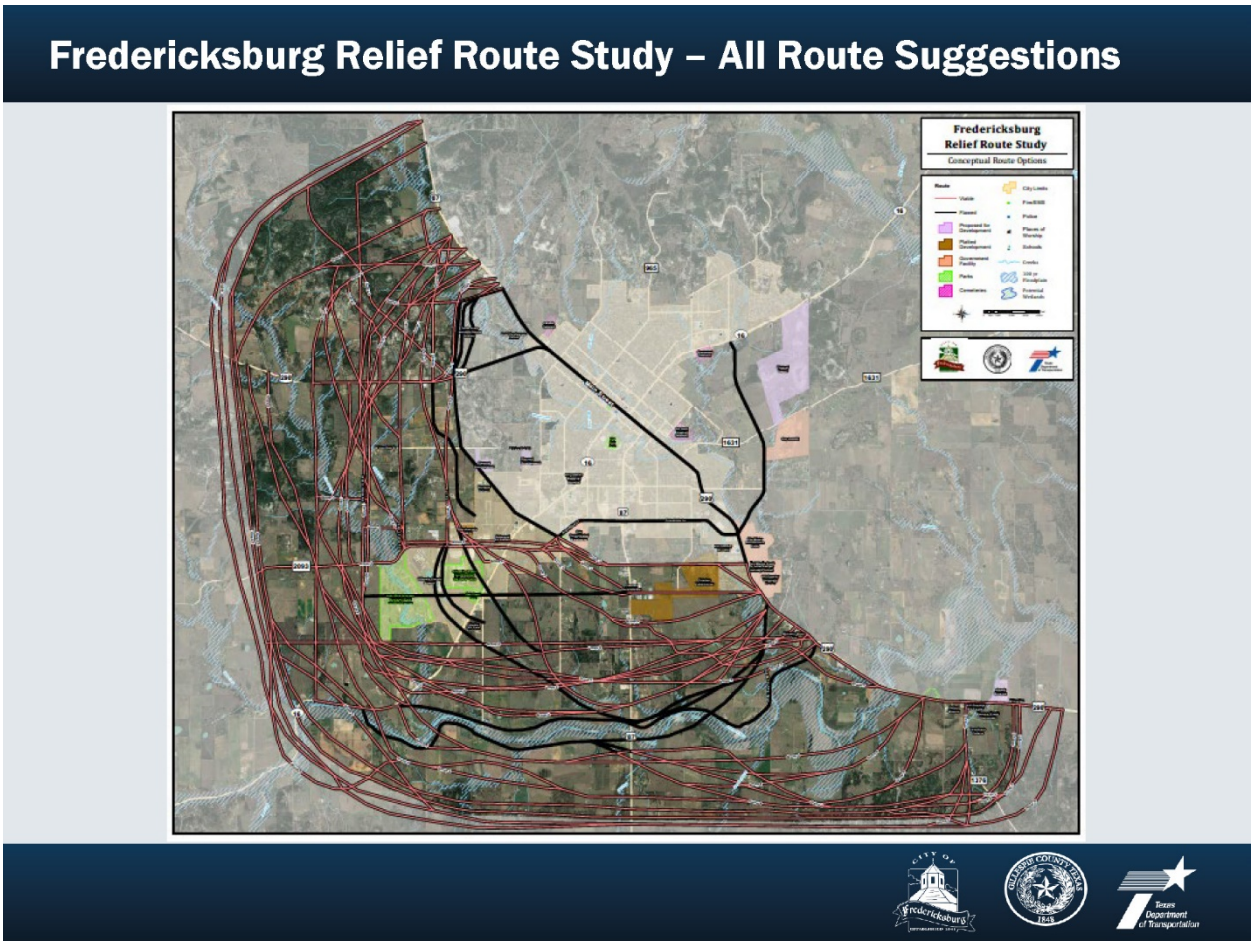
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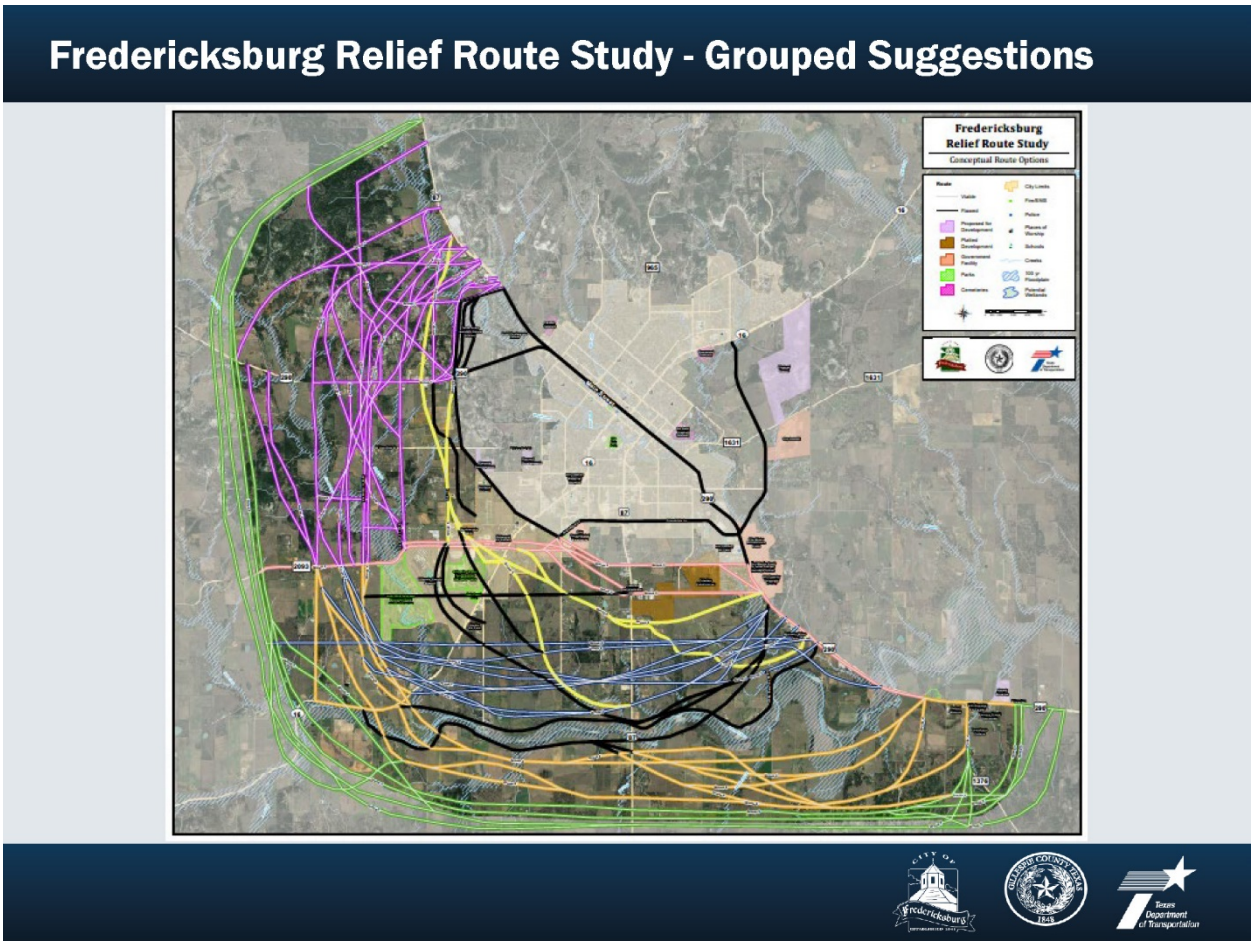


After the public workshop, the study team did its absolute best to identify and map the routes suggested by you and your neighbors. This map is a compilation of all the route suggestions we received from the first public workshop. For obvious reasons, we refer to this map as the "spaghetti bowl map."

Next, we did two things.

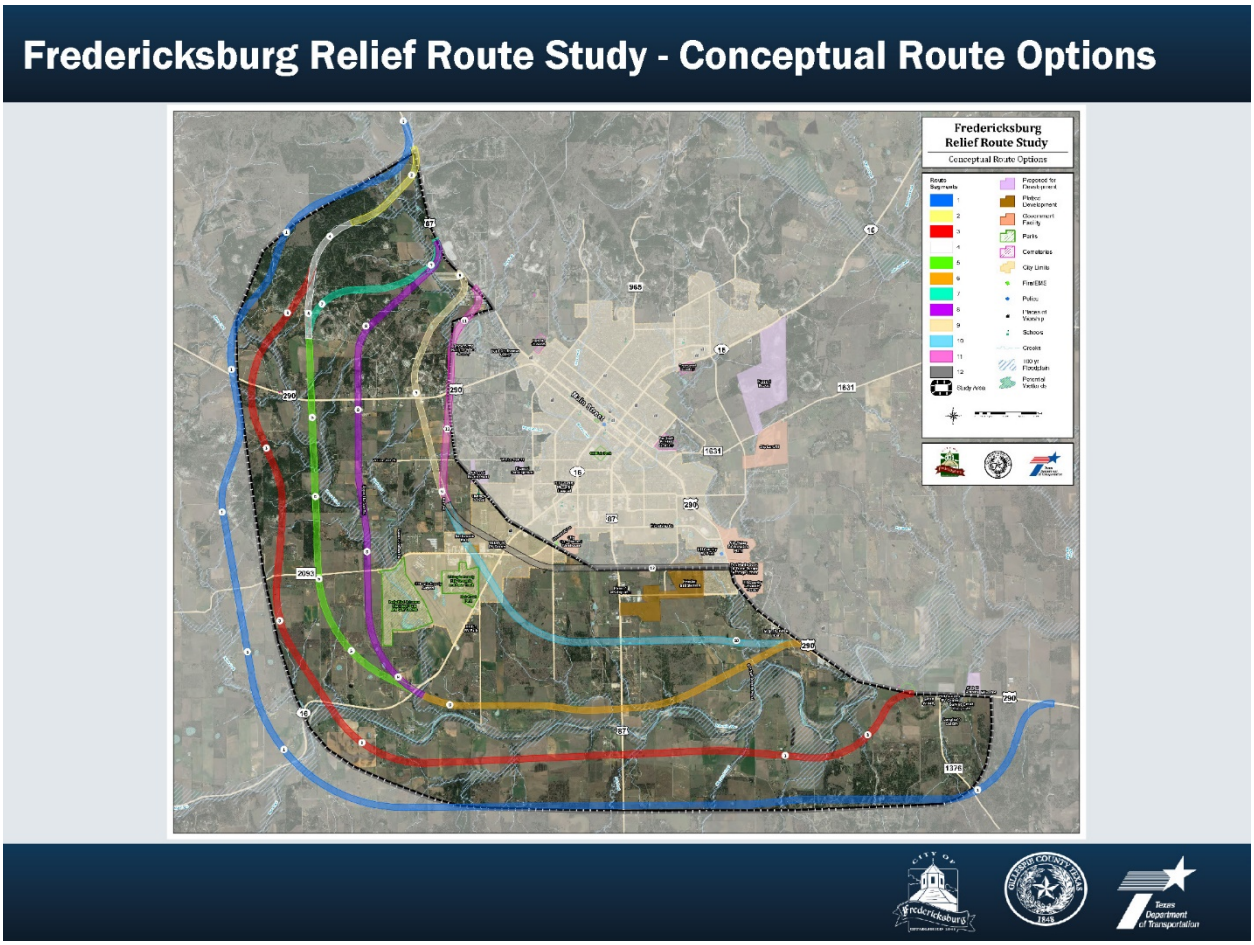
First, we identified those routes that were either fatally flawed—such as those that impacted the park, fairgrounds or airport—or severely flawed. The severely flawed group included routes that meandered along the river and would result in greater impacts to floodplains and waterways, requiring more structures.

The second thing we did was to identify common themes or common concepts within the suggestions.

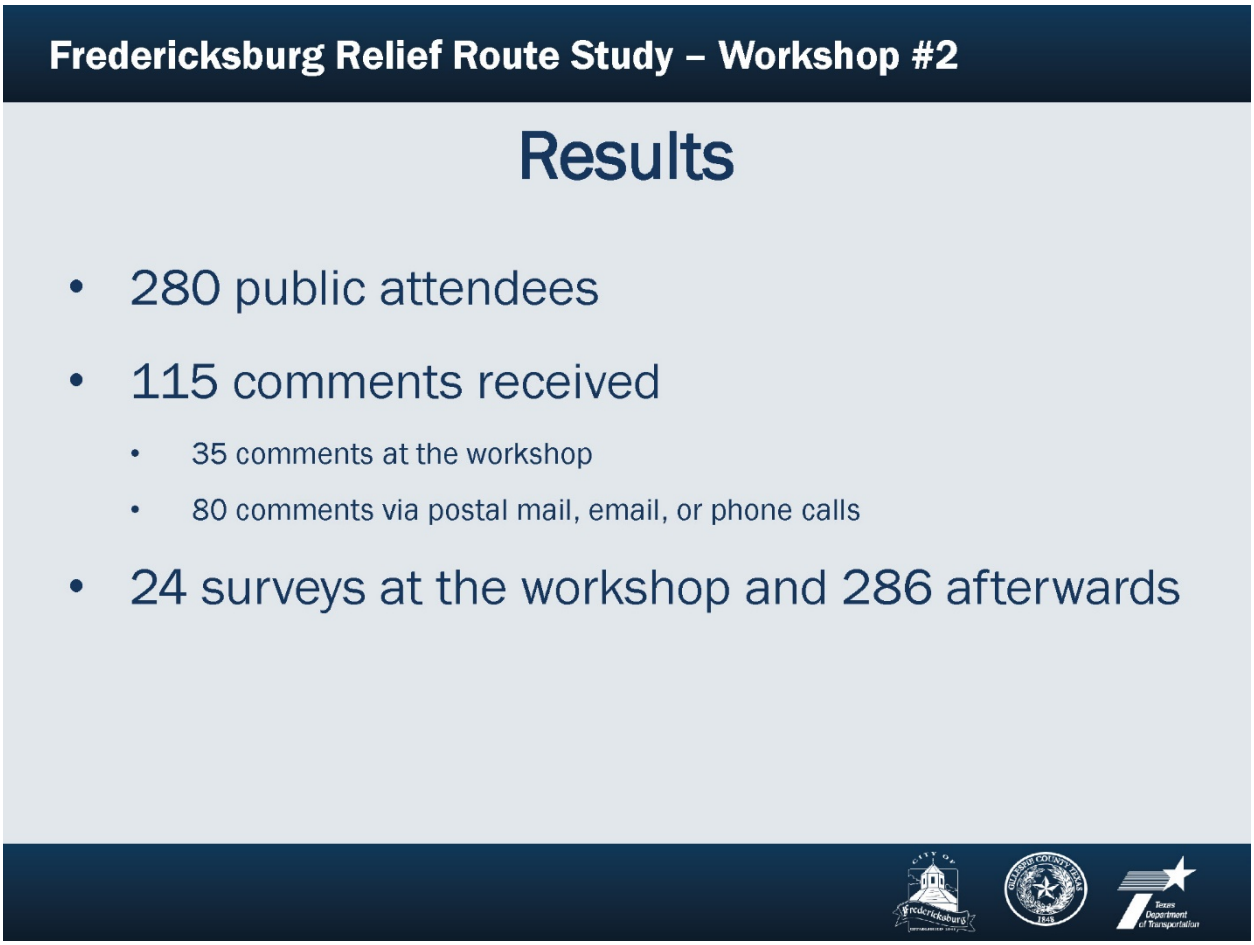


This map is the result of that effort. The routes you see in black are the fatally and severely flawed routes; the black routes were eliminated from further consideration. Six primary groups were identified within the remaining route suggestions. Each grouping is shown in a different color on this map. The next step in the route identification process was to develop a representative route for each of the six groups. At this point, engineering requirements were considered—such as design speed and curvature—and, when possible, efforts were made to minimize impacts by avoiding structures, following existing property lines, and minimizing impacts to creeks, floodplains and natural resources.

As you'll see in just a moment, we divided the routes into 12 distinct segments. This provided flexibility by allowing us to mix-and-match the route segments in various configurations.



This map shows the 12 route segments – each in a different color. It should be noted these 12 segments can be combined in various configurations to create a total of 9 end-to-end route options. This map – showing the 12 route segments – was the focus on the second public workshop.

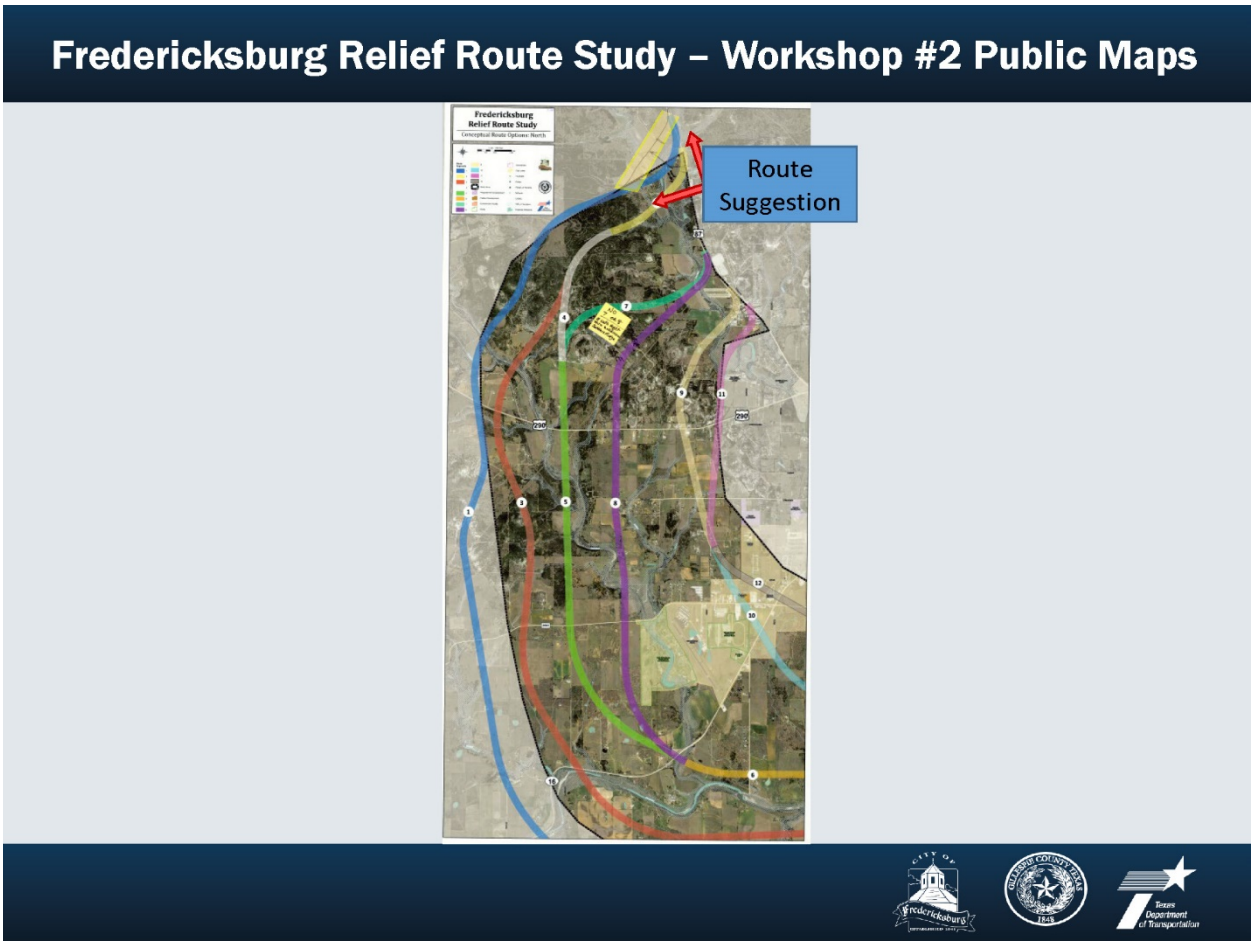


Public Workshop #2 was held on September 24, 2018. A total of 280 people attended the workshop. 115 written comments, including letters, emails, and completed comment forms, were received, and 310 responses were received from the online survey.

Workshop participants were again invited to provide comments or suggestions directly on the maps.

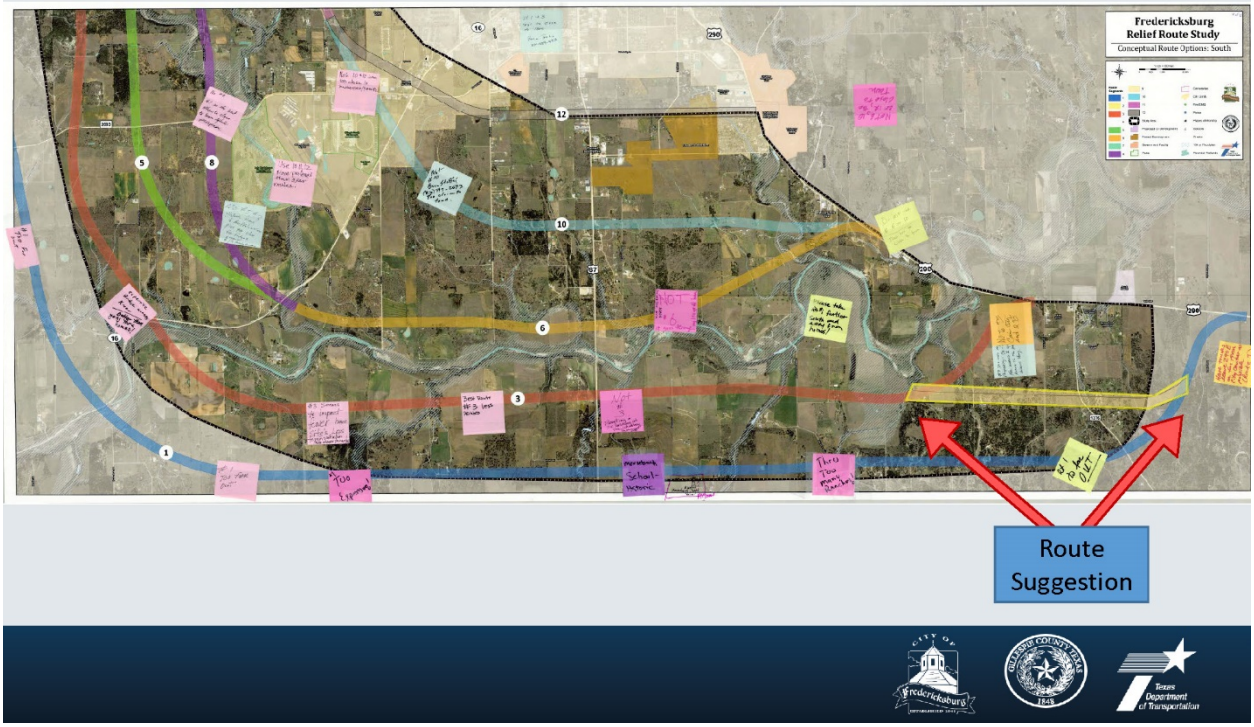


As seen in these pictures, at the September workshop we received suggestions for route modifications at several locations. (flip through slides)

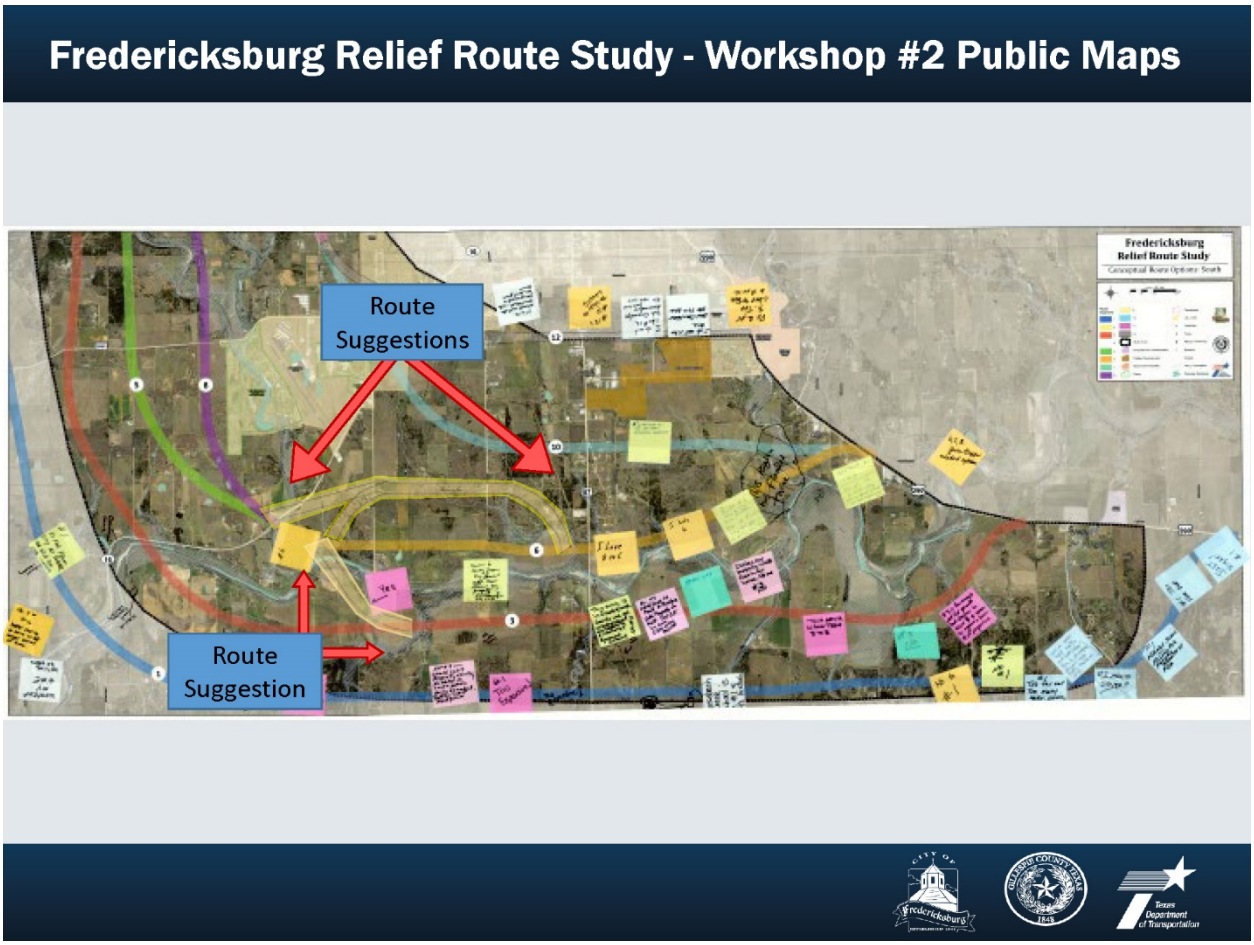


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Fredericksburg Relief Route Study - Workshop #2 Public Maps



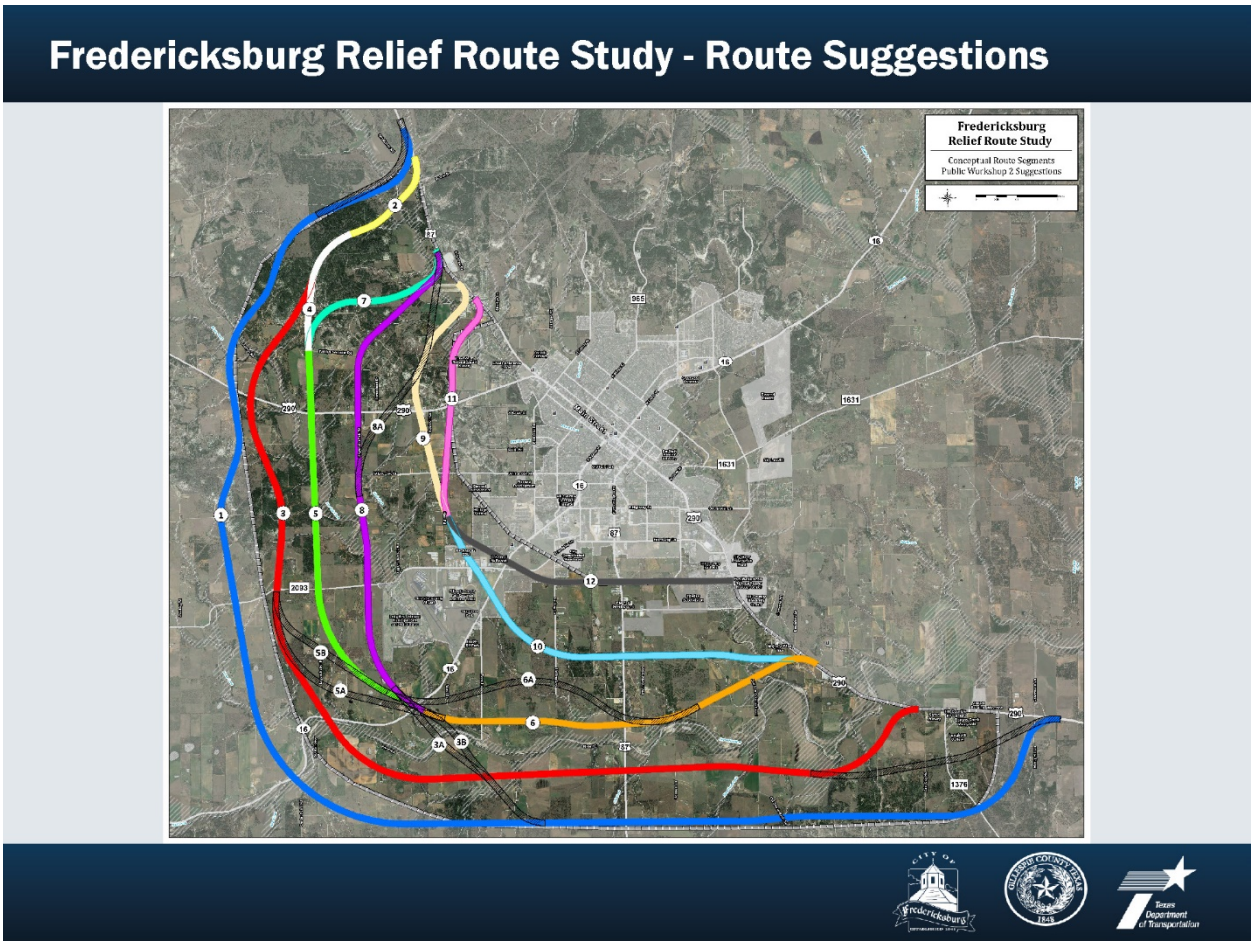
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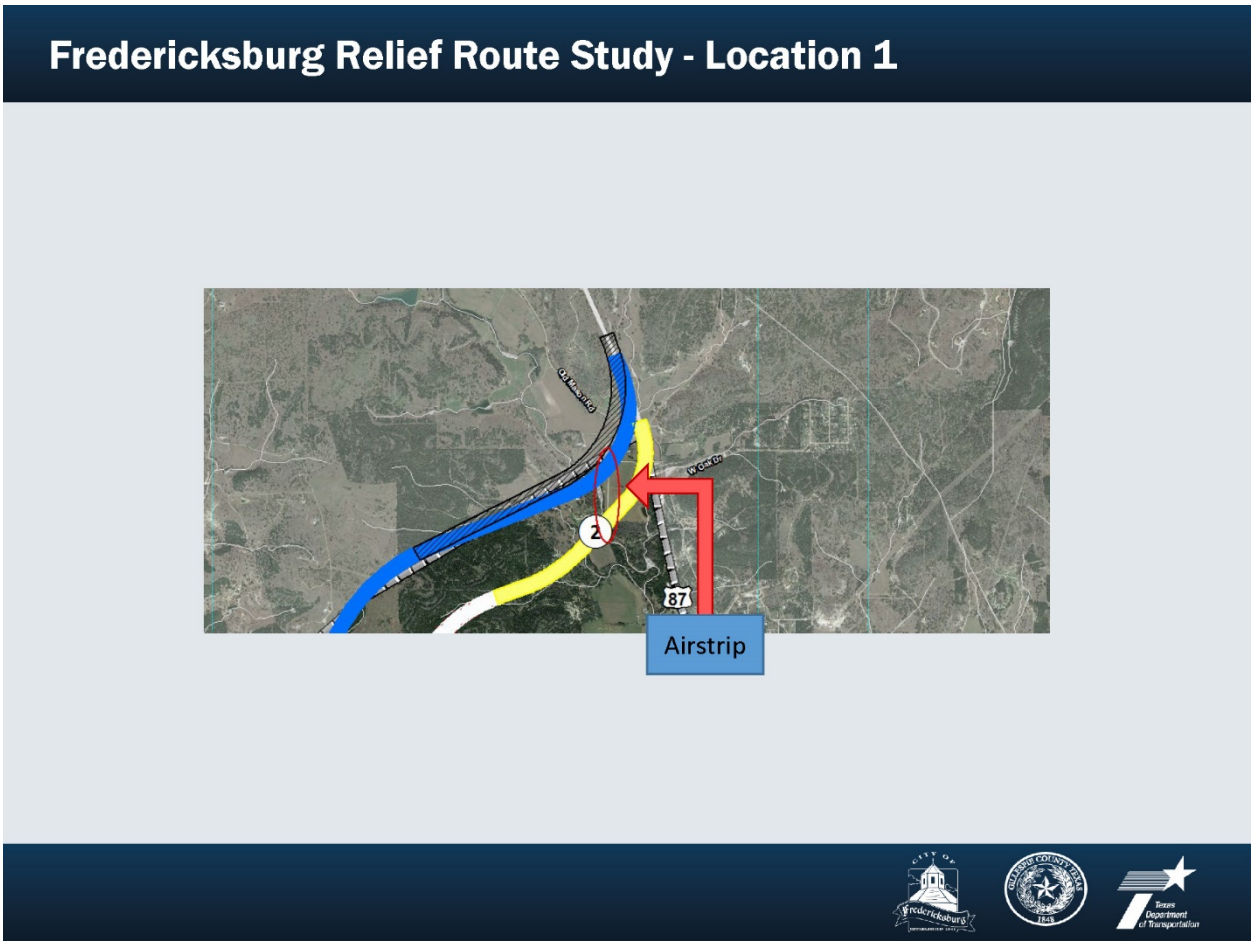
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The suggestions affected six areas. Those areas are shown as “hatched” on this map. We are now going to talk about each of them individually.



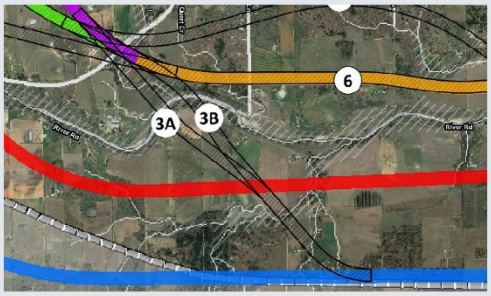
A suggestion was made to modify the blue route to avoid an existing airstrip; this modification was made.



We received a suggestion to provide a connection between the blue route and the red route. By introducing this connection, new route combinations are created. This modification was made.

The other four locations were more complicated. In two cases, more than one person suggested the same basic concept, but at slightly different locations. In the other two cases, modifications were suggested that shifted a portion of a route option while maintaining the basic route concept. All four of these situations resulted in redundant concepts. To avoid introducing unnecessary redundancy in the process, each of these locations was examined in more detail.

Fredericksburg Relief Route Study - Location 3



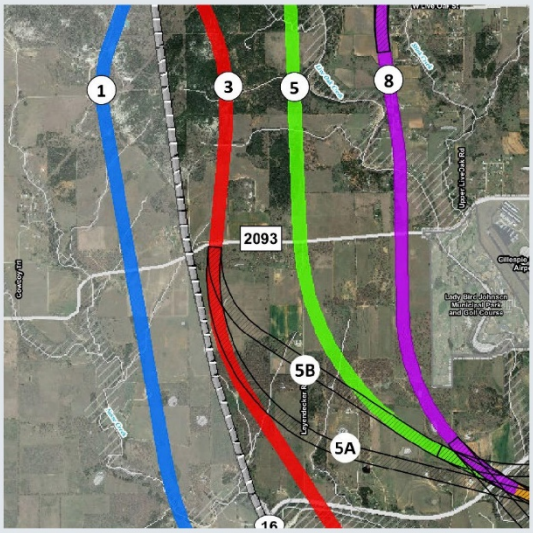
Route	Parcels	250' Structures	Bisected Parcels	Displacements	ROW (Ac.)	Length (miles)	Floodplain Acres	Creek Crossings
3A	24	9	14	8	122.8	2.5	19.24	6
3B	25	11	13	7	123.4	2.5	15.48	5

Here we are looking at what we called Option 3A and 3B. This is one of the situations where more than one person suggested the same basic concept but at slightly different locations. In this case, the concept provides a connection between the red and blue routes and the more-central routes. In order to decide which of these two options to recommend for further consideration, our team conducted an evaluation based on the following factors:

- Number of affected land parcels;
- Number of structures located within 250' of the route;
- Number of bisected parcels (bisected meaning that the parcel is split leaving the owner with property remaining on both sides of the route);
- Number of anticipated displacements;
- Amount of right of way required;
- Length;
- Acres of floodplain impacted; and
- Number of creek crossings required.

As shown in this matrix, anticipated impacts would be very close in all categories except floodplains. Based on anticipated floodplain impacts, we recommend that Option 3A be eliminated and Option 3B be carried forward.

Fredericksburg Relief Route Study - Location 4



Route	Parcels	250' Structures	Bisected Parcels	Displacements	ROW (Ac.)	Length (miles)	Floodplain Acres	Creek Crossings
5A	19	9	11	10	140.7	2.9	5.42	4
5B	20	10	12	6	130.7	2.7	4.61	4

This is the other situation where more than one person suggested the same basic concept. We're calling these Option 5A and Option 5B as they connect Segment 5 (the green route) to the red route. Here again the two options are very close in most categories; however, with Option 5A ten displacements are anticipated compared to six with Option 5B. For that reason, we recommend that Option 5A be eliminated and Option 5B be carried forward.

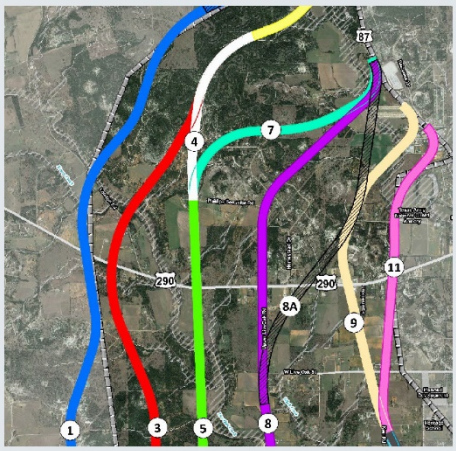
Fredericksburg Relief Route Study - Location 5



Route	Parcels	250' Structures	Bisected Parcels	Displacements	ROW (Ac.)	Length (miles)	Floodplain Acres	Creek Crossings
6	32	20	19	11	190.7	3.9	12.8	5
6A	44	19	16	16	195	4	22.53	7

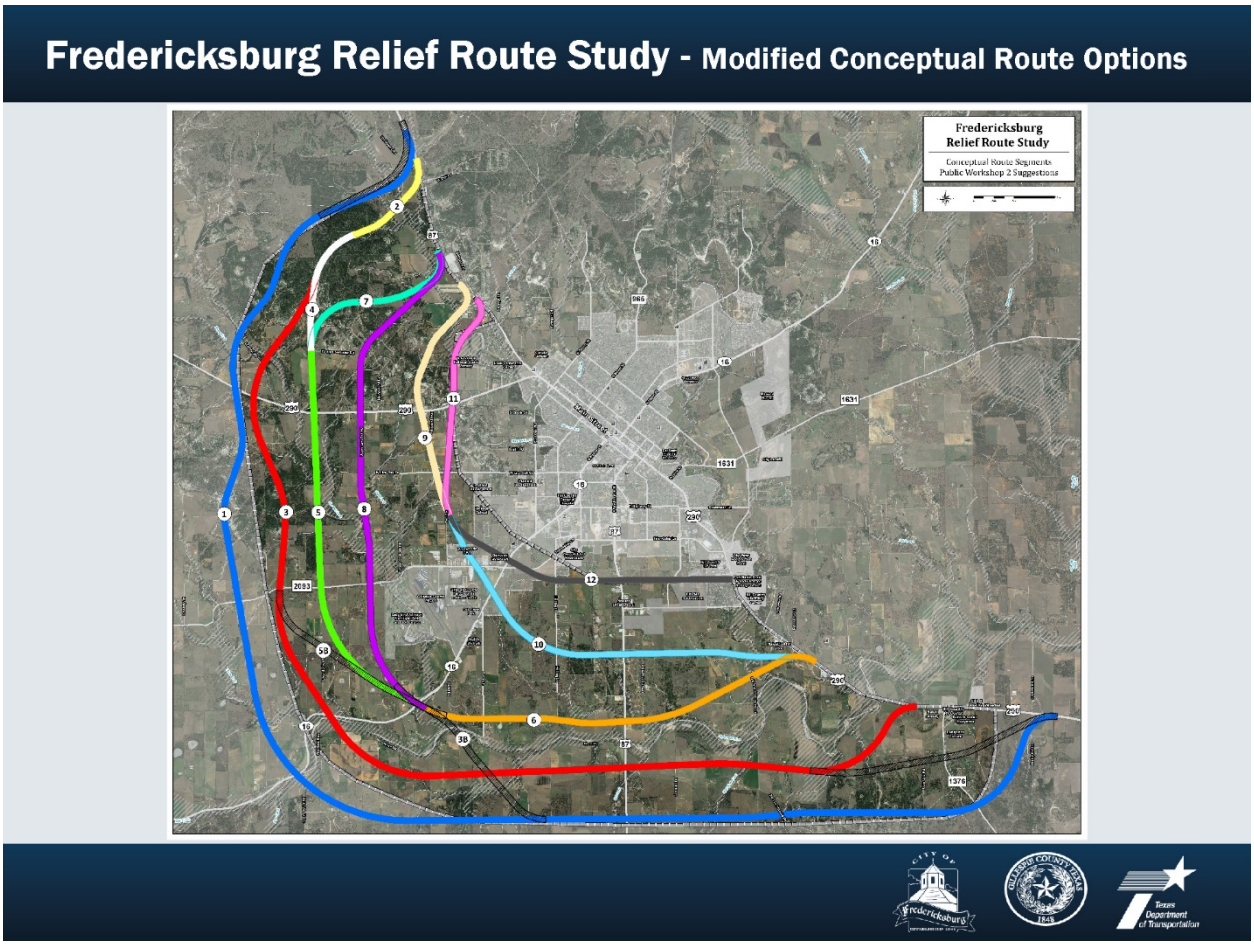
Option 6A was suggested as an alternative to Segment 6. Option 6A would impact 44 parcels, require 16 displacements, and impact 22.53 acres of floodplain, all of which were significantly higher than the original Segment 6 option. For this reason, we recommend eliminating Option 6A and carrying the original route forward.

Fredericksburg Relief Route Study - Location 6

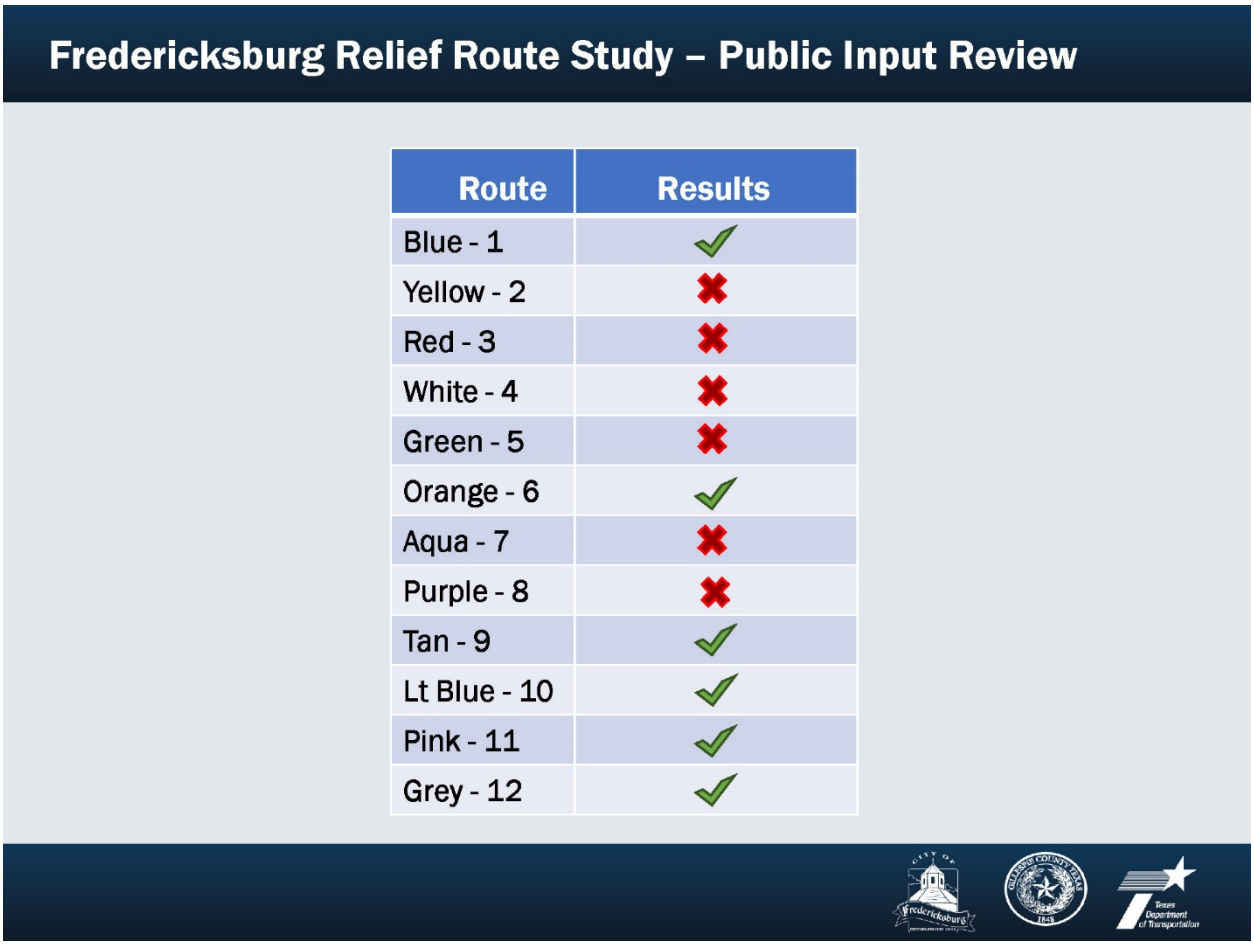


Route	Parcels	250' Structures	Bisected Parcels	Displacements	ROW (Ac.)	Length (miles)	Floodplain Acres	Creek Crossings
8	92	27	9	20	164.7	4	4.2	4
8A	88	40	19	22	157.6	3.25	6.25	4

Option 8A was suggested as an alternative path for Segment 8. As shown here, based on the evaluations factors, the original route would have less impact than the suggested modification. For that reason, Option 8A is not recommended.



You are now looking at the conceptual route options as modified following public workshop #2.



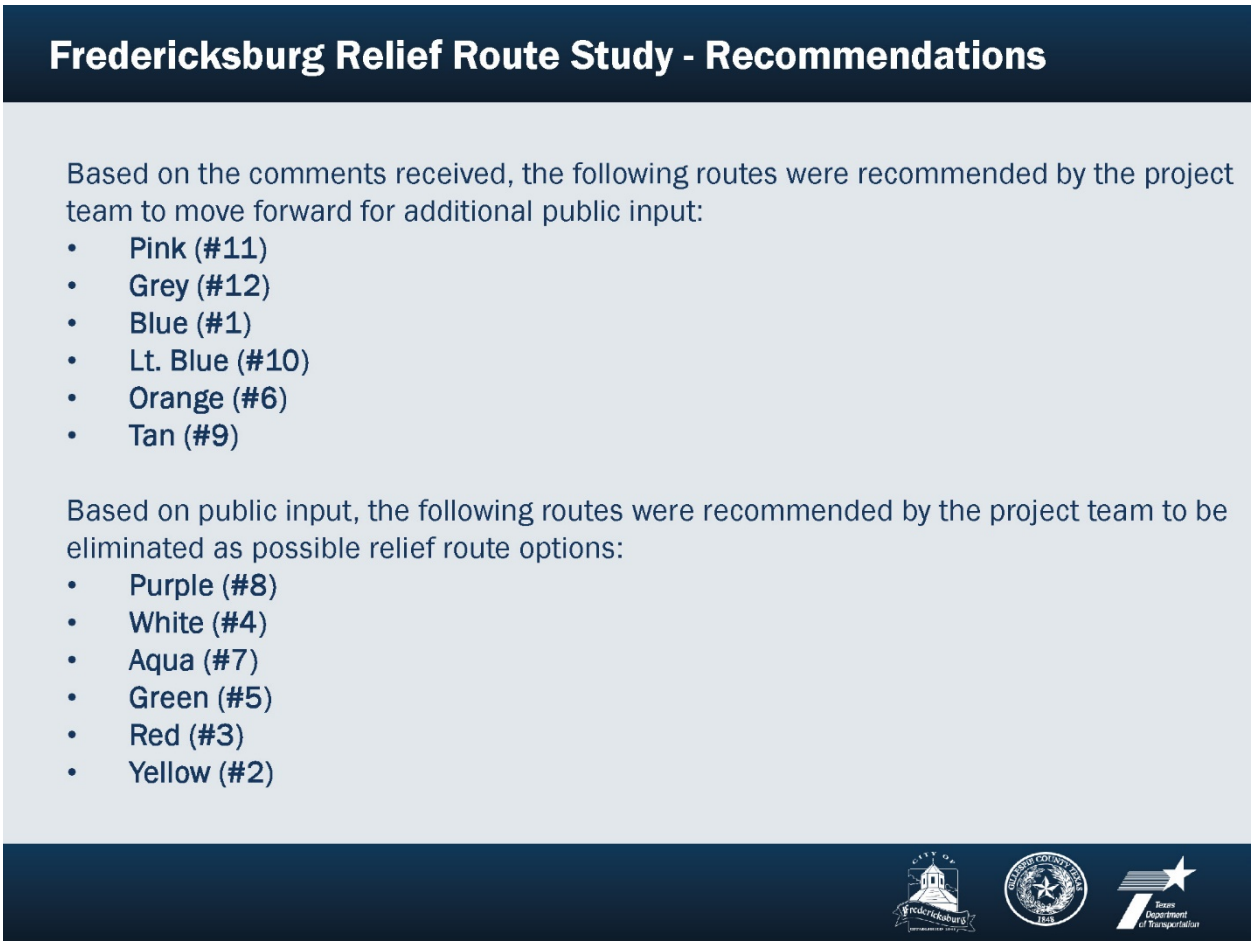
The suggested route modifications were only one component of the input we received through Public Workshop #2. We also needed to consider the 150 written comments and 310 online survey responses received in response to the workshop. These comments provided valuable insight into public concerns and opinions.

Based on the comments received at workshop #2, the Blue, Light Blue, Pink and Grey routes were the most viable from the public's perspective.

Additionally, the Orange and Tan routes were not ranked particularly high or low by the public, so, while not seen as the most viable, they were not recommended for elimination.

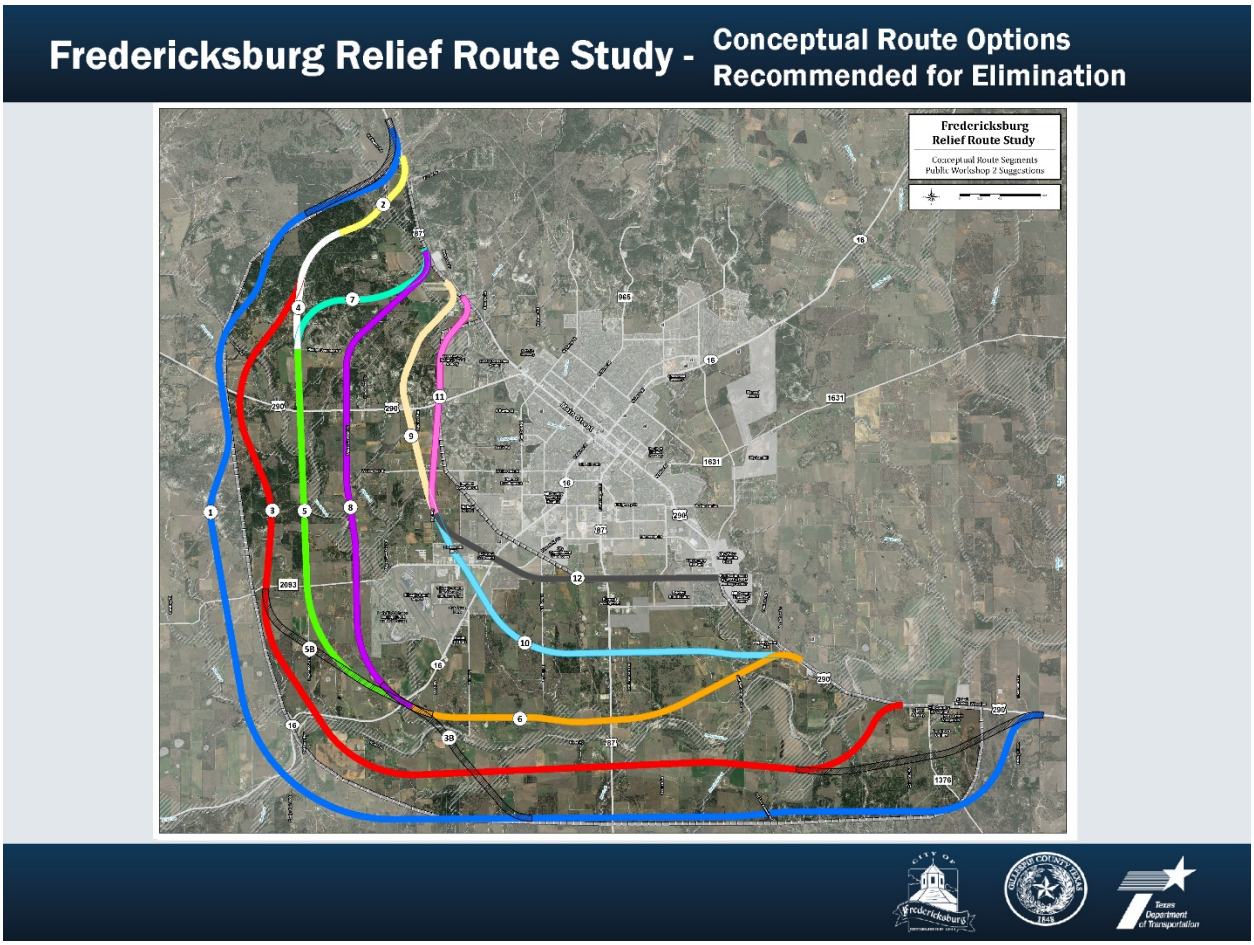
The Purple, White, Aqua, Green and Red routes were seen by the public as the least viable.

The Yellow route was also deemed not viable, as the functionality of the route depends on the existence of the Red or White routes.

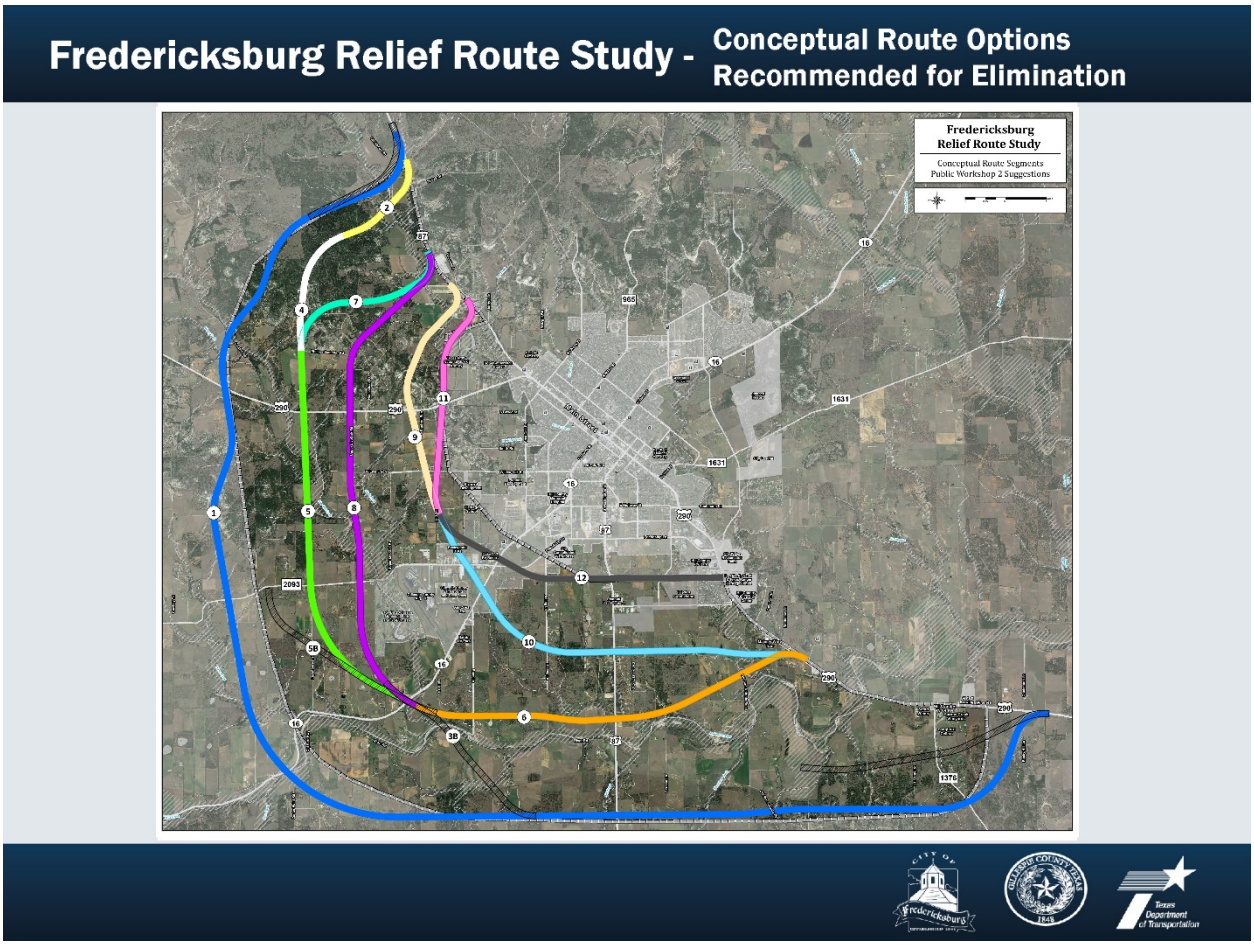


Consistent with the public input, the project team recommended that the Pink, Grey, Blue and Light Blue route segments be carried forward. The team also recommended that the Orange Route, with adjustments, and the Tan Route be carried forward.

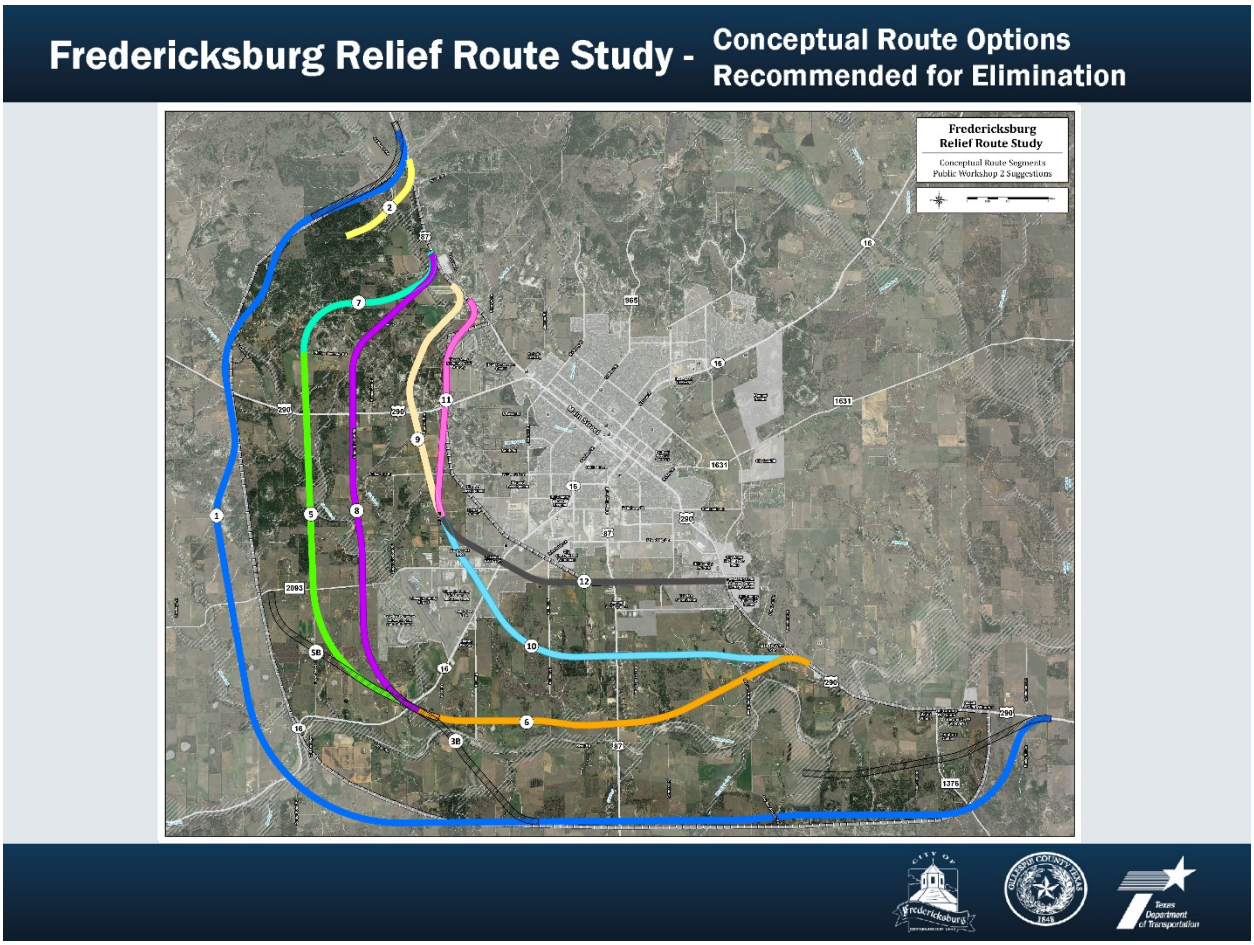
The team recommended that the Purple, White, Aqua, Green and Red route segments being eliminated. The team also recommended that the Yellow route be eliminated as it no longer connected to viable route. At its meeting on November 15, 2018, the Task Force the concurred with the study team's recommendation.



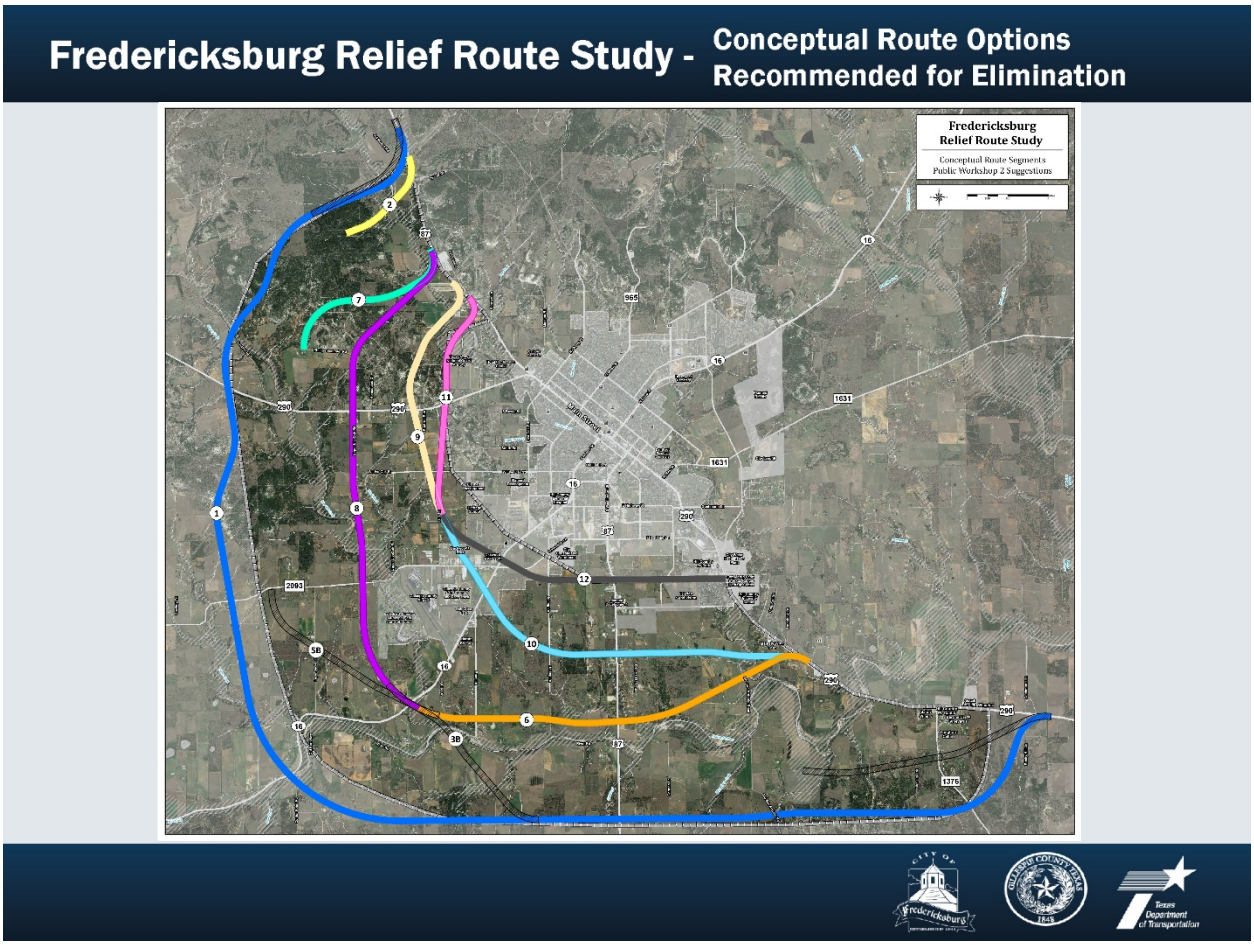
The routes recommended for elimination were removed… (flip through slides)



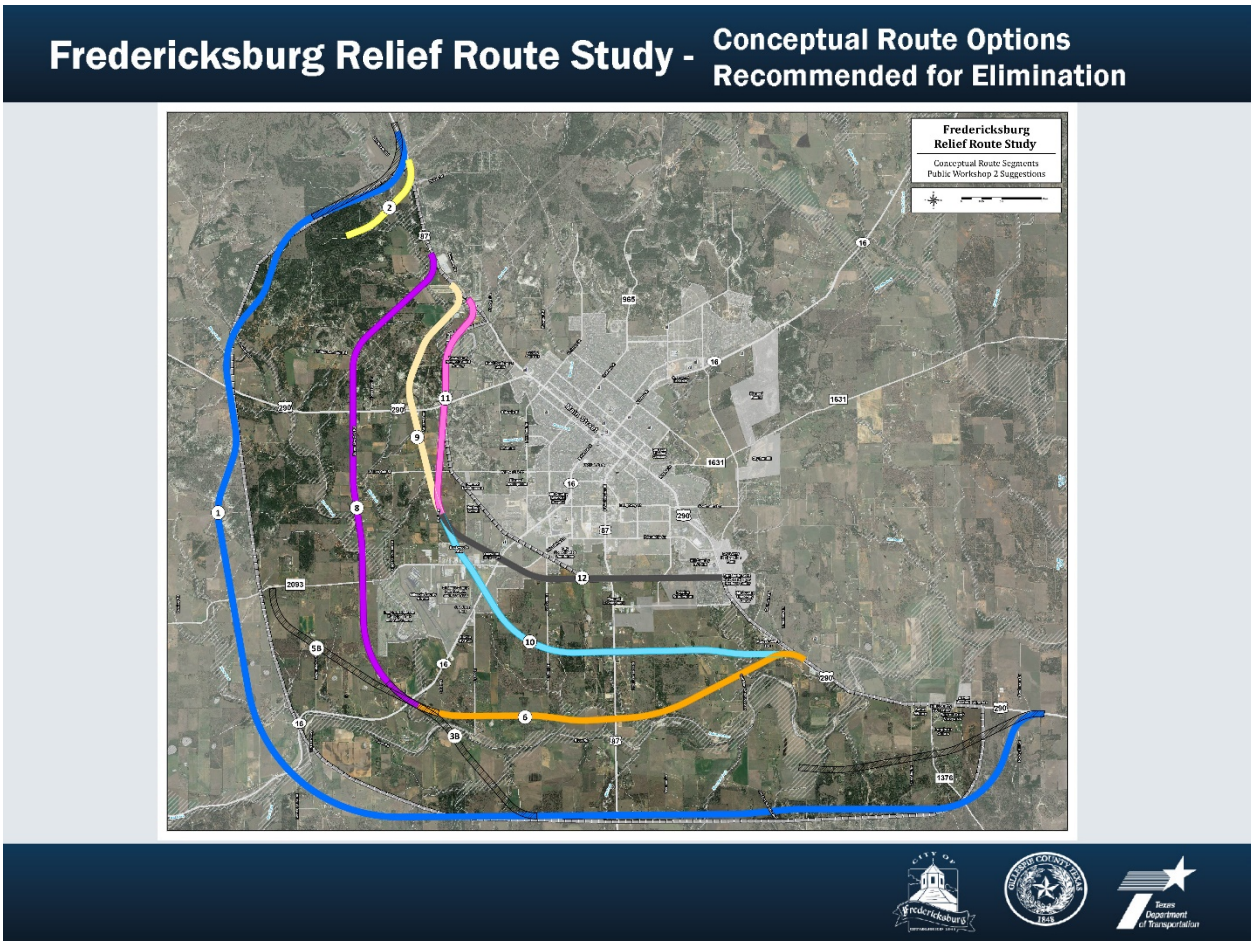
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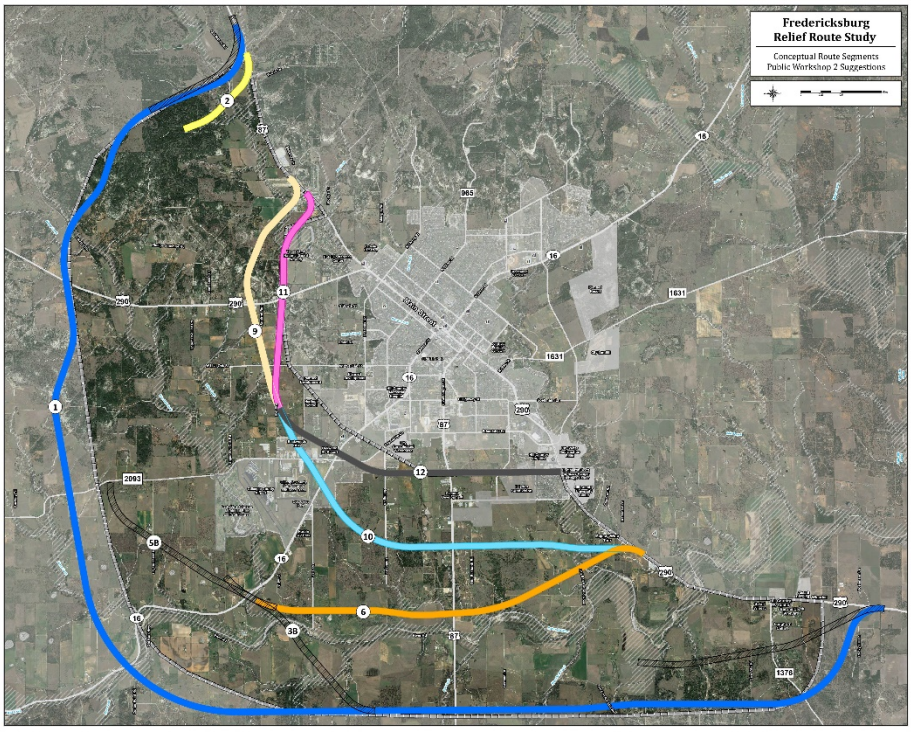


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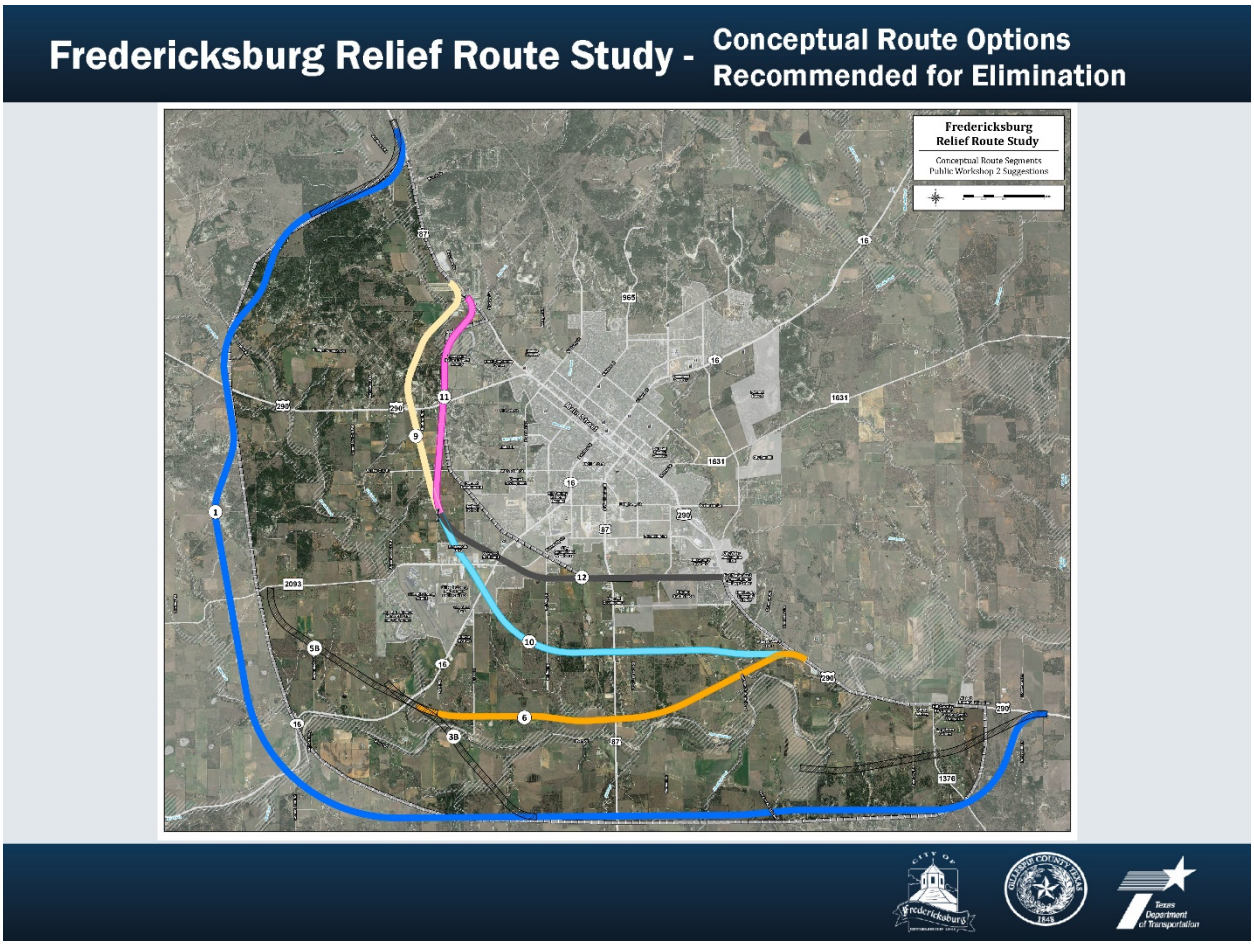


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Fredericksburg Relief Route Study - Conceptual Route Options Recommended for Elimination

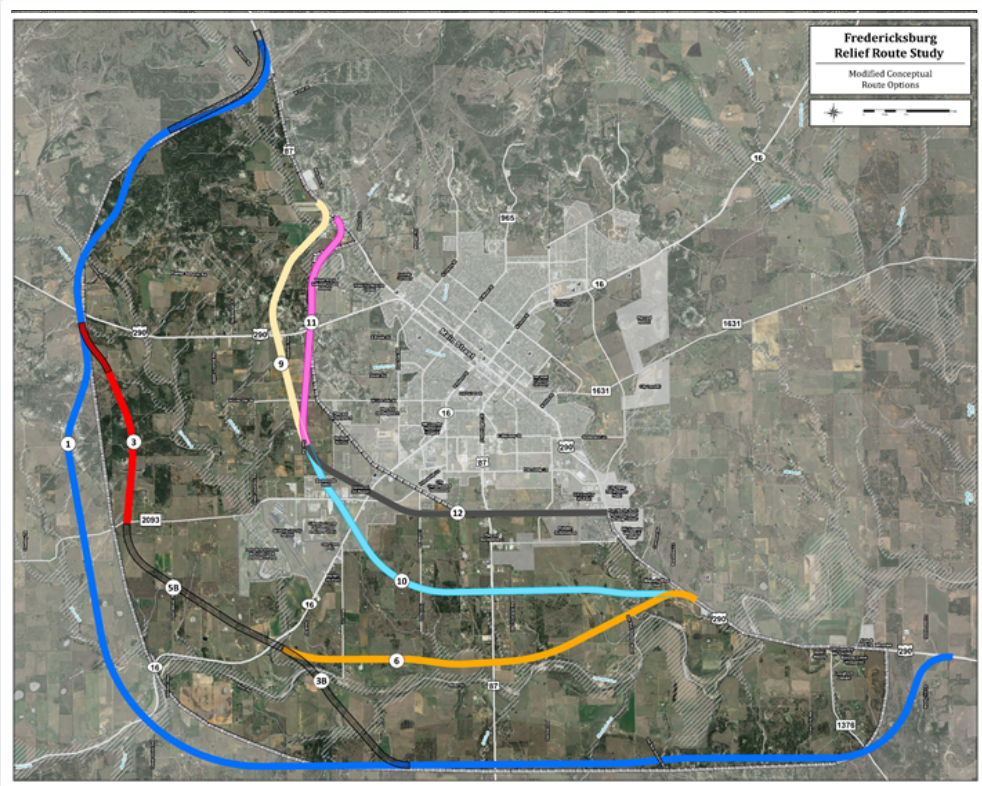


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... and these were the routes left over.

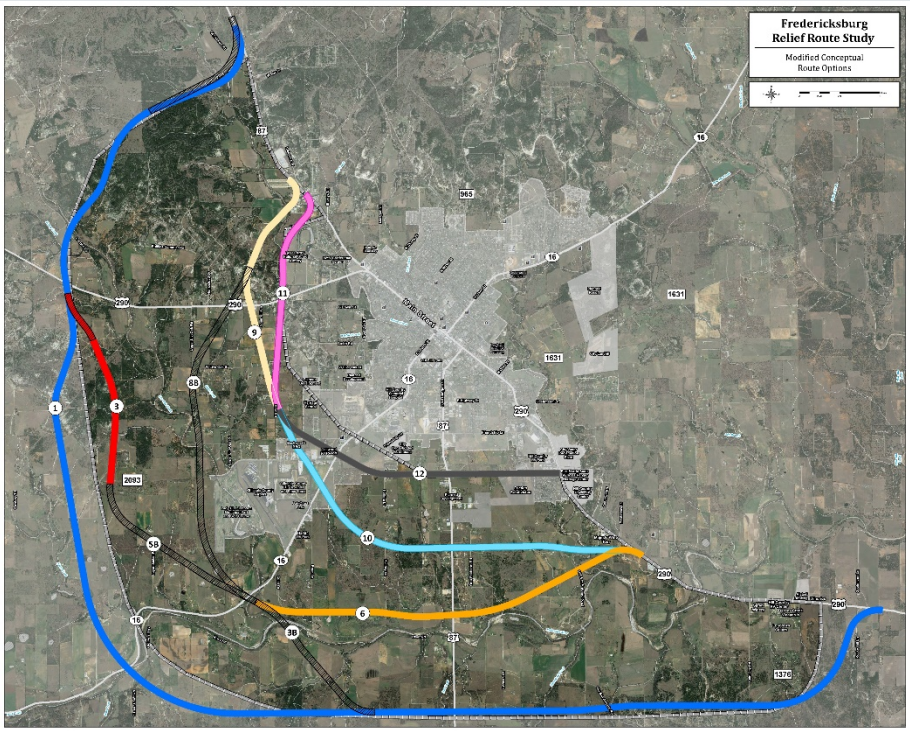
Modified Conceptual Route Options – Adjustments



Recognizing that most of the opposition to the Red route was directed toward the area north of US 290 and the Settler's Ridge Subdivision area, the study team recommended that a portion of the Red Route, south of US 290 be used to connect the Orange Route to the Blue Route (the outermost route).

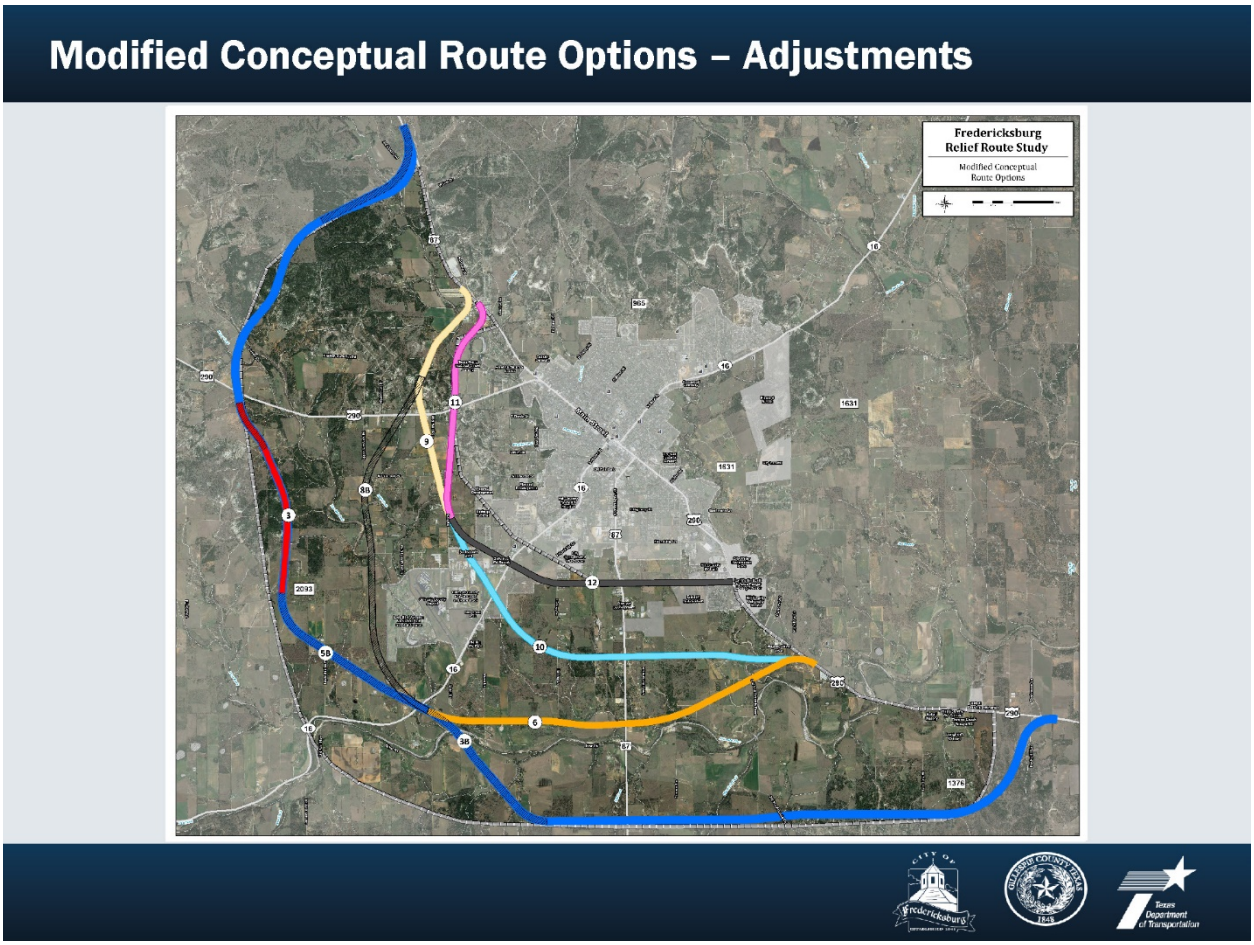
The Task Force concurred with this adjustment.

Modified Conceptual Route Options – Adjustments

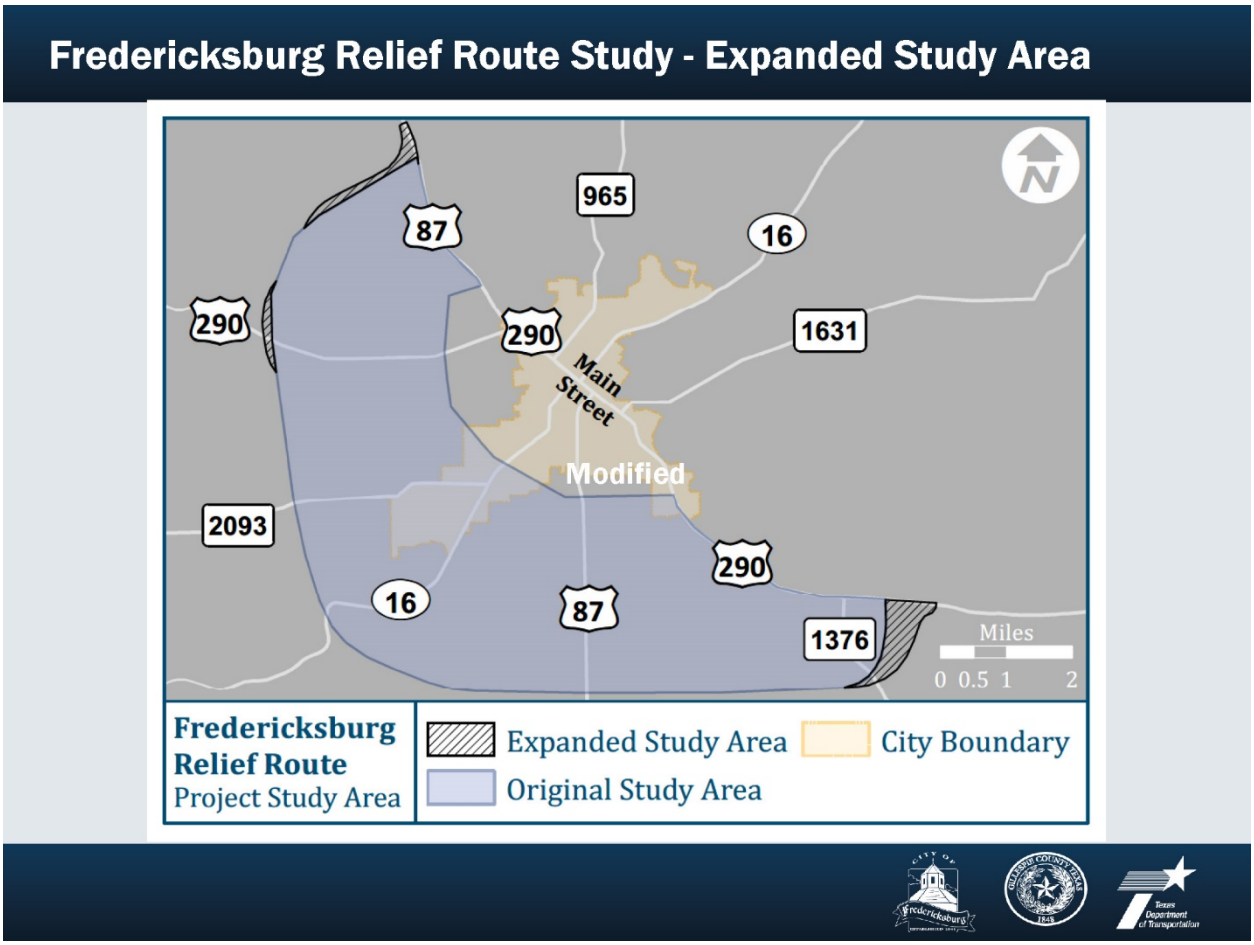


The Task Force also elected to provide a connection from the Orange Route to the inner route east of Settler's Ridge.

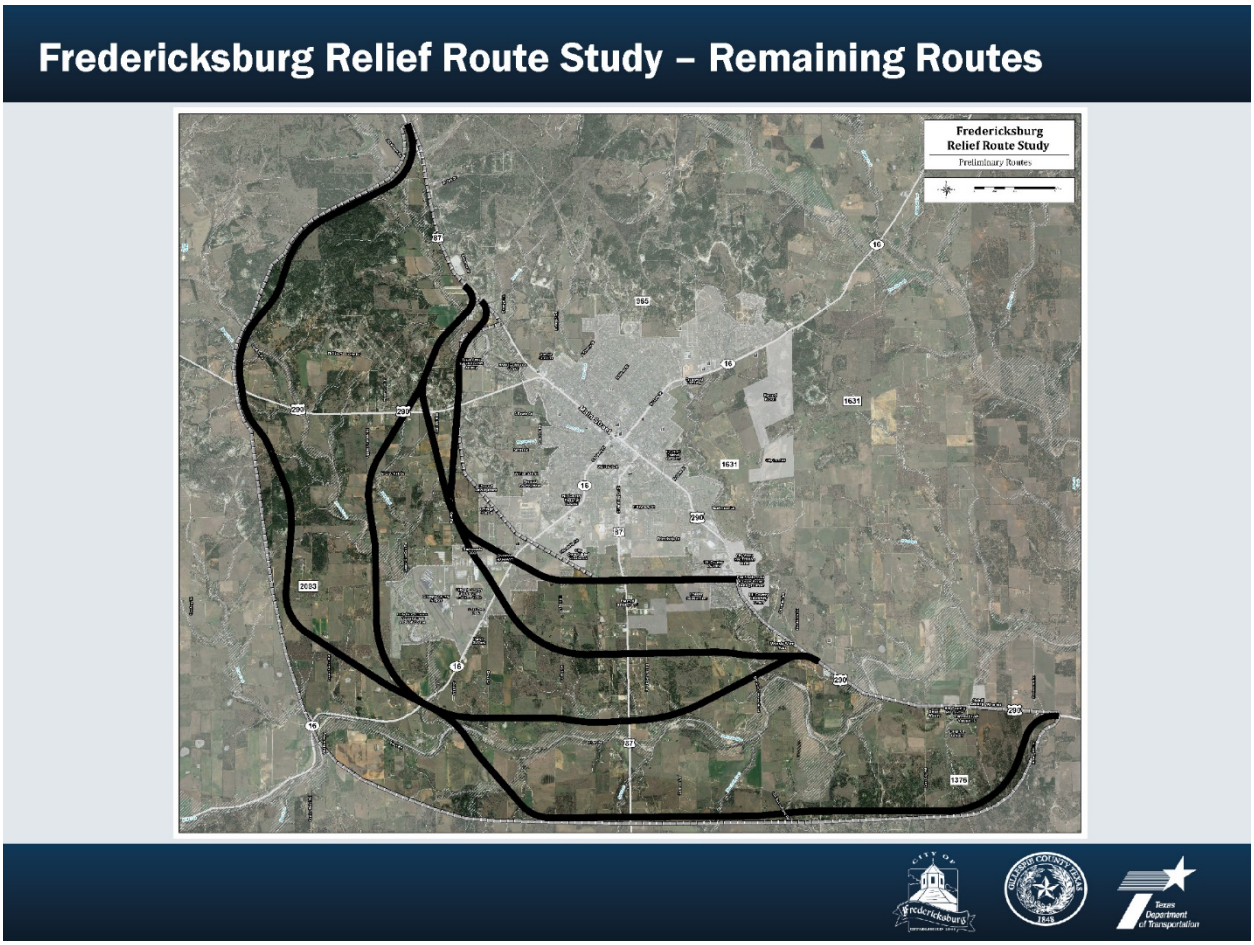
The adjustments served to maintain the viability of the Orange Route.



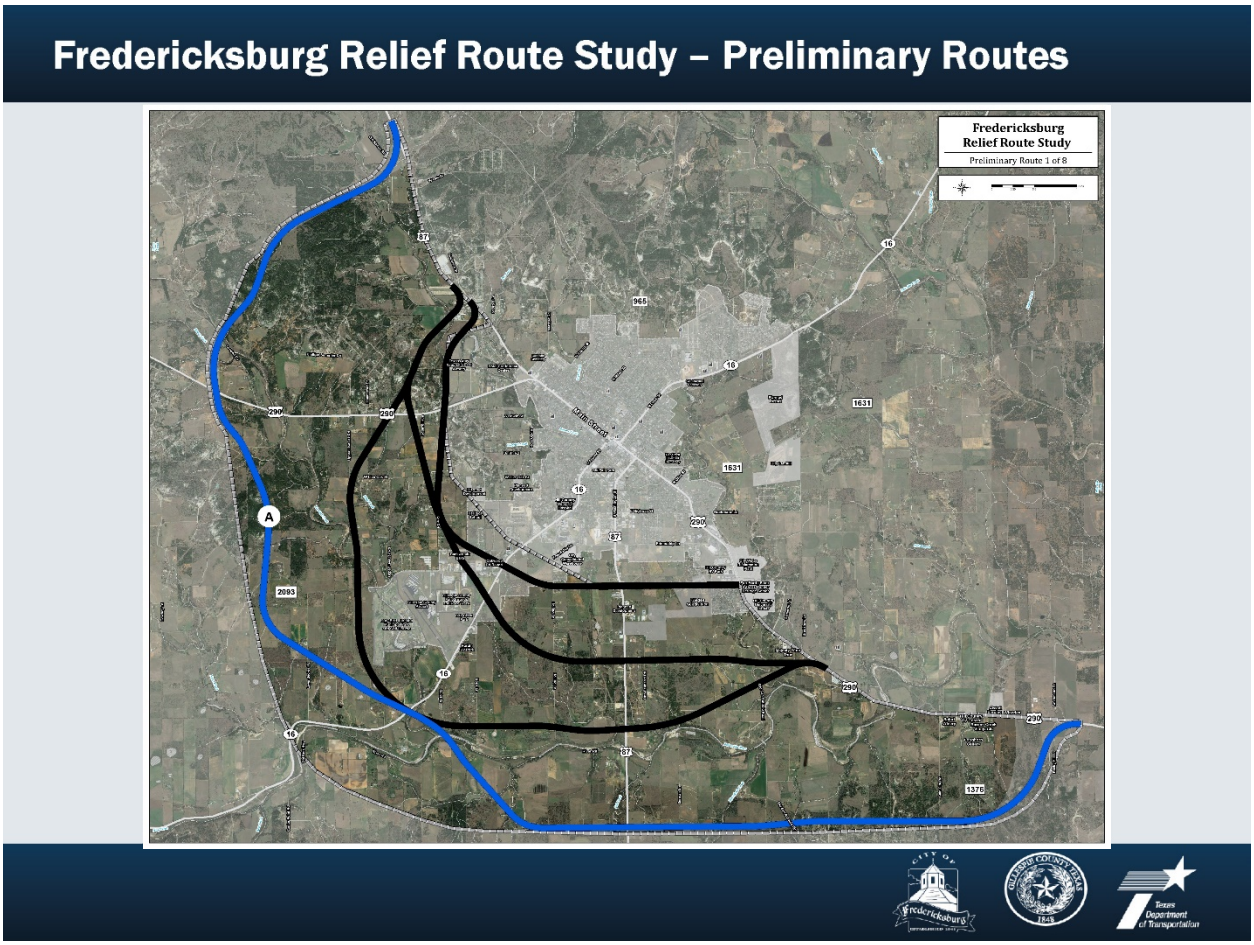
Since initiating this study, many comments have been received encouraging efforts to minimize cost and the amount of right of way required. Those comments, combined with the fact that much of the Blue Route was located outside of the original study area, led to a modification of the Blue Route. As shown here a large portion of the Blue Route was shifted inward. Even with this shift, portions of the Blue Route remain outside the previously defined study area



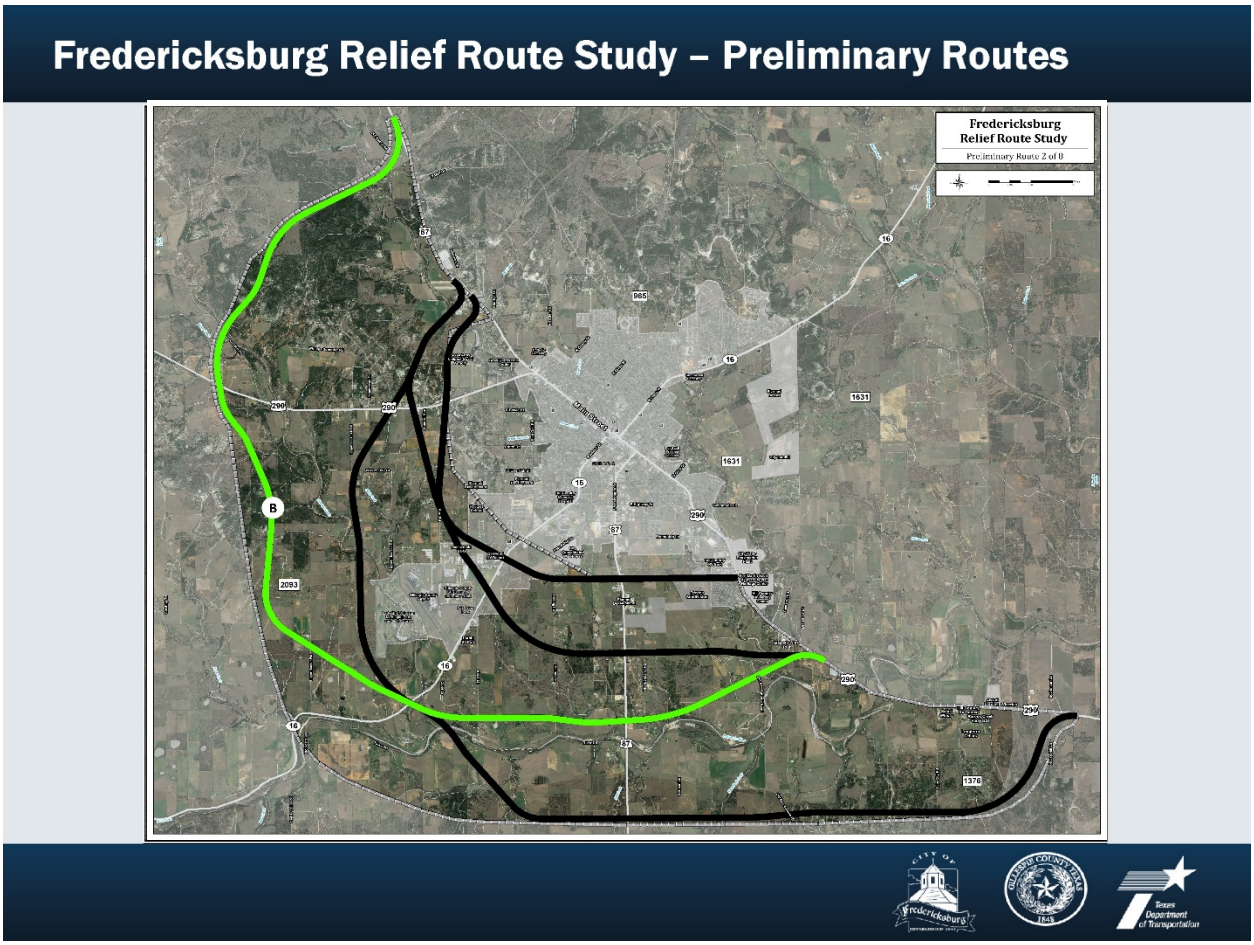
For this reason, the study area has been expanded. This map shows the expanded study area which encompasses all remaining portions of the Blue Route.



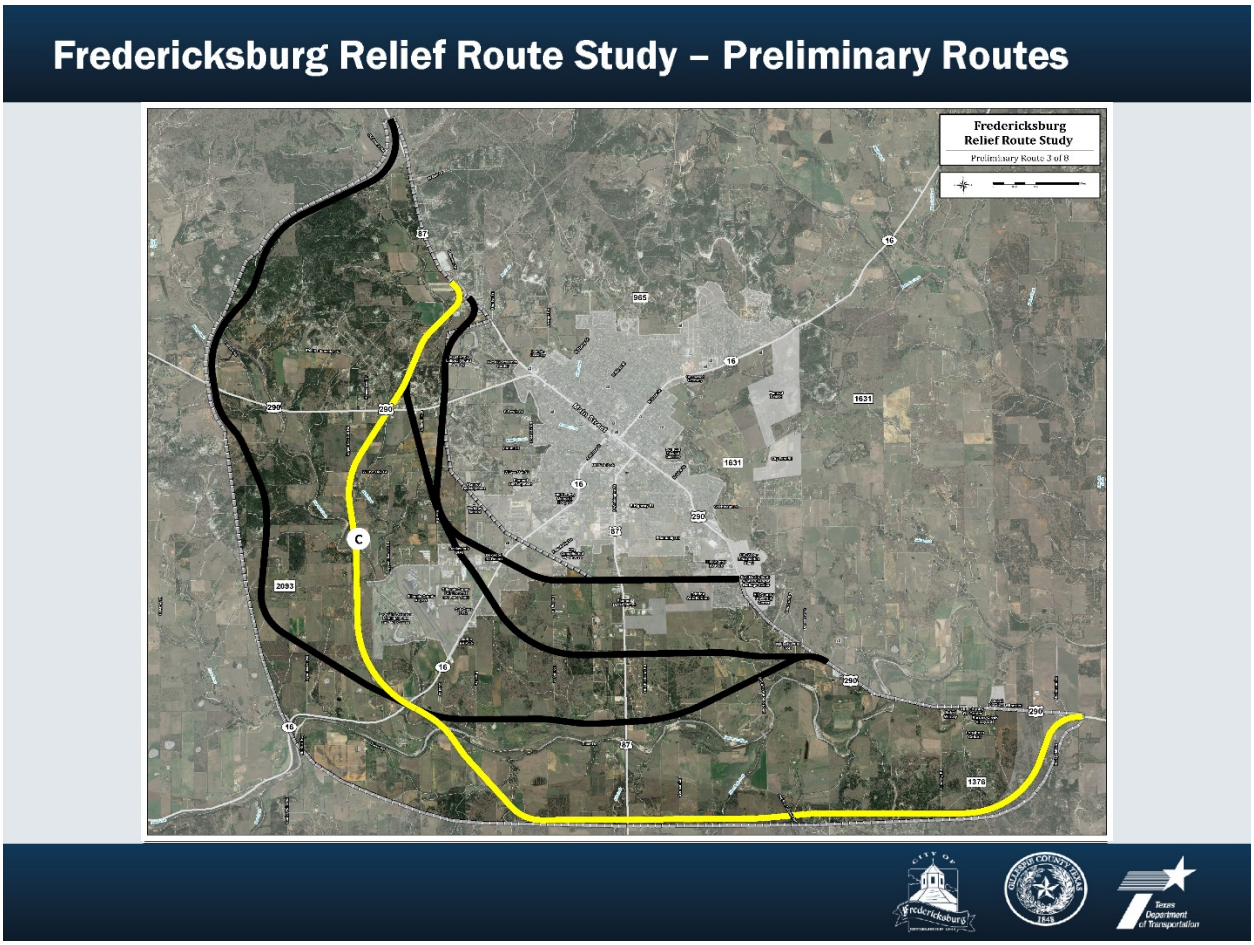
This map shows the remaining route segments after all modifications and adjustments have been made. Because the previously-used color scheme is no longer applicable, the route segments are shown here in black. These route segments combine in various configurations to create 8 end-to-end route options. Today we are asking for your feedback about the 8 end-to-end route options – now referred to as the "preliminary route options".



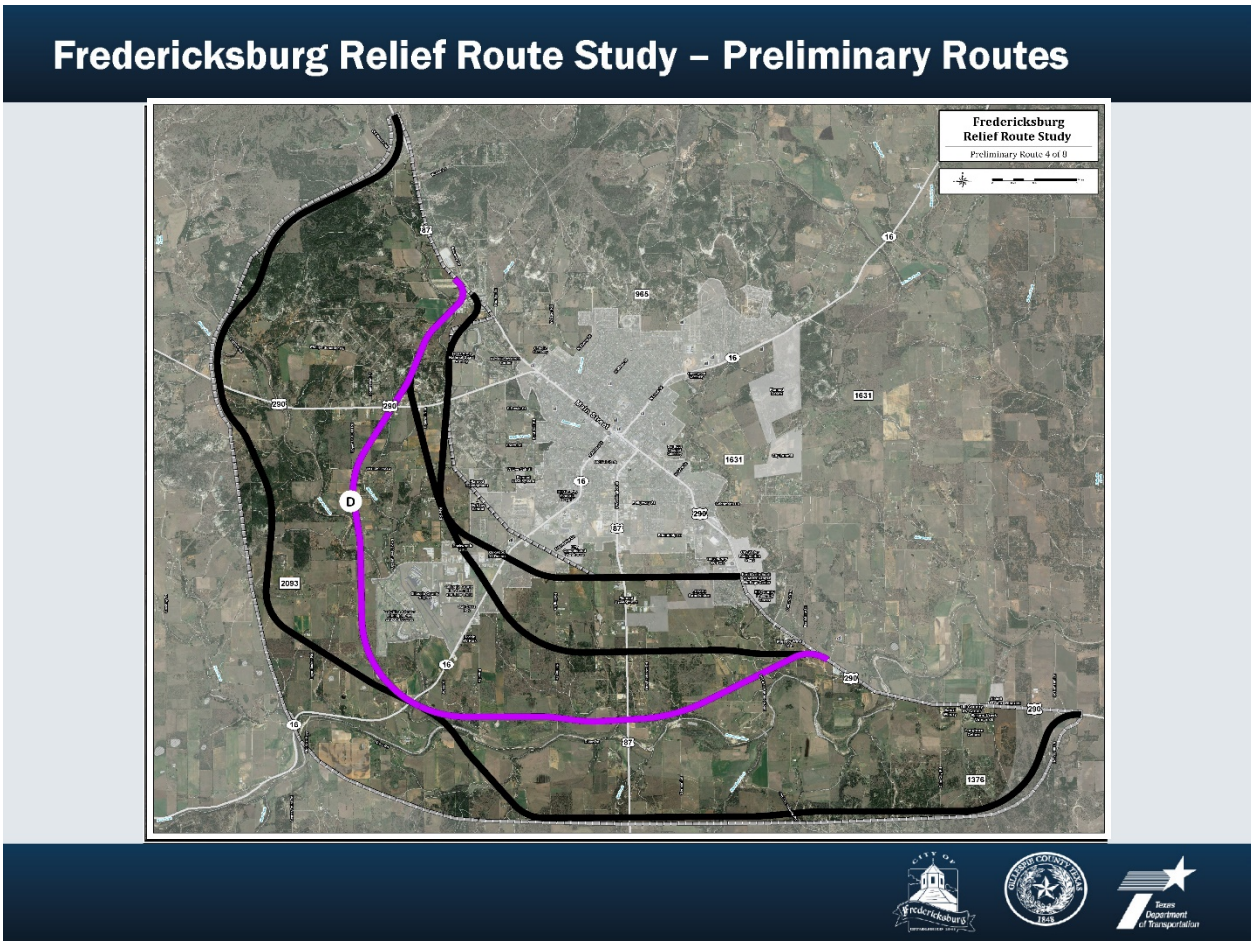
As we transition from a focus on route segments to a focus on the Preliminary Route Options, it is necessary to reset the colors. Each of the 8 route options has been assigned a color and each option has also been assigned an A through H letter identifier. (flip through slides)



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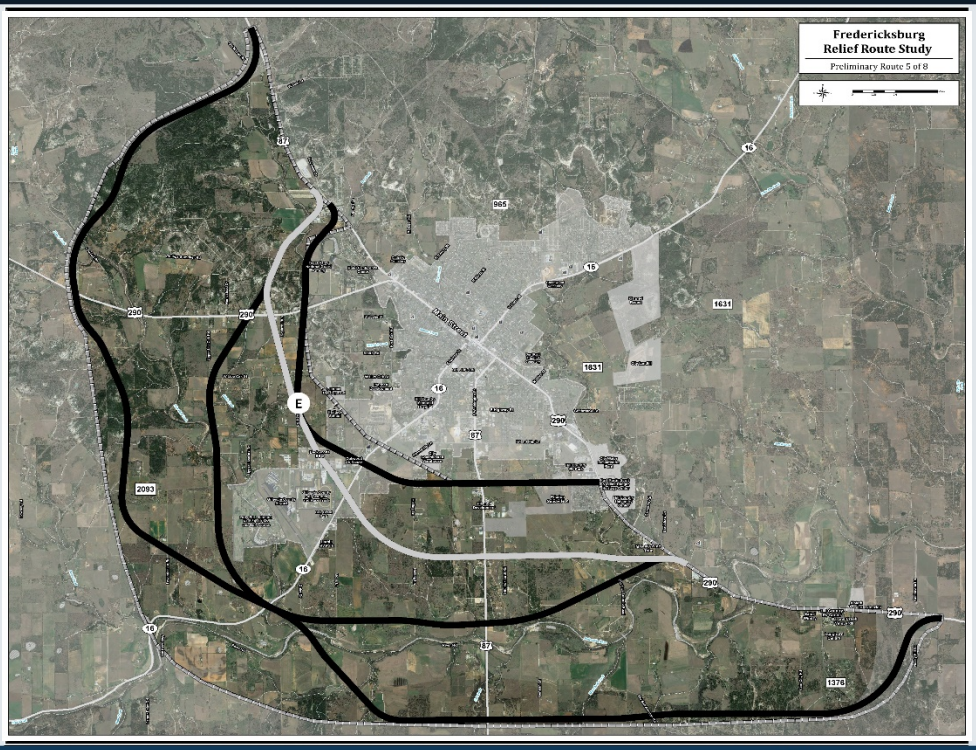


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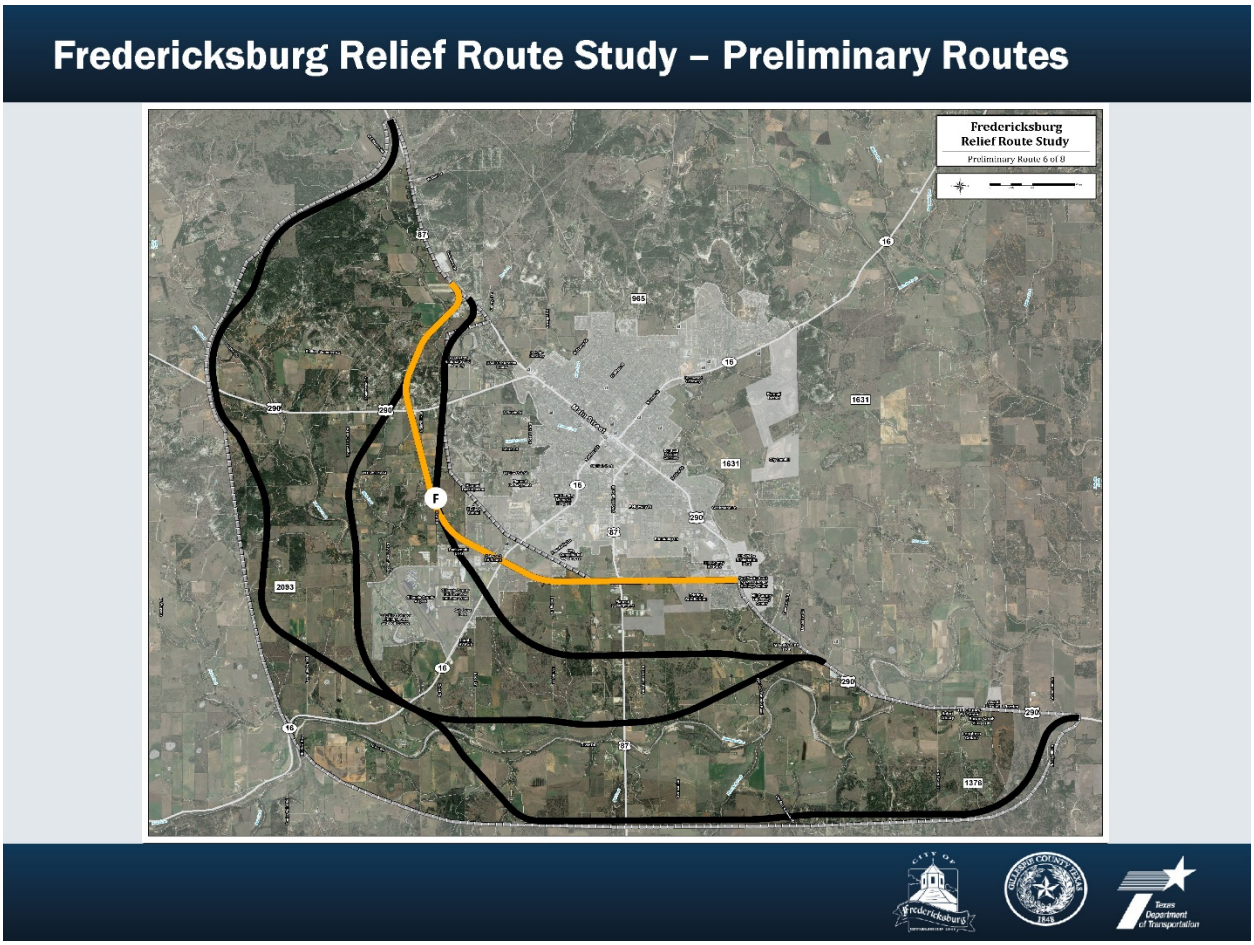


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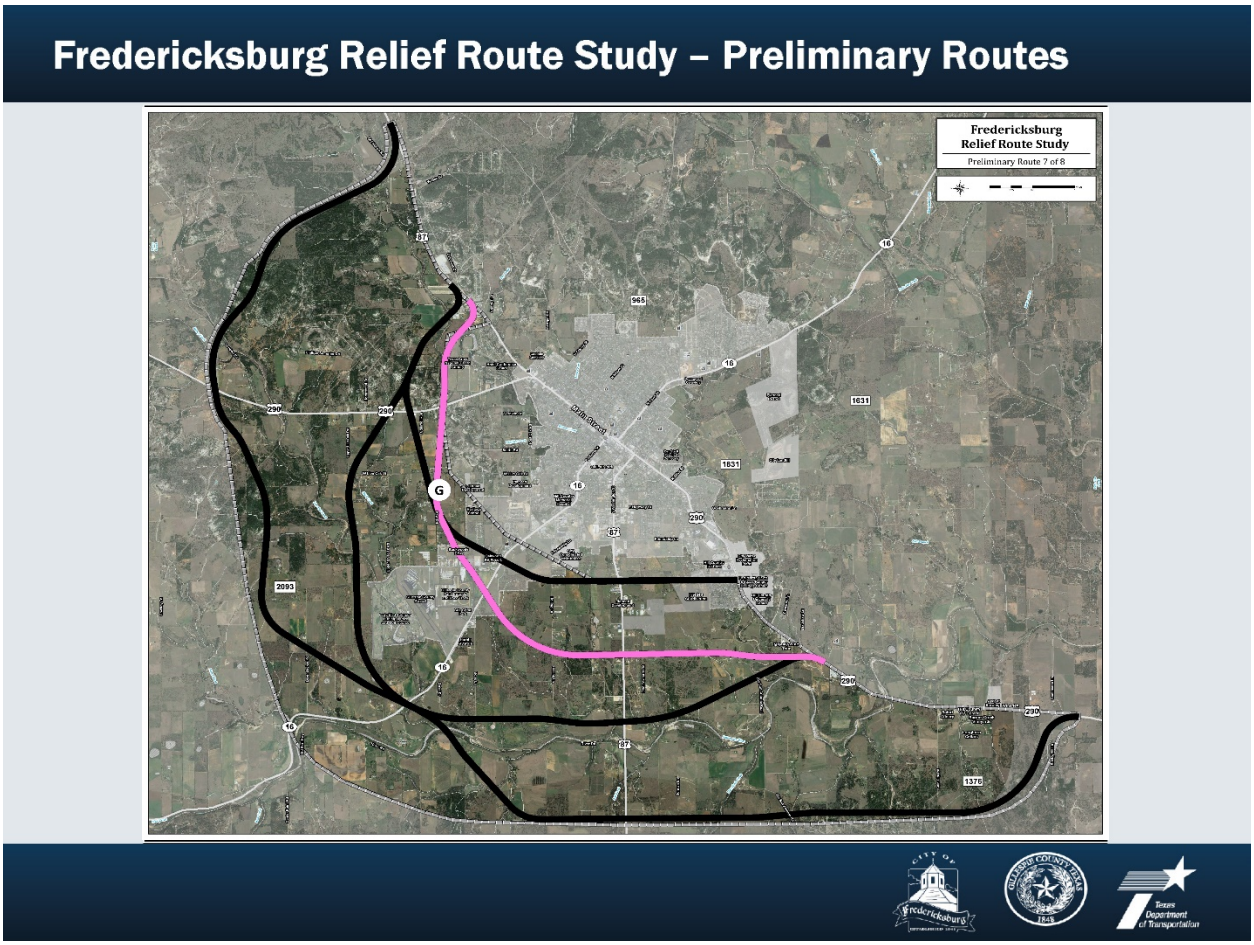
Fredericksburg Relief Route Study – Preliminary Routes



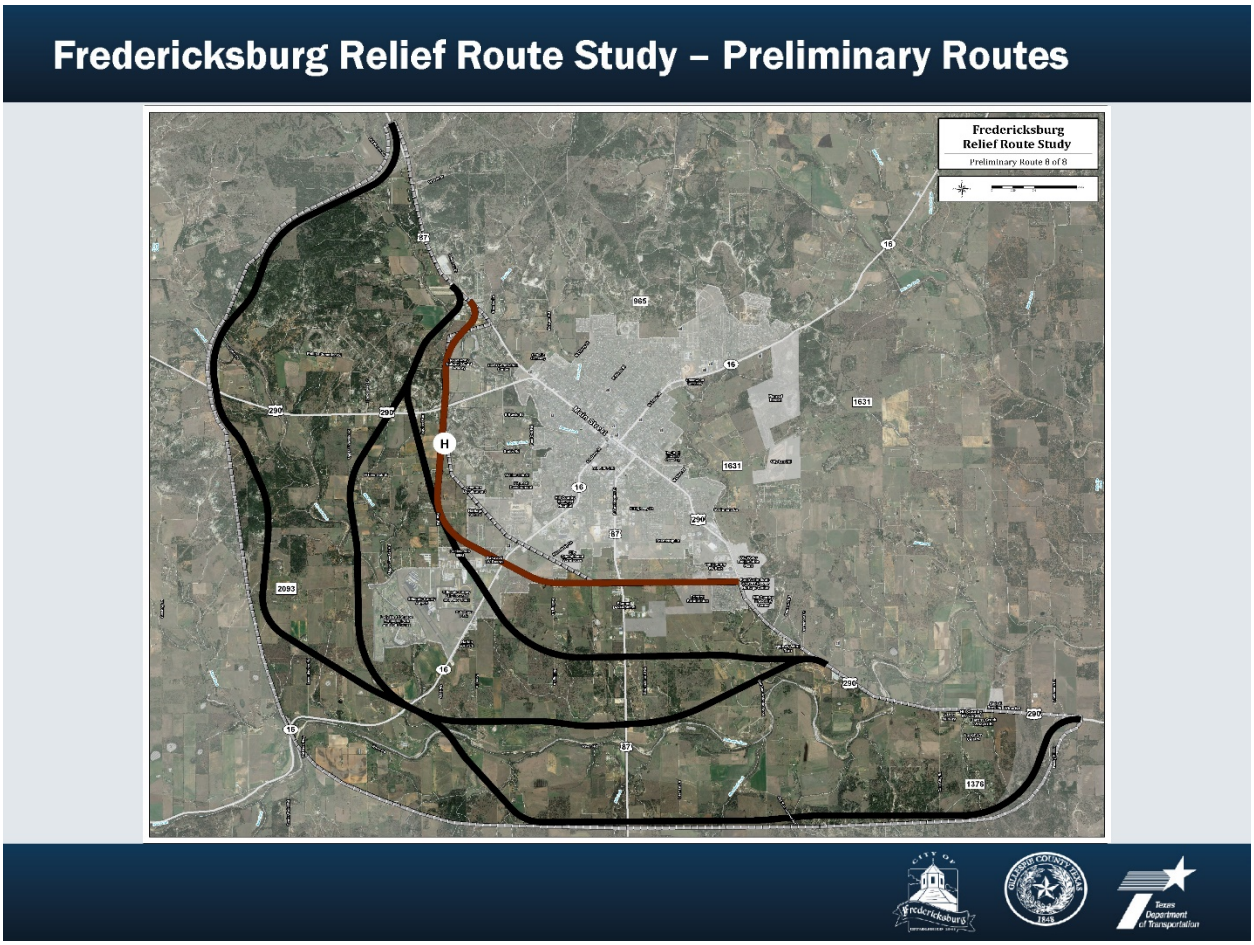
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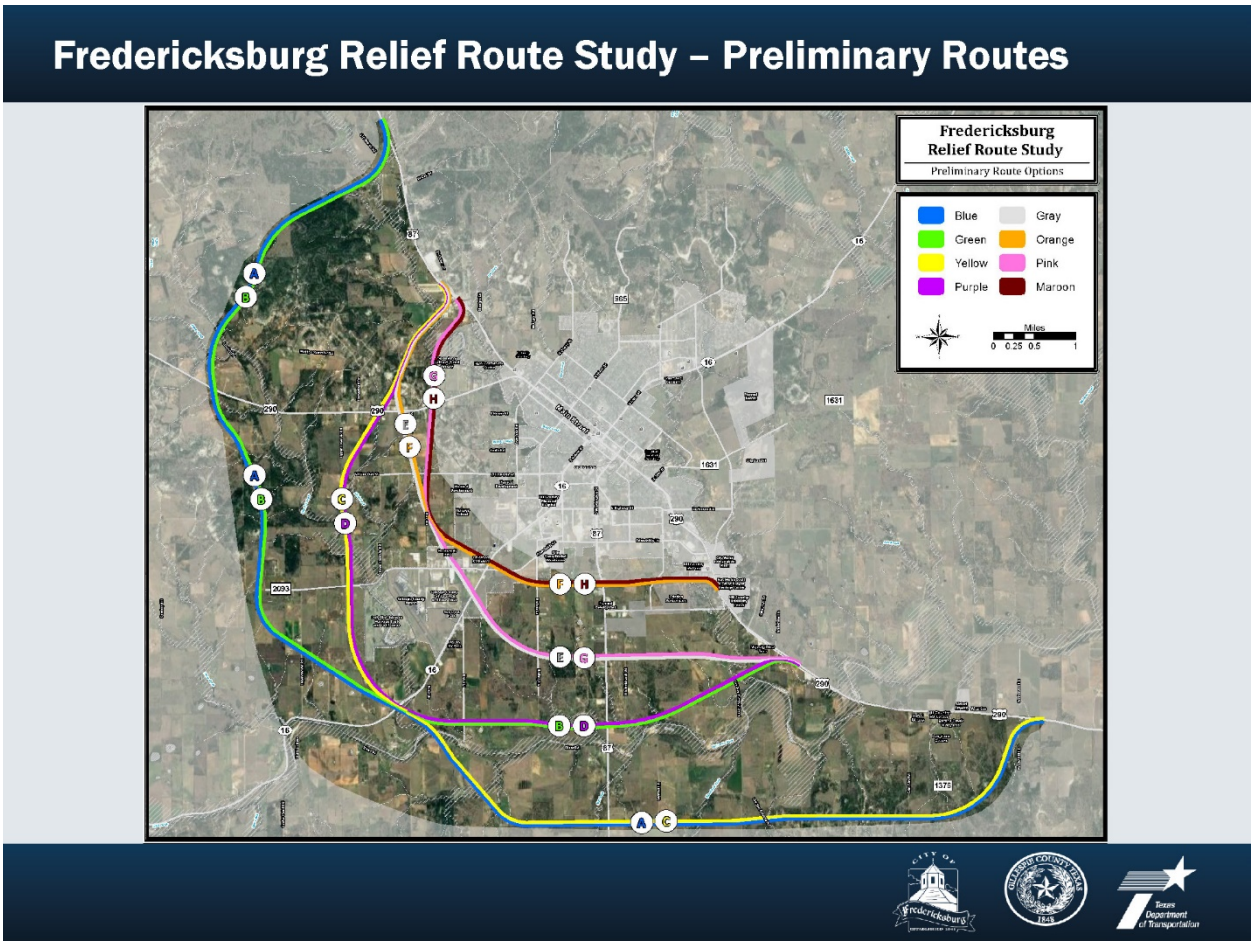
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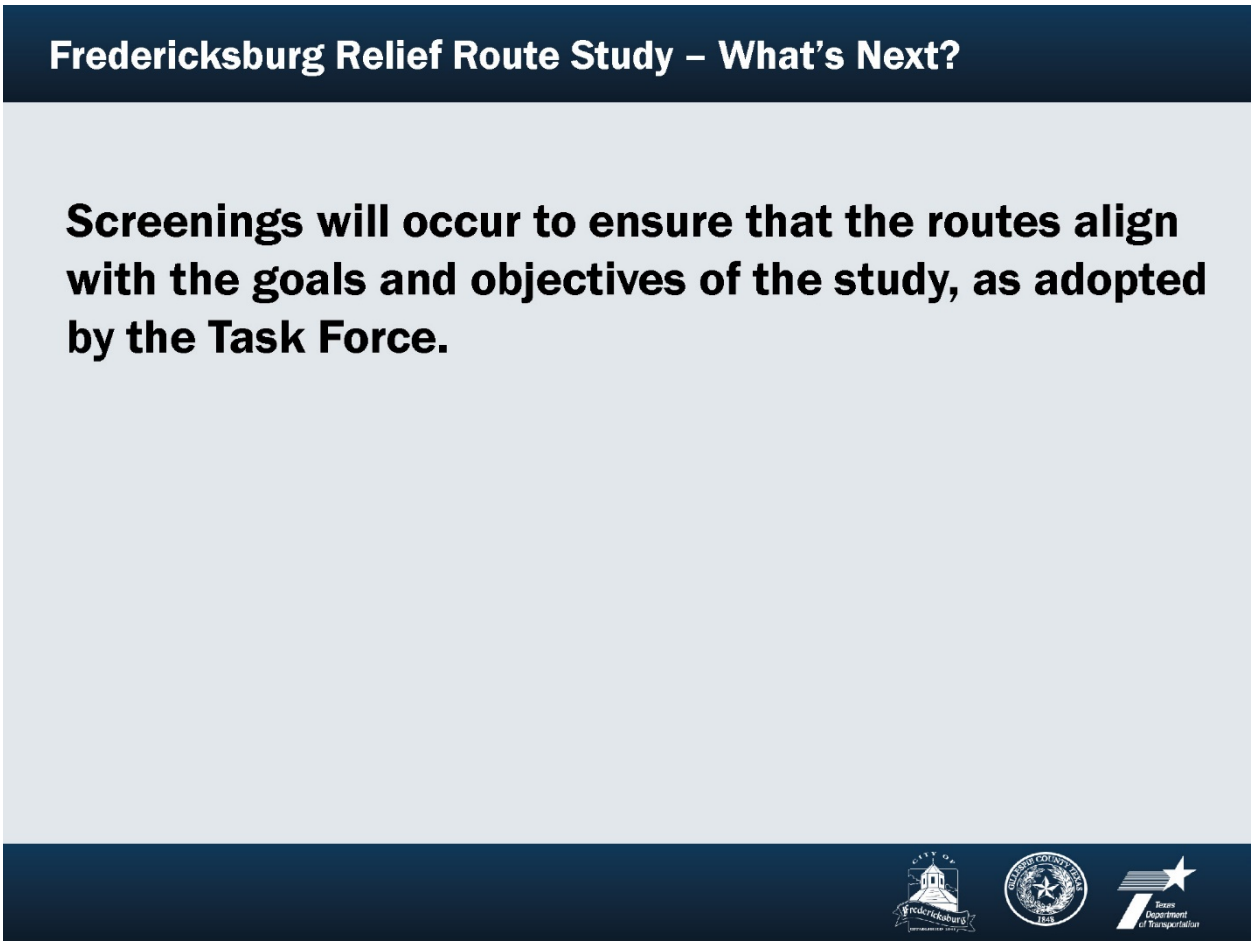
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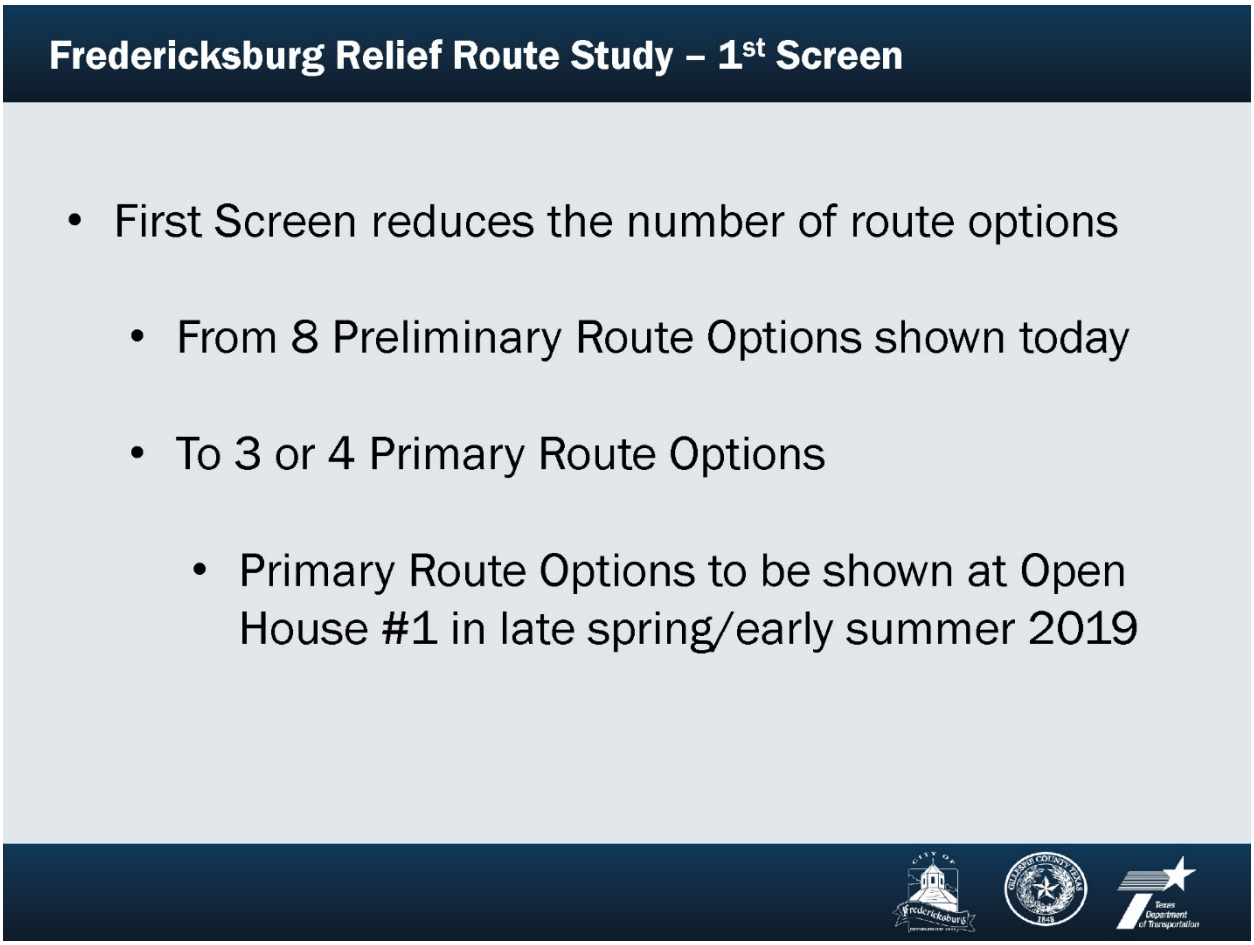
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In a few minutes, we will ask that you move to the next room, where you will be able to review the routes in detail and discuss any questions or concerns with staff. But first I want to talk briefly about next steps.

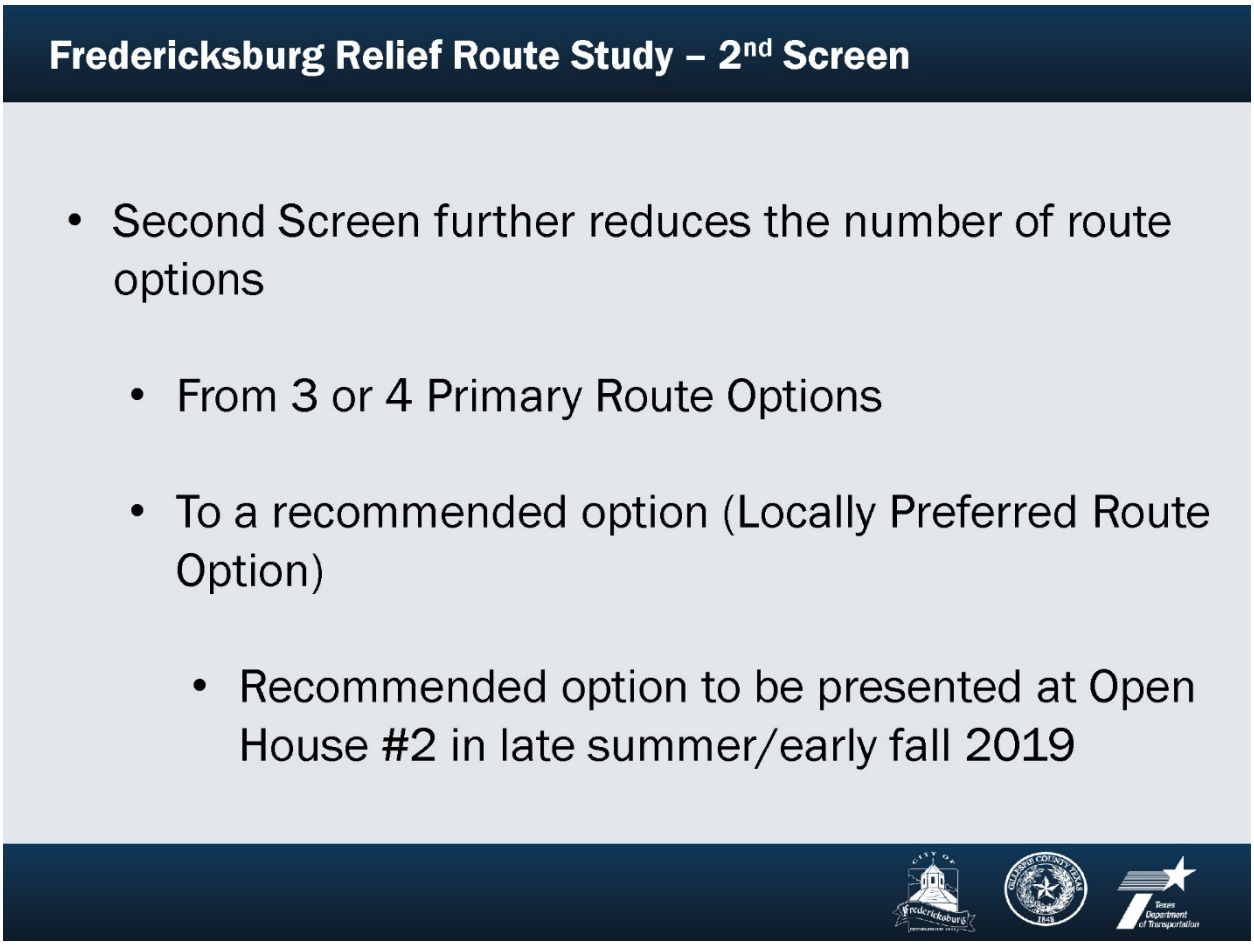


Here's what you can expect . . . tonight we are seeking your input on the potential relief route and, in particular, the 8 preliminary route options. The input and feedback we receive will be considered to further refine and evaluate the route options. A two-screen evaluation process is planned.

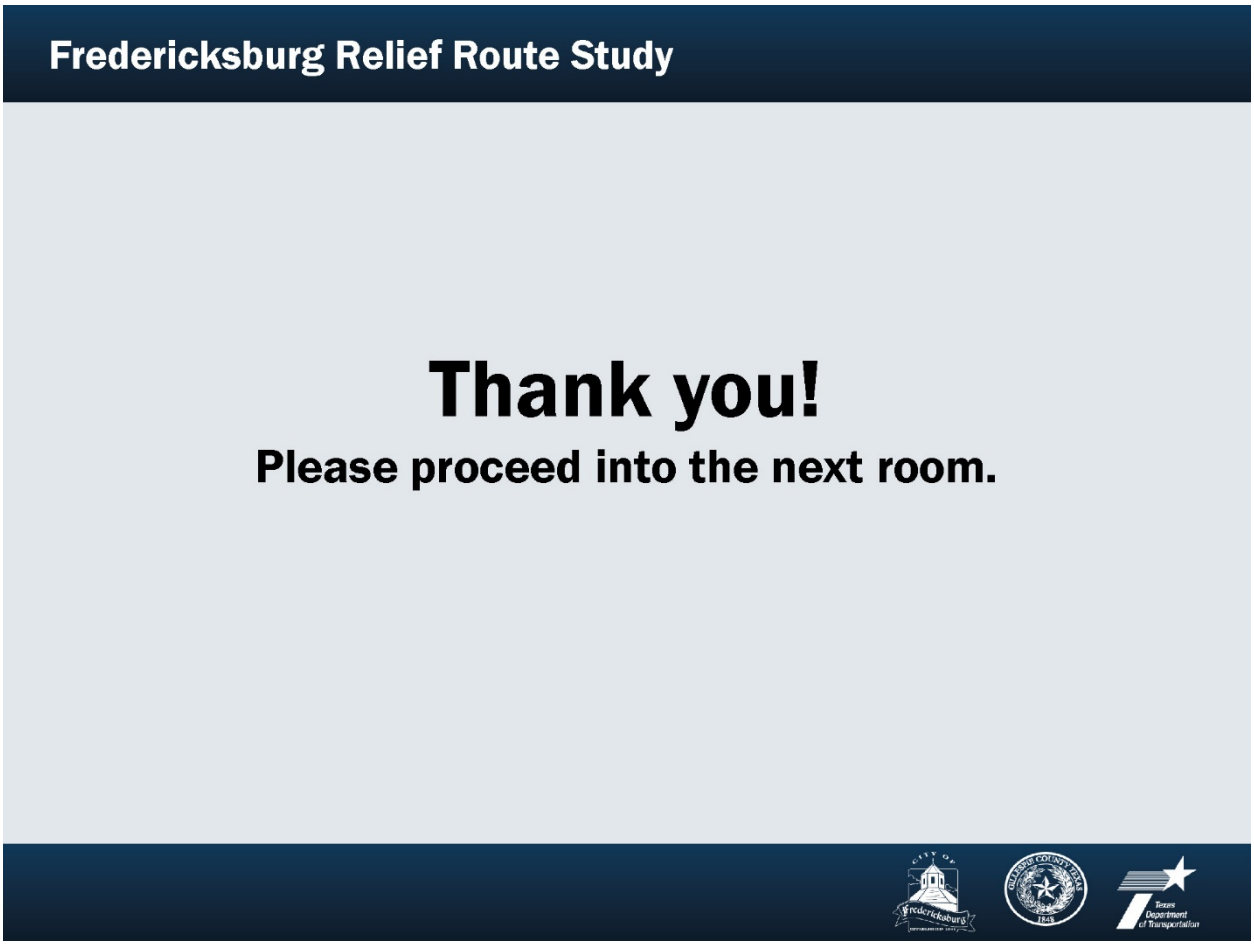


In addition to public input, during the first screen we will consider things such as the number of water crossings, number of residential and commercial displacements and the amount of right of way required.

The goal of the first screen is to identify 3 or 4 “primary route options.” Our intent is to present the primary route options for public review and comment at Open House #1 tentatively planned for late spring/early summer of this year.



After the open house, detailed traffic modeling and operational analyses of the primary route options will be performed. The input received during Open House #1 and the results of the traffic studies will be used to evaluate the routes during the second screening. The goal of the second screening is to identify a recommended route option. The recommended route option will then be presented at Open House #2 later in the year.



Again, on behalf of City of Fredericksburg, Gillespie County, the Gillespie County Relief Route Task Force, and TxDOT, I want to thank you for your attendance this afternoon. Your input, and the input of your friends and neighbors, is critical to the success of the Fredericksburg Relief Route Study. We very much appreciate your interest and your participation in the planning process.

This concludes the presentation. At this point, please proceed to the next room where maps of the preliminary route options and other information is on display, and staff is available to answer any questions you may have. Thank you!

Appendix C

Primary Route Options Construction Cost Estimate Memorandum



DRAFT Primary Route Options Construction Cost Estimate Memo

Fredericksburg Relief Route

May 2020

Primary Route Options Construction Cost and ROW Acreage Estimates

This memo presents the preliminary estimated construction costs and right-of-way (ROW) acreages that would be required to implement each of the five primary route options identified for the Fredericksburg Relief Route and summarizes the assumptions made for these estimates. Costs are presented in 2019 dollars and are not adjusted for inflation.

Control of Access Considerations

The study area for the Fredericksburg Relief Route primary options encompasses numerous existing state highways, local roads, and private driveways. The proposed relief route would be implemented as a fully controlled access facility, which means there would be no direct access to the mainlanes. Each of the relief route options would create a new roadway alignment across a number of properties which would create significant impacts to access to these properties due to the controlled access nature of the facility, including cutting off access to existing driveways and/or bisecting larger parcels.

Access would be granted to the relief route mainlanes solely through entrance and exit ramps to and from cross street interchanges or frontage roads. Interchanges are planned where the relief route intersects other state highways, including US 290, US 87, SH 16 and FM 2093. Continuous frontage roads are not planned for each route option but instead would be included only where needed to maintain access to adjacent properties. Access may be maintained in the following ways:

- Purchasing control (denial) of access from adjacent landowners in addition to the purchase of the land itself for use as State ROW.
- Constructing grade-separated crossings/culvert crossings of the relief route over existing private driveways or public roadways.
- Building segments of two-way access or frontage roads (state or local) sufficient to restore access to properties that might otherwise be landlocked by the relief route.
- Building one-way frontage roads parallel to the relief route, which would restore property access by allowing driveway connections. On frontage roads, driveways are generally permitted by TxDOT, subject to spacing guidelines in the TxDOT Access Management Manual, and access controls in the areas of ramp junctions as shown in the TxDOT Roadway Design Manual.

Determination of a control of access (COA) payment to a landowner is complex and based on individual negotiation, availability of alternate access, and other site-specific issues. In lieu of estimating COA payments to landowners or developing costs for alternate road access, access roads, frontage roads and/or grade-separated crossings/culvert crossings were assumed throughout each of the route options as needed to preserve access for all affected properties and roadways.

ROW Acreage Assumptions and Estimate

The ROW areas for the primary route options were estimated based on two possible configurations: with or without frontage roads. The base configuration without frontage roads would consist of a two mainlanes in each direction with a 125 feet ROW width on each side of the alignment for a total ROW width of 250 feet. For locations where frontage roads are planned, an additional ROW width of 75 feet on each side of the alignment (each frontage road direction) was included for a maximum total of 150 feet of additional ROW was assumed. The overall ROW width for each primary route ranges would thus be either 250 feet or 400 feet. **Table 1** below summarizes the estimate ROW areas for each primary route option.

Table 1: ROW Acreage Estimate by Route Option

Route				Estimated ROW	
Primary Option	Configuration	Length (ft)	Length (mi)	ROW Width (ft)	ROW Area (ac)
D	Base (4-lane)	60,114	11.39	250	345.01
	FR Addition	10,104	1.91*	150	34.79
	Total				**379.80**
E	Base (4-lane)	45,190	8.56	250	259.36
	FR Addition	13,247	2.51*	150	45.62
	Total				**304.97**
F	Base (4-lane)	36,929	6.99	250	211.94
	FR Addition	26,692	5.06*	150	91.91
	Total				**303.86**
G	Base (4-lane)	43,653	8.27	250	250.53
	FR Addition	21,714	4.11*	150	74.77
	Total				**325.31**
H	Base (4-lane)	35,400	6.70	250	203.17
	FR Addition	35,400	6.70*	150	121.90
	Total				**325.07**

* The frontage road length is a subset of the total route option length

Per Mile Construction Cost Methodology

The construction cost analysis for each relief route option was performed by identifying locations within each alignment where the facility would remain at grade, where the facility would need to cross over an existing roadway, where the facility would need to cross over a body of water, and where an interchange between the facility and another roadway would be needed. To account for segments within each facility where only the base (4-lane) configuration would be needed and other segments where frontage roads would be needed, per mile cost estimates for at-grade and bridge configurations were developed for the base (4-lane) configuration and a separate cost was developed for inclusion of frontage roads (FR) where planned that was added to the base cost. For proposed interchange locations, a per interchange cost estimate was developed for the base (4-lane) and FR addition configurations. At the north US 87 terminus and the east US 290 terminus, additional costs were included for direct connectors. The per mile and per interchange costs were based on assumed conceptual cross sections and an assumed pavement design. The per mile costs were sorted into earthwork, structures, subbase & base, pavement, illumination, miscellaneous construction, and percentage item categories. Appendix B provides a table summarizing the per mile and per interchange cost estimates, the assumed conceptual cross sections, the assumed pavement design, and detailed cost estimate tables for each configuration.

Route Option Construction Cost Estimates

Table 2 below provides the cost estimates and composite per mile costs for each primary route option. The per mile cost estimates for the bridge and interchange configurations were applied based on estimated lengths at identified locations where each route crossed over a floodplain, stream, or existing roadway that would remain open. These estimated bridge and interchange lengths were subtracted from the overall route length and the remaining length was assumed to be the at-grade configuration. The total of the at-grade, bridge, interchange, and direct connector costs produced the construction cost subtotal. A 20% cost contingency was then added to produce the total estimated construction cost. A further breakdown of the cost estimate developed for each primary route option is provided in Appendix A.

Table 2: Construction Cost Estimate by Route Option

Route			Estimated Construction Cost (thousands, 2019 dollars)	
Primary Option	Configuration	Length (mi)	Total **	Per Mile
D	Base (4-lane)	11.40	$246,124	$21,587
	FR Addition	1.29*	$20,699	$16,072
	Total	**11.40**	**$266,823**	**$23,402**
E	Base (4-lane)	8.54	$195,416	$22,878
	FR Addition	2.51*	$30,922	$12,331
	Total	**8.54**	**$226,338**	**$26,498**
F	Base (4-lane)	6.99	$165,369	$23,663
	FR Addition	5.06*	$59,538	$11,774
	Total	**6.99**	**$224,907**	**$32,182**
G	Base (4-lane)	8.30	$194,581	$23,456
	FR Addition	4.11*	$56,343	$13,697
	Total	**8.30**	**$250,924**	**$30,248**
H	Base (4-lane)	6.68	$164,853	$24,693
	FR Addition	6.68*	$85,067	$12,742
	Total	**6.68**	**$249,920**	**$37,435**

* The frontage road length is a subset of the total route option length
** Includes 20% contingency

Summary

As discussed in the previous sections, the estimates for the ROW acreages and construction costs of each route option were based on assumed locations where only the base (4-lane) configuration would be needed and where frontage roads would need to also be included. A ROW width of 250 feet was defined for the base configuration and an additional ROW width of 150 feet (for a total of 400 feet) where frontage roads were included were used to calculate the estimated ROW areas for each route option. Per-mile and per-interchange construction cost estimates were applied based on identified locations for bridges and interchanges to determine the estimated construction cost for each route option. Absent of estimated ROW costs, route option F was determined to have the lowest construction cost overall, while route option D was determined to have the highest construction cost overall.

Appendix A

Primary Route Option Construction Cost Estimates

Estimated Construction Cost																				
Route Option	Configuration	Route Length (ft)	Route Length (mi)	No. Inter-changes	Inter-change Length (ft)	Inter-change Cost/ea (000's)	Total Inter-change Cost (000's)	Flood-plain Bridge Length (ft)	No. Stream + Road Bridges	Stream + Road Bridge Length (ft)	Bridge Cost/mi (000's)	Total Bridge Cost (000's)	At-Grade Length (ft)	At-Grade Cost/mi (000's)	Direct Connectors Cost (000's)	Total At-Grade Cost (000's)	Construction Cost Subtotal (000's)	20% Contingency Cost (000's)	Total Construction Cost (000's)	Construction Cost Per Mile
D	Base (4-lane)	60200	11.40	5	13200	$ 12,187	$ 60,935	3950	16	3200	$ 37,378	$ 50,616	39850	$ 8,818	$ 27,000	$ 93,553	$ 205,104	$ 41,021	$ 246,124	$ 21,587
	FR Addition	6800	1.29	1.5	3960	$ 3,312	$ 4,968	480	1.5	300	$ 30,989	$ 4,578	6020	$ 6,756	$ -	$ 7,703	$ 17,249	$ 3,450	$ 20,699	$ 16,072
																	Total Route D (Base + FR)		$ 266,823	$ 23,402
E	Base (4-lane)	45100	8.54	5	13200	$ 12,187	$ 60,935	1400	13	2600	$ 37,378	$ 28,317	27900	$ 8,818	$ 27,000	$ 73,595	$ 162,847	$ 32,569	$ 195,416	$ 22,878
	FR Addition	13240	2.51	2	5280	$ 3,312	$ 6,624	480	0	0	$ 30,989	$ 2,817	12760	$ 6,756	$ -	$ 16,327	$ 25,768	$ 5,154	$ 30,922	$ 12,331
																	Total Route E (Base + FR)		$ 226,338	$ 26,498
F	Base (4-lane)	36900	6.99	5	13200	$ 12,187	$ 60,935	1180	5	1000	$ 37,378	$ 15,433	21520	$ 8,818	$ 25,500	$ 61,440	$ 137,808	$ 27,562	$ 165,369	$ 23,663
	FR Addition	26700	5.06	4	10560	$ 3,312	$ 13,248	480	0	0	$ 30,989	$ 2,817	26220	$ 6,756	$ -	$ 33,550	$ 49,615	$ 9,923	$ 59,538	$ 11,774
																	Total Route F (Base + FR)		$ 224,907	$ 32,182
G	Base (4-lane)	43800	8.30	5	13200	$ 12,187	$ 60,935	2350	11	2200	$ 37,378	$ 32,210	26050	$ 8,818	$ 25,500	$ 69,005	$ 162,151	$ 32,430	$ 194,581	$ 23,456
	FR Addition	21720	4.11	3	7920	$ 3,312	$ 9,936	2010	0	0	$ 30,989	$ 11,797	19710	$ 6,756	$ -	$ 25,220	$ 46,953	$ 9,391	$ 56,343	$ 13,697
																	Total Route G (Base + FR)		$ 250,924	$ 30,248
H	Base (4-lane)	35250	6.68	5	13200	$ 12,187	$ 60,935	2010	3	600	$ 37,378	$ 18,477	19440	$ 8,818	$ 25,500	$ 57,966	$ 137,378	$ 27,476	$ 164,853	$ 24,693
	FR Addition	35250	6.68	5	13200	$ 3,312	$ 16,560	2010	0	0	$ 30,989	$ 11,797	33240	$ 6,756	$ -	$ 42,532	$ 70,889	$ 14,178	$ 85,067	$ 12,742
																	Total Route H (Base + FR)		$ 249,920	$ 37,435

Appendix B

Per Mile Construction Cost Estimates

Table B1: Assumed Per Mile Construction Cost Estimates

Description		Estimated Cost (thousands)
Location	Configuration	Per Mile
At-Grade	Base (4-lane)	$8,818
	FR Addition	$6,756
Bridge	Base (4-lane)	$37,378
	FR Addition	$30,989
Interchange	Base (4-lane)	$12,187*
	FR Addition	$3,312*

* Cost per interchange

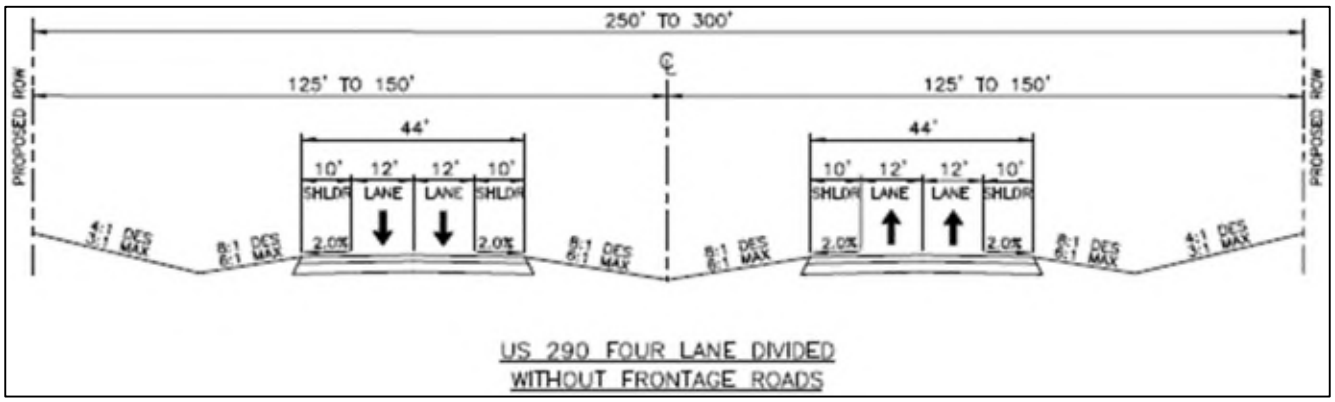


Figure B1: Conceptual Cross Section Without Frontage Roads

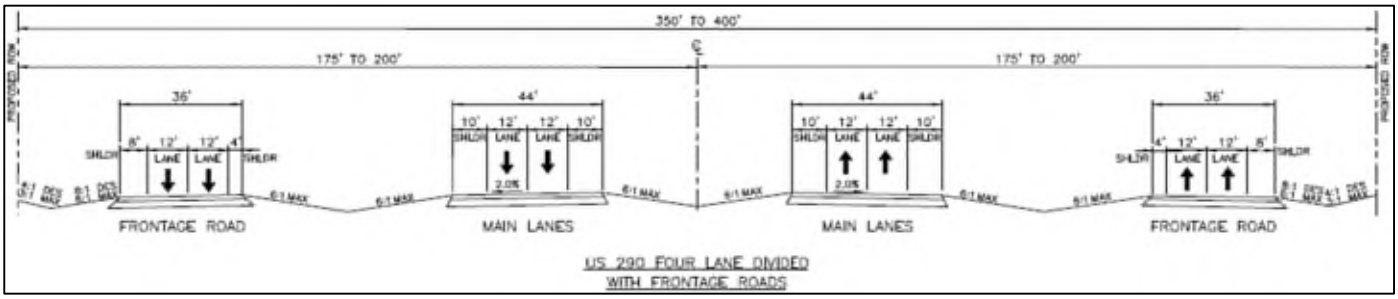


Figure B2: Conceptual Cross Section with Frontage Roads

Table B2: Assumed Pavement Design

Pavement Layer Thickness	Pavement Layer Material
2.0”	HMAC SUPERPAVE SP-C SAC-A PG70-22
0.5”	ONE COURSE SURFACE TREATMENT
4.0”	HMAC SUPERPAVE SP-C SAC-B PG70-22
12.0”	FLEX BASE TY-A GR-1
6.0”	CEMENT TREATED SUBGRADE

Table B3: At-Grade Base (4-lane) Per Mile Cost Estimate

At-Grade Base (4-lane)					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	53	$3,000.00	$159,000
110 6001	EXCAVATION (ROADWAY)	CY	73,400	$8.00	$587,200
132 6004	EMBANKMENT (FINAL)(DENS CONT)(TY B)	CY	73,400	$10.00	$734,000
164 6033	DRILL SEEDING (PERM) (RURAL) (SANDY)	SY	95,100	$0.20	$20,000
168 6001	VEGETATIVE WATERING	MG	8,300	$10.00	$83,000
				EARTHWORK TOTAL =	$1,583,200
247 6041	FL BS (CMP IN PLC)(TYA GR1-2)(FNAL POS	CY	18,000	$69.00	$1,242,000
275 6001	CEMENT	TON	15,300	$154.00	$2,356,200
275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	56,400	$2.00	$112,800
				SUBBASE & BASE TOTAL =	$3,711,000
316 6001	ASPH (MULTI OPTION)	GAL	14,500	$3.00	$43,500
316 6002	AGGR (MULTI OPTION)	CY	470	$90.00	$42,300
344 6047	SUPERPAVE MIXTURES SP-C SAC-A PG70-22	TON	5,700	$90.00	$513,000
344 6048	SUPERPAVE MIXTURES SP-C SAC-B PG70-22	TON	11,400	$85.00	$969,000
				PAVEMENT TOTAL =	$1,567,800
506	SWPPP	STA	53	$3,000.00	$159,000
	DRAINAGE	STA	53	$9,000.00	$477,000
	SIGNAGE, STRIPING & MARKINGS	STA	53	$700.00	$37,100
				MISCELLANEOUS CONSTRUCTION TOTAL =	$673,100
				SUBTOTAL =	$7,535,100
500	MOBILIZATION		10%		$754,000
502	TRAFFIC CONTROL		7%		$528,000
				TOTAL ESTIMATED CONSTRUCTION COST PER MILE =	$8,817,100
				COST IN THOUSANDS =	$8,818

Table B4: At-Grade FR Addition Per Mile Cost Estimate

At-Grade FR Addition					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	53	$3,000.00	$159,000
110 6001	EXCAVATION (ROADWAY)	CY	29,400	$8.00	$235,200
132 6004	EMBANKMENT (FINAL)(DENS CONT)(TY B)	CY	29,400	$10.00	$294,000
164 6033	DRILL SEEDING (PERM) (RURAL) (SANDY)	SY	45,800	$0.20	$10,000
168 6001	VEGETATIVE WATERING	MG	4,000	$10.00	$40,000
				EARTHWORK TOTAL =	$738,200
247 6041	FL BS (CMP IN PLC)(TYA GR1-2)(FNAL POS	CY	14,900	$69.00	$1,028,100
275 6001	CEMENT	TON	12,700	$154.00	$1,955,800
275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	47,000	$2.00	$94,000
				SUBBASE & BASE TOTAL =	$3,077,900
316 6001	ASPH (MULTI OPTION)	GAL	11,800	$3.00	$35,400
316 6002	AGGR (MULTI OPTION)	CY	380	$90.00	$34,200
344 6047	SUPERPAVE MIXTURES SP-C SAC-A PG70-22	TON	4,700	$90.00	$423,000
344 6048	SUPERPAVE MIXTURES SP-C SAC-B PG70-22	TON	9,300	$85.00	$790,500
				PAVEMENT TOTAL =	$1,283,100
506	SWPPP	STA	53	$3,000.00	$159,000
	DRAINAGE	STA	53	$9,000.00	$477,000
	SIGNAGE, STRIPING & MARKINGS	STA	53	$700.00	$37,100
				MISCELLANEOUS CONSTRUCTION TOTAL =	$673,100
				SUBTOTAL =	$5,772,300
500	MOBILIZATION		10%		$578,000
502	TRAFFIC CONTROL		7%		$405,000
				TOTAL ESTIMATED CONSTRUCTION COST PER MILE =	$6,755,300
				COST IN THOUSANDS =	$6,756

Table B5: Bridge Base (4-lane) Per Mile Cost Estimate

Bridge Base (4-lane)					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	53	$3,000.00	$159,000
				EARTHWORK TOTAL =	**$159,000**
GPITX	GIRDER PRESTRESSED "I" TEXAS SHAPE	SF	486,000	$65.00	$31,590,000
				STRUCTURES TOTAL =	**$31,590,000**
506	SWPPP	STA	53	$3,000.00	$159,000
	SIGNAGE, STRIPING & MARKINGS	STA	53	$700.00	$37,100
				MISCELLANEOUS CONSTRUCTION TOTAL =	**$196,100**
				SUBTOTAL =	**$31,945,100**
500	MOBILIZATION		10%		$3,195,000
502	TRAFFIC CONTROL		7%		$2,237,000
				TOTAL ESTIMATED CONSTRUCTION COST PER MILE =	**$37,377,100**
				COST IN THOUSANDS =	**$37,378**

Table B6: Bridge FR Addition Per Mile Cost Estimate

Bridge FR Addition					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	53	$3,000.00	$159,000
				EARTHWORK TOTAL =	$159,000
GPITX	GIRDER PRESTRESSED "I" TEXAS SHAPE	SF	402,000	$65.00	$26,130,000
				STRUCTURES TOTAL =	$26,130,000
506	SWPPP	STA	53	$3,000.00	$159,000
	SIGNAGE, STRIPING & MARKINGS	STA	53	$700.00	$37,100
				MISCELLANEOUS CONSTRUCTION TOTAL =	$196,100
				SUBTOTAL =	$26,485,100
500	MOBILIZATION		10%		$2,649,000
502	TRAFFIC CONTROL		7%		$1,854,000
				TOTAL ESTIMATED CONSTRUCTION COST PER MILE =	$30,988,100
				COST IN THOUSANDS =	$30,989

Table B7: Interchange Base (4-lane) Per Mile Cost Estimate

Interchange Base (4-Lane)					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	27	$3,000.00	$81,000
110 6001	EXCAVATION (ROADWAY)	CY	58,700	$8.00	$469,600
132 6004	EMBANKMENT (FINAL)(DENS CONT)(TY B)	CY	58,700	$10.00	$587,000
164 6033	DRILL SEEDING (PERM) (RURAL) (SANDY)	SY	72,800	$0.20	$15,000
168 6001	VEGETATIVE WATERING	MG	6,400	$10.00	$64,000
				EARTHWORK TOTAL =	**$1,216,600**
GPITX	GIRDER PRESTRESSED "I" TEXAS SHAPE	SF	56,000	$65.00	$3,640,000
				STRUCTURES TOTAL =	**$3,640,000**
247 6041	FL BS (CMP IN PLC)(TYA GR1-2)(FNAL POS	CY	17,100	$69.00	$1,179,900
275 6001	CEMENT	TON	14,600	$154.00	$2,248,400
275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	53,800	$2.00	$107,600
				SUBBASE & BASE TOTAL =	**$3,535,900**
316 6001	ASPH (MULTI OPTION)	GAL	13,500	$3.00	$40,500
316 6002	AGGR (MULTI OPTION)	CY	440	$90.00	$39,600
344 6047	SUPERPAVE MIXTURES SP-C SAC-A PG70-22	TON	5,400	$90.00	$486,000
344 6048	SUPERPAVE MIXTURES SP-C SAC-B PG70-22	TON	10,700	$85.00	$909,500
				PAVEMENT TOTAL =	**$1,475,600**
506	SWPPP	STA	27	$3,000.00	$79,500
	DRAINAGE	STA	27	$9,000.00	$238,500
	SIGNAGE/STRIPING/MARKINGS (ALL WAY STOP)	STA	27	$1,000.00	$26,500
	ILLUMINATION	STA	27	$7,500.00	$202,500
				MISCELLANEOUS CONSTRUCTION TOTAL =	**$547,000**
				SUBTOTAL =	**$10,415,100**
500	MOBILIZATION		10%		$1,042,000
502	TRAFFIC CONTROL		7%		$730,000
				TOTAL ESTIMATED CONSTRUCTION COST PER INTERCHANGE =	**$12,187,100**
				COST IN THOUSANDS =	**$12,187**

Table B8: Interchange FR Addition Per Mile Cost Estimate

Interchange FR Addition					
Item Code	Description	Unit	Quantity	Unit Cost	Subtotal
100 6002	PREPARING ROW	STA	27	$3,000.00	$81,000
110 6001	EXCAVATION (ROADWAY)	CY	11,000	$8.00	$88,000
132 6004	EMBANKMENT (FINAL)(DENS CONT)(TY B)	CY	11,000	$10.00	$110,000
164 6033	DRILL SEEDING (PERM) (RURAL) (SANDY)	SY	11,800	$0.20	$3,000
168 6001	VEGETATIVE WATERING	MG	1,100	$10.00	$11,000
				EARTHWORK TOTAL =	$293,000
247 6041	FL BS (CMP IN PLC)(TYA GR1-2)(FNAL POS	CY	7,500	$69.00	$517,500
275 6001	CEMENT	TON	6,400	$154.00	$985,600
275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	23,500	$2.00	$47,000
				SUBBASE & BASE TOTAL =	$1,550,100
316 6001	ASPH (MULTI OPTION)	GAL	5,900	$3.00	$17,700
316 6002	AGGR (MULTI OPTION)	CY	190	$90.00	$17,100
344 6047	SUPERPAVE MIXTURES SP-C SAC-A PG70-22	TON	2,400	$90.00	$216,000
344 6048	SUPERPAVE MIXTURES SP-C SAC-B PG70-22	TON	4,700	$85.00	$399,500
				PAVEMENT TOTAL =	$650,300
506	SWPPP	STA	27	$3,000.00	$79,500
	DRAINAGE	STA	27	$9,000.00	$238,500
	SIGNAGE, STRIPING & MARKINGS	STA	27	$700.00	$18,550
				MISCELLANEOUS CONSTRUCTION TOTAL =	$336,550
				SUBTOTAL =	$2,829,950
500	MOBILIZATION		10%		$283,000
502	TRAFFIC CONTROL		7%		$199,000
				TOTAL ESTIMATED CONSTRUCTION COST PER INTERCHANGE =	$3,311,950
				COST IN THOUSANDS =	$3,312

Appendix D

Historic Resources Constraints Analysis Report (and Addendum)



Historic Resources Constraints Analysis Report

Project Name: U.S. Highway 290 Relief Route

District(s): Austin

County(s): Gillespie

Prinicipal Investigator: Rick Mitchell, Mead & Hunt, Inc.

Report Completion Date: December 10, 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 12-16-2014, and executed by FHWA and TxDOT.

This report is produced for the purposes of meeting requirements under Section 106 of the National Historic Preservation Act, the Antiquities Code of Texas, and other cultural resource legislation related to environmental clearance as applicable.

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Project Background

Fredericksburg Relief Route Project

The Fredericksburg Relief Route Study project was initiated by the City of Fredericksburg (City) and Gillespie County (County) in response to community requests to address traffic congestion on U.S. Highway (US) 290 (Main Street) in Fredericksburg. Acting through the Gillespie County Relief Route Task Force, the City and County requested the Texas Department of Transportation's (TxDOT's) support in conducting a study to identify a potential relief route that will allow traffic to travel around, rather than directly through, the city. To date, the feasibility study area has included examination of a broad area south and west of Fredericksburg, extending from US 290 southeast of the city to US 87 to its northwest. Initial phases of the study identified eight potential route options. An initial round of screening and public input was carried out in 2018 and early 2019. Based on public comments and a set of technical criteria, the initial eight route options were narrowed to five: Routes D, E, F, G, and H (see Figure 1). If a preferred route option is selected, it will become a starting point for future project development phases, including detailed environmental studies, schematic development, and final design.

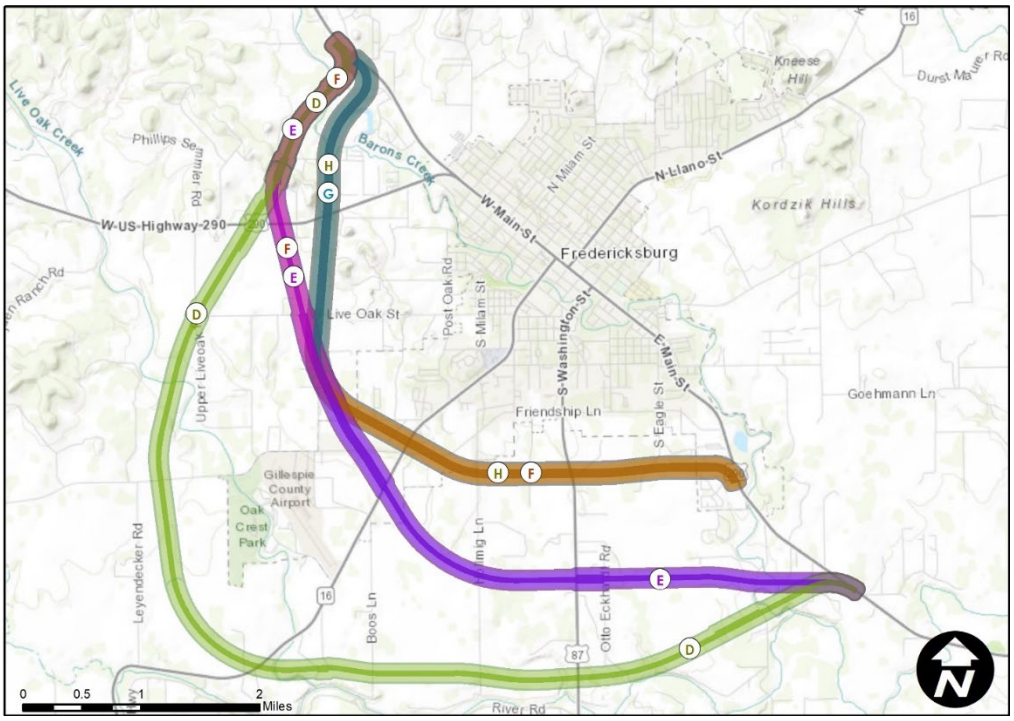


Figure 1. Overview map showing the location of route options D, E, F, G, and H.

Summary of Historic Resources Investigations

A historic resources survey, to identify and evaluate properties that are included in or eligible for inclusion in the National Register of Historic Places (NRHP), is typically conducted as part of project environmental studies. Due to the number of potentially historic properties in the study area and the level of public interest in those properties, TxDOT decided to conduct historic resources investigations in conjunction with the current feasibility study.

Historic resource investigations were conducted using a phased approach. Phases included:

1. **Research Summary and Graphics Analysis.** Examination of available historic maps, aerial images, and online research sources to identify and map potentially historic properties along each of the five route options.[1]

2. **Property Owner Meetings.** Public meetings and outreach to gain permission for right-of-entry (ROE) and gather additional historic information from property owners and stakeholders.

3. **Historic Resources Constraints Analysis.** Field investigations, limited research, and consultation with local informants to verify initial findings and evaluate properties for historic significance and integrity.

Findings and recommendations of the Historic Resources Constraints Analysis are compiled into this report, which will inform the Fredericksburg Relief Route Study and serve as a basis for possible historic resource investigations if additional planning or environmental studies are required in the future.

Methodology

Research Sources

Initial research was carried out during the first phase of the project and focused on gathering available text and graphics sources, including public GIS/mapping data sources available online, historic maps and aerials, and information gathered from property owners during the public open house held in Fredericksburg on July 23, 2019.[2]

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[1] Route options were delineated by corridors 250 to 400 feet in width. The areas of examination for historic investigations ranged between 850 and 1,000 feet wide including the route option corridors and an additional 300-foot buffer on either side. Potentially historic properties were those defined as containing resources constructed in 1976 or earlier. See the Research Summary and Graphics Analysis Report submitted to TxDOT ENV on August 8, 2019 and approved on August 13, 2019.

[2] For a full list of research sources gathered during this phase, see the Research Summary and Graphics Analysis Report submitted to TxDOT ENV on August 8, 2019 and approved on August 13, 2019.

During the first phase of the project, Mead & Hunt historians used these sources to gain a general understanding of the historic land use and development of the Fredericksburg vicinity, identify parcels with potentially historic resources along each route, and produce GIS data including possible age of the resources, observations on changes to the property over time, and preliminary significance rankings based on a limited understanding of each property. These sources were also used to inform fieldwork and property evaluations for the Historic Resources Constraints Analysis (see *Evaluation* section below).

In addition to sources gathered during the initial research phases of the project, Mead & Hunt acquired several locally-available books and community histories, and performed limited online newspaper research to verify property owner information, obtain construction dates for specific resources, and gain a better understanding of the project area and potentially significant properties. The following additional research sources were consulted:

- *Pioneers in God's Hills: A History of Fredericksburg and Gillespie County People and Events.* Vol. II*,* Gillespie County Historical Society, 1974
- *Gillespie County,* Gillespie County Historical Society, 2013
- *Historic Buildings of Fredericksburg and Gillespie County,* Kenneth Hafertepe, 2015
- *Old Homes and Buildings of Fredericksburg,* Elise Kowart, 2017
- *Final Armory Historic Context,* Burns & McDonnell Engineering Company, Inc, and Architectural and Historical Research, Prepared for Army National Guard, June 2008
- Limited review of articles in the *Fredericksburg Standard* available on Newspapers.com (specific article dates are notes in property descriptions or comments).

Stakeholder Involvement and Field Survey

Each of the five route option corridors passes through areas including rural/agricultural properties or large-lot residential properties, limiting the visibility of built resources from the public right-of-way (ROW). Following approval of the Research Summary and Graphics Analysis report on August 13, 2019, Mead & Hunt sent right-of-entry permission requests to landowners of each property identified as containing potentially historic resources. The ROE requests included invitations to two public meetings held on Thursday, September 5, 2019 and Saturday, September 7, 2019. The purpose of the meetings was to obtain additional ROE permission forms and gather historic information from property owners to help prepare for field survey and identify potential properties of concern. Information obtained from

property owners was collected in Google Earth and considered as part of property evaluations as explained in sections below.

In preparation for field survey, Mead & Hunt called and scheduled site visits with property owners who requested advanced notice on their ROE form and used Google Earth Street View to determine which properties might be visible for survey from the public ROW. GIS layers developed during the initial research and graphics analysis phase were used to produce individual field maps for each of the potentially historic properties.

Mead & Hunt Historians carried out field investigations on September 16, 24-25, 30 and October 1, 2019. While in the field, Mead & Hunt historians verified and refined preliminary data including Gillespie CAD build dates, observations based on review of historic maps and aerials, property owner information, and "high, medium, or low" rankings. Additional descriptive information and property history provided by owners during site visits was recorded and later incorporated into an Excel spreadsheet. Mead & Hunt historians focused photography on the most significant or primary resources for each property. Mapped locations of historic-age resources identified during the graphics analysis phase were refined and updated on individual property maps provided in Appendix A.

All properties visible from the ROW or for which ROE was received were surveyed by October 1, 2019. On October 15, 2019, Mead & Hunt historians submitted unofficial interim deliverables for TxDOT's review which included a tabular list, a GIS shapefile, and maps of the potentially historic properties including significance rankings.

Mead & Hunt historians were unable to survey some properties due to survey limitations and lack of ROE. Following fieldwork, Mead & Hunt sent a list of unsurveyed properties that were identified as potentially possessing historical significance to Glen Treibs of the Gillespie County Historical Commission (GCHC) and Evelyn Weinheimer of the Gillespie County Historical Society (GCHS) to request additional information if known/available. Mead & Hunt historians met with Evelyn Weinheimer and GCHS in Fredericksburg on October 22, 2019. The GCHC did not respond to the request. Several properties were also surveyed on Tuesday, October 22, 2019 following receipt of additional ROEs.

Evaluation

Per Work Authorization No. 57810SH004, Mead & Hunt did not complete full NRHP evaluations or delineate recommended NRHP boundaries for potentially historic properties. However, for analytic purposes, historians developed an evaluation framework adapted from common community survey evaluation methodology using high, medium, and low rankings, defined as:

- High – Individually possesses historical and/or architectural significance and retains sufficient integrity to be potentially eligible for the NRHP.

- Medium – Does not possess sufficient historical and/or architectural significance to be individually eligible for listing in the NRHP, however would likely be contributing resource if located within a historic district.

- Low – Does not possess sufficient historical significance nor retain sufficient integrity to be potentially individually eligible for the NRHP or contributing to an eligible historic district.

Using survey data, photographs, and limited research sources listed above, Mead & Hunt evaluated each property to assign a priority ranking of high, medium, or low based on their historic significance and integrity. Although NRHP criteria were used in the evaluative framework, significance rankings are based on limited survey and research and should not be considered recommendations for NRHP eligibility.

Properties for which Mead & Hunt did not receive ROE and where visibility from the ROW was highly limited due to distance and/or obstructions were evaluated using similar methodology but with greater emphasis on use of research sources such as historic aerials and maps, Google Earth imagery, secondary source community histories, and information provided by local informants. Unsurveyed properties were assigned "presumed" high, medium, or low rankings based on this information. In general, because evaluations for unsurveyed properties were based on limited information, Mead & Hunt historians erred on the side of assuming greater significance when evaluating these properties. Rankings for some properties were changed after the interim deliverable on October 15, 2019 based on new information gathered from survey and local informants.

Findings and Constraints

Summary of Findings

Following fieldwork, Mead & Hunt refined the list of potentially historic properties by removing those that did not contain historic-age resources and combining those that were closely associated with the same current property owner. The final list included 120 properties. Mead & Hunt was able to survey 95 of the 120 total properties, approximately 79 percent. Of the 95 potentially historic properties surveyed, 73 received a Low significance ranking, 13 received a Medium ranking, and 9 received a High ranking. Of the 25 potentially historic properties not surveyed, 16 received a Presumed Low significance

ranking, 3 received a Presumed Medium ranking, and 6 received a Presumed High ranking. A summary table of property rankings along each route is provided below.

Table 1. Summary of Property Rankings by Route Option

	Route D	Route E	Route F	Route G	Route H
High	5	3	3	3	3
Presumed High	4	1	1	2	2
Medium	9	4	2	4	2
Presumed Med	2	1	0	1	0
Low	17	25	35	38	46
Presumed Low	7	9	9	7	7
Total	**44**	**43**	**50**	**55**	**60**

Two previously designated historic properties were identified on parcels within 300 feet of one or more relief route option. These are:

- Christian Kraus Homestead, designated an RTHL in 1984. (Located on Property ID 31470)

- Fort Martin Scott site, listed in the NRHP as an archeological site in 1979 and designated a State Antiquities Landmark (SAL). Fort Martin Scott also contains a 1936 state centennial marker. (Located on Property ID 11390)

No other previously identified historic properties were found through field survey or searches of Texas Historic Sites Atlas or TxDOT Historic Districts and Properties GIS layers.

High Ranking Properties and Areas of Concern

High or Presumed High ranking properties were found along each of the five route options. A table of High and Presumed High properties is provided below. A full list of properties with significance rankings is provided as an Excel spreadsheet and table in Appendix C.

Table 2. High and Presumed High Properties

Property ID	Address	Ranking	Route(s)
11390	1606 E Main St	High	F, H

13405	4222 S St Hwy 16	High	D
14322	638 and 718 Mesquite Flat	High	D
14329	111 Owl Lane	High	E, G
27311	197 Rock House Dr	High	D, E, F
27996	457 Bob Moritz Dr	High	G, H
31470	554 Shorty Crenwelge Rd	High	D, E, F
34334	2023 FM 2093	High	D
52964	598 Armory Rd	High	G, H
13481	1076 Boerner-Weirich Rd	Presumed High	D
15037	2878 W Us Hwy 290	Presumed High	D
17543	256 Pyka Rd	Presumed High	F, H
28390	3567 E Us Hwy 290	Presumed High	D, E, G
28752	505 Upper Liveoak Rd	Presumed High	D
34693	290, 506, and 551 Pioneer Ln	Presumed High	G, H

As noted above, High or Presumed High ranking properties were identified along each of the five route options. Additionally, several concentrations of High, Medium, and Presumed High or Medium ranking properties were identified within the historic resource investigations survey area. These included:

- Route D between Live Oak Street and US 290: A series of late-nineteenth and early-twentieth century rural properties associated with early settlement and agricultural development southwest of Fredericksburg is located along Route D between Live Oak Street and US 290. This concentration includes properties that have direct associations with the period of early settlement and agricultural development surrounding Fredericksburg in the mid-to-late nineteenth century. Additionally, several properties contain architecturally significant resources with high levels of integrity, including early-twentieth-century Basse block residences located on Property ID 14322 and 34334. The proposed location of Route D has the potential to disrupt the characteristic rural setting of these properties.

- Routes D, E, and F between US 87 and approximately Falcon Hills Ranch Road: Several properties associated with early settlement and containing architecturally significant resources are located along Routes D, E, and F between US 87 and approximately Falcon Hills Ranch Road. This concentration includes the RTHL-designated Christian Kraus Homestead (Property ID 31470), the mid-nineteenth century Strackbein family cemetery (Property ID 24386), and an 1896 two-story house associated with the Strackbein family (Property ID 27311); all three properties are directly associated with early settlers of Fredericksburg and early settlement of the rural Klein Frankreich community. The proposed locations of Routes D, E, and F could require removal of several significant architectural resources. In addition, the characteristic rural setting of these properties along Barron Creek will be disrupted.

In some cases, a single historic-age building or a concentration of several historic-age buildings were located within a large property with no other historic-age resources present. Although recommended NRHP boundaries were not delineated as part of the Historic Resources Constraints Analysis, the locations of historic-age resources within each property were identified and circled on individual property maps provided in Appendix C. Where appropriate, maps also include additional property details noted with call-out boxes.

Limitations

Per Work Authorization No. 57810SH004, the goal of the Historic Resources Constraints Analysis is to provide preliminary information to be used for decision-making during the early feasibility study stage of the Fredericksburg Relief Route Project. It is not intended to satisfy typical federal environmental requirements such as the National Environmental Protection Act (NEPA) or Section 106 of the National Historic Preservation Act (NHPA), however it may be used to inform future historic resources investigations. As noted above, NRHP recommendations are not included within this report and property evaluations are based on limited survey, property owner information, and limited research. Assumptions on integrity and potential architectural significance were made for properties that were inaccessible and not visible from the public ROW. As noted above, Mead & Hunt historians erred on the side of assuming greater significance for these properties.

Deliverables

In addition to this report, the Historic Resource Constraints Analysis includes the following:

- Excel spreadsheet: A list of all 120 properties is included as an Excel spreadsheet and table in Appendix A. The table contains Gillespie CAD data and relevant information collected as part of the constraints analysis.

- Maps and GIS deliverables: Individual property maps indicating the parcel or combination of parcels and location of historic-age resources are included with each survey form in Appendix B. Overview maps showing the potentially historic properties shaded according to their significance ranking over the entire historic resources investigations survey area are provided in Appendix C. A GIS shapefile including each of the potentially historic parcels is also included. The shapefile attribute tables contain Gillespie CAD parcel data and the significance rankings assigned by Mead & Hunt.

- Brief survey forms: Survey forms for each of the 120 properties are provided in Appendix C. Forms are focused on each property's primary or most significant resources and include: brief descriptions, comments on significance and/or integrity where appropriate, estimated or Gillespie CAD construction dates, and photographs. Forms also indicate which of the five relief route options the property is on and whether a portion of the property is within the proposed relief route ROW. These forms are intended to provide an appropriate level of documentation to support significance rankings and the historic resources constraints analysis; they are not intended to meet the TxDOT ENV Documentation Standards for Historic Resource Survey Reports.

Appendix A: Table of Potentially Historic Properties on Route Option Corridors

Historic Property Significance Rankings
Fredericksburg Relief Route Study
December 2019

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
2212		243 Danz Ln	E, G	Y	N	Presumed M	Unknown	Historic-age resources located in southwest corner of parcel and appear to include three outbuildings with metal gable roofs. Property also includes a non-historic-age house and outbuilding on north end of parcel.	Buildings appear on aerials from 1938 to present. May have been constructed prior to 1938. Primary buildings on parcel are non-historic-age. Presumed medium due to age and potential association with early settlement or agricultural practices in the area.
2735		739 Kerr Rd	E, G	N	Y	L	c.1940	One-story frame residence with shingle side gable roof and gable porch.	
2860		2082 W Live Oak St	E, F	Y	Y	L	c.1945	One-story frame residence with metal gable roof and front porch dormer. Outbuildings include a hollow clay tile wellhouse/shed and a one-story frame building with metal gable roof and shed addition.	
2868	22850	705 Upper Liveoak Rd	D	Y	Y	L	1968	One-story corrugated metal barn/shed with gable roof.	
3050	25100	290 Kerr Rd	E, F, G, H	Y	Y	L	1900	One-story L-plan house with shed roof porch and vinyl siding/brick veneer exterior. Shed roof porch addition on rear elevation. Outbuildings include a c.1920 metal barn/shed and two non-historic-age sheds.	
4814	16481	3554 S Us Hwy 87	D	Y	Y	L	c.1930	Primary residence no longer extant, but rubble stone remnants remain. Ancillary buildings include a rubble stone building with metal gable roof, a corrugated metal garage and shed, and a stone outbuilding/wellhouse.	
4897	22723	1513 and 1627 Hollmig Ln	E, G	Y	Y	L	c.1970	One-story brick residence with shingle side gable roof and covered front porch with roof balustrade. Non-historic-age outbuildings include a concrete block garage and metal shed.	
5011		2254 N Us Hwy 87	G, H	N	Y	L	c.1970	Service yard complex several of metal frame outbuildings with side gable or shed roofs. Some units are open-air sheds.	Gillespie County Maintenance Shop
6361		2159 N Us Hwy 87	G, H	Y	Y	L	c.1970	One-and-one-half-story concrete block and seamed metal building with gable roof and shed roof extension. Outbuildings include enclosed and open-air metal sheds.	
7590	21462, 108191	764 Royal Oaks Loop	D, E, F	Y	Y	L	c.1975	One-story frame residence with side gable metal roof and stone veneer exterior. Other buildings include a two-car garage and a one-story secondary domestic building with side gable metal roof, covered porch, and stone veneer/wood exterior.	
8662		72 Grona Ln	D	N	Y	L	c.1970	One-story frame residence with metal gable roof and brick veneer exterior.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
11390		1606 E Main St	F, H	N	Y	H	1850	Historic fort containing original cut limestone guardhouse, three reproduction garrison buildings, and a farm shed. Rock foundation remains of other buildings throughout grounds.	National Register-listed and designated State Antiquities Landmark Texas Centennial Marker located on site.
11877		315 Kerr Rd	E, F, G, H	Y	N	Presumed L	c.1960	Historic-age resources appear to include outbuildings with metal gable roofs. Property also includes a non-historic-age ell-plan house with a metal roof.	Historic-age buildings appear on aerial images from 1963 to present. Primary buildings on parcel are non-historic-age. No known potential for significance.
13405		4222 S St Hwy 16	D	N	Y	H	1851	Complex of coursed limestone buildings with metal roofs: a one-and-one-half-story side gable house with a shed porch; a two-story side gable barn or storage building; a one-and-one-half-story partially stuccoed secondary dwelling with partial shed roof porch; and a side gable smokehouse. Property also includes a c.1960 metal barn north of the Guenther Mill complex.	Guenther's Live Oak Mill established in 1851 by Carl Hilmar Guenther. Guenther later established Pioneer Flour Mills in San Antonio. Complex includes original buildings and retains high level of overall integrity. OTHM located on SH 16 near the property.
13481	4543	1076 Boerner-Weirich Rd	D	Y	N	Presumed H	1901	Historic-age resources include a T-plan house with cross hip metal roof and a building (possibly a barn) with a metal gable roof located to the west. Property also includes several non-historic-age buildings with metal gable roofs south of the house.	According to property owner or family representative, the 1901 house was originally owned by a prominent general store owner. Name of store owner is unknown, however GCHS indicated that the property may be connected with Charles Schwarz, who opened a story in the 1907 Schwarz Building on West Main Street. Gillespie CAD date is 1901. Review of aerials shows the house and a barn as far back as 1938. Other buildings added between 1981 and present. Potentially significant due to association with prominent local merchant. Historic-age buildings appear to have few major additions based on aerial review.
13609		111 Bobwhite Trl	F, H	N	Y	L	1974	One-story brick Ranch-style residence with shingle side gable roof and half-shed porch.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
13667		2871 W Us Hwy 290	D	Y	Y	L	1962	One-story cross-gable residence with metal roof, side gable two-car garage, inset entry porch, and brick veneer exterior. A small prefabricated plywood building sits behind the garage and is covered by a carport roof.	
14153		Armory Rd	G, H	Y	Y	L	c.1970	Open air corrugated metal shed.	
14219		112 Daniel Dr	G, H	Y	Y	L	c.1930	One-story stucco residence with a shingle hip roof and a detached garage.	
14322	5828, 89744	638 and 718 Mesquite Flat	D	Y	Y	H	1909	1909 two-story, L-plan, Basse block house with original features including two-story wood and Basse block front porch, original wood windows, shutters, and doors with transoms. Property also includes two c.1870s log and half-timbered (fachwerk) houses and numerous historic-age limestone and log outbuildings, a smokehouse, and a Basse block well house and metal cistern. Property also contains a 1949 one-story, side gable, house clad in asbestos siding.	Family Land Heritage property as Louis-Gus Crenwelge Farm. Earliest buildings were constructed in 1870s by early Prussian settler Mathias Boos and wife and Karoline. Their heir Wilhelmina and husband Louis Crenwelge inherited the property in 1897 and constructed the two-story Basse block house in 1909. The property has remained in the Crenwelge family since this time. Significance due to association with period of early settlement and good example of Basse-block construction. Buildings exhibit few major alterations.
14412		1793 W Live Oak St	E, F	Y	Y	L	1961	One-story frame residence with side gable metal roof, covered porch dormer, and plywood panel siding.	
14665		2147 N Us Hwy 87	G, H	N	Y	L	c.1975	One-story seamed metal frame building with broad gable roof.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
15037	2931	2878 W Us Hwy 290	D	Y	N	Presumed H	c.1880	Based on photos provided by owner, historic-age resources include a two-story house with a one-story wraparound hip roof addition, clad in stucco and asbestos siding; several wood, limestone, and hollow clay tile outbuildings, and a large side gable wood and limestone barn.	According to the owner, property was formerly a prominent angora goat farm owned by Heinrich and Olga Dietz, who were brother and sister. Gillespie CAD date is 1880. Footprint of house and overall property layout appears unchanged since 1948. Presumed high ranking due to potential for significance for association with Dietz family who were early settlers of the area and presumed integrity based on aerial review and photographs provided by owner.
15526	15524	2928 W Us Hwy 290	D	Y	Y	L	1890	One-story limestone building with metal side gable roof; possibly a residence and barn joined together. Adjacent outbuilding a frame building with vertical siding and a shingle roof.	Buildings underwent major additions and alterations after 1976.
15678	15677	1721 S Us Hwy 87	F, H	Y	N	Presumed L	1976	Appears to be a side gable Ranch-style house with metal roof.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1976. No known potential for significance.
15888		695 Kerr Rd	E, F, G, H	Y	Y	L	c.1970	One-story gable frame residence with fiberboard siding. Several outbuildings, some of historic age, made of stuccoed cement block or clad with fiber cement siding. All have metal roofs.	
16261		1621 E Main St	F, H	N	Y	L	1963	Large metal warehouse or vehicle/material shed.	TxDOT maintenance office
16462	100123, 100122, 103690, 29255,1267, 100126, 100127	530 and 579 Quiet Dr	D	Y	Y	M	c.1945	Two c.1945 houses on parcel. Southernmost house (530 Quiet Dr) is a one-story frame residence with a metal cross gable roof and front porch. House to north (579 Quiet Dr) is one-story frame residence with metal gable roof and shed porch. Outbuildings include a large vehicle shed/garage and a smaller corrugated metal shed with gable roof.	Medium ranking applies to house at 530 Quiet Drive which exhibits architectural detail and retains good overall integrity. House at 579 Quiet Drive has been highly altered.
16468		825 Royal Oaks Loop	D, E, F	Y	Y	L	1971	One-story frame residence with metal gable roof and large deck. Adjacent buildings include an elevated, one-story frame residence with metal gable roof and deck and a metal frame, two-bay shed.	
16597		2162 N Us Hwy 87	G, H	N	Y	L	c.1965	One-story concrete block building with metal gable roof and one-story addition with a flat metal roof and covered porch. Adjacent concrete block storage unit with side gable metal roof.	
16974		733 Kerr Road		Y	Y	L	c.1945	One-story cross gable, frame house with horizontal wood siding. Front gable garage with horizontal wood siding.	House and garage in poor overall condition.
17021		460 Shorty Crenwelge Rd	D, E, F	Y	Y	L	c.1970	One-and-one-half or two-story domestic frame building with metal gable roof and vertical siding. Outbuildings include a detached carport and metal shed.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
17066		362 Fair Dr	E, G	N	Y	L	c.1970	Series of non-historic age-wood frame horse barns or stalls with corrugated metal gable roofs.	
17543		256 Pyka Rd	F, H	N	N	Presumed H	c.1890	Based on aerial images and photos from Lands of Texas (www.landsoftexas.com), historic-age resources include a two-story, side gable, limestone house with second story side entry, metal roof, and front porch with a shed metal roof.	According to Lands of Texas (www.landsoftexas.com), house dates late 1800s and was Gillespie CAD date is 1926 and the building appears on 1948 aerial imagery and 1936 highway map. Appears to retain high level of overall integrity from limited online photos. Potential significance for architecture and association with early settlement of the area.
17640	17639, 17641	273 Gold Rd	G, H	Y	Y	L	c.1950	One-story frame residence with metal side gable roof and asbestos cement shingle siding. Adjacent c.1970 metal shed outbuilding.	
18949		1609 E Main St	F, H	Y	Y	L	1971	One-story concrete block building/warehouse with one-story frame retail addition clad in plywood panel siding and topped with metal mansard roof and dormers (possibly a false front).	
19102		659 Bob Moritz Dr	G, H	N	Y	L	c.1900	One-and-one-half-story stuccoed stone residence with side gable roof, chimney, and one-story gable wing. Metal roof has two gable dormers; side gable ends covered with wood siding. Adjacent features include a non-historic-age wood and corrugated metal barn and a small stone outbuilding.	Major alterations to building including replaced siding and added dormers.

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19684	34190, 89717	77, 103, and 259 Buffalo Creek Rd	D	Y	N	Presumed M	c.1890	Historic-age resource appears to be a two-story, side gable house with horizontal wood or fiberboard siding and a metal roof. The house has a shed roof front porch with wrought-iron trim and supported by wrought-iron posts. A one-story addition extends from the rear (north) elevation. Property also includes several non historic-age cottages and outbuildings north of the house.	Only the southernmost building facing SH 16 is historic-age. Photos taken from ROW limited only to part of second story; view limited by high stone wall and mature trees. Large one-story rear addition, appears to have been added after 1981. Potentially significant for its age and association with early settlement in the area, but presumed medium ranking due to changes to setting and known alterations to the building including the wrought iron porch and large rear addition.
20087		641 Kerr Rd	E, F, G, H	Y	Y	L	1961	One-story frame residence with shingle side gable roof clad in fiberboard or fiber cement siding. Associated features include a one-story metal frame carport and one-story vehicle shed/garage with gable roof.	
20112		101 Bobwhite Trl	F, H	N	Y	L	1973	One-story Ranch-style brick residence with metal side gable roof and attached two-car garage with metal carport extension.	Part of Bobwhite Road subdivision, primarily developed in the 1970s with some 1980-2000s infill.
20314	20312	875 Upper Liveoak Rd	D	N	N	Presumed L	c.1970	Historic-age resources located north on parcel and appear to include a rectangular-plan, hip roof house with a rear addition, and several outbuildings with metal roofs. Property also includes multiple non-historic-age buildings.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1820 but no buildings visible before 1976 . No known potential for significance.
20853	20852, 20850	1291 Shorty Crenwelge Rd	D, E, F	N	Y	M	c.1890	Historic-age ranch complex with a two-story frame residence clad in vertical wood and metal siding and topped with metal side gable roof. Stuccoed masonry addition with shed roof attached to the rear of the building. Outbuildings include: limestone washhouse with metal gable roof, seamed metal barn, large wood barn, and non-historic-age shed. Associated features include: Aermotor windmill, water tank, concrete block cistern/wellhouse, and concrete trough.	Home of John Krause, son of early settler Christian Kraus (RTHL Christian Kraus Homestead located to the NE). c.1890 house has undergone numerous alterations and is in poor overall condition, including changes to fenestration and removal of entire front porch.
21156		1969 W Live Oak St	E, F	Y	Y	L	c.1970	One-story metal machine shed.	
21231	21229	2137 W Us Hwy 290	G, H	N	Y	L	1951	One-story frame residence with broad side gable roof and synthetic siding/wood shingle exterior.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
21323		103 Bobwhite Trl	F, H	N	Y	L	c.1970	One-story Ranch-style residence clad in brick veneer with side gable roof and gable porch.	
21377		1605 E Main St	F, H	Y	Y	L	1970	One-story concrete block commercial building with flat roof and shed roof porch.	
21421	8104	1602 W Live Oak St	G, H	Y	Y	L	1951	One-story frame residence with shingle side gable roof and gable porch.	
21669	55974	2593 S St Hwy 16	E, G	N	Y	L	c.1960	Two houses. One-story concrete block and seamed metal residence with metal side gable roof. One-story frame residence clad in asbestos cement siding with shingle side gable roof and carport extension.	
22284		187 Royal Oaks Loop	G, H	Y	N	Presumed L	1971	Historic-age resources appear to include a rectangular-plan side gable house and an open-air shed with a metal roof.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1971. No known potential for significance.
22417		S St Hwy 16	D	Y	Y	M	c.1920	One-story frame residence clad in horizontal siding with central brick chimney, shed porch, and metal side gable roof. Historic-age outbuildings include: wood hay barn/seed shed with vertical paneling and metal gable roof; side gable metal frame barn; cylindrical metal feed storage tank; three small c.1950 corrugated metal sheds; and large c.1970 corrugated metal, open-air vehicle shed.	Historically associated with parcel 34333 and 34334, but different current owners. Part of Meyer farm property.
22718		417 Royal Oaks Loop	G, H	N	Y	L	1973	One-story stone veneer Ranch-style residence with side gable roof and asymmetrical projecting front gable. Adjacent detached metal frame garage.	
23310		2207 N Us Hwy 87	G, H	Y	Y	L	c.1975	Large two-story seamed metal warehouse with gable roof and one-story brick veneer retail/showroom addition with broad gable roof and porch.	
23313		51 Jack Nixon Rd	G, H	Y	Y	L	c.1970	One-story seamed metal building with metal side gable roof and shed roof extension. Adjacent tall one-story metal frame building with gable roof and two vehicle bays.	
23811	23813, 23815, 82016, 67787 65329, 23808	41 and 113 Tejano Ln	G, H	Y	Y	L	1971	Complex of residential units of varying sizes, including: one-story frame house clad in plywood and stone veneer with metal side gable roof; one-story frame house with plywood paneling and corrugated metal side gable roof; two-story frame house clad in plywood paneling and stone with metal roof and large one- and two-story shed additions; and a series of smaller wood frame buildings with metal roofs and plywood exteriors.	
23904		999 Royal Oaks Loop	D, E, F	Y	Y	L	1971	One-story partially stuccoed concrete block house with central chimney, metal gable roof, and porch and barrel tile window/door overlay.	
24386	70736	163 Wilhelm Rd	D, E, F	Y	Y	L	1854	Historic-age limestone house enclosed by a modern stucco residence with gable roof. Outbuildings include non-historic-age open air sheds, garage, and wellhouse. A family cemetery dating to mid-to-late nineteenth century (1855-1892) is located west of the house and bound by an in-ground limestone perimeter.	1854 house constructed by the Strackbein family, who were early settlers in the area. Most of historic-age house no longer visible from exterior. Historic-age family cemetery is located on property within proposed relief route.

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24786		1729 W Live Oak St	E, F, G, H	Y	Y	L	1966	One-story Ranch-style residence with synthetic siding, seamed metal roof, and attached garage and carport.	
24902	24901, 179106	84 T9C Ranch Rd	D	Y	Y	L	1979	One-story residence clad in brick veneer with metal side gable roof and offset gable wing.	
25808		1296 Royal Oaks Loop	F, G	N	Y	L	1905	Two-story masonry and log residence with metal gable roof and one-and-one-half-story masonry addition. Outbuildings include a limestone barn with metal side gable roof and non-historic stucco addition, and a one-story frame dwelling with clerestory-style metal roof and horizontal wood siding.	House and barn have been highly altered and no longer retain integrity.
25993		519 Hollmig Ln	F, H	Y	Y	L	1972	One-story brick Ranch-style house with metal side gable roof.	
26283	4542	1412 S Eagle St	F, H	Y	Y	L	c.1965	One-story concrete block residence with metal cross gable roof and shed porch. Adjacent small outbuilding and open air shed.	
26287	107051	954 Royal Oaks Loop	D,E,F	Y	N	Presumed L	Unknown	Several small outbuildings with metal roofs present on center of property. Property also includes non-historic-age house on southeast corner of parcel.	Added due to owner request. Buildings appear to have been constructed in 2000s.
26323	26311, 26312, 26313, 26314, 26323, 26325, 26326, 26327, 26328, 26329	466 Falcon Hills Ranch Road	D,E,F	Y	N	Presumed L	c.1970	Outbuilding or barn with metal gable roof and shed side addition located on northeast corner of parcel.	Building appears on aerial images from 1976 to present. No known potential for significance.
26410	33685	155 Moellering Rd	D	Y	N	Presumed L	c.1945	Historic-age resources appear to include several outbuildings with metal gable roofs located south of a non-historic-age house with shingle side gable roof. A historic-age barn or outbuilding with a metal gable roof and shed roof extension is located southeast of the house.	Barn building southeast of residence appears on aerial images between 1938 and 1948. Other historic-age outbuildings are c.1976. Gillespie CAD date for house is 1978. No known potential for significance.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
26882		549 Burgess-Stehling Ln	D	Y	N	Presumed M	1936	Historic-age resources appear to include a side gable bungalow with a front gable porch and metal roof, a barn and several outbuildings with metal roofs.	Aerial imagery and Gillespie CAD improvement data show a large metal building constructed northeast of the house in 2018. According to Realtor.com the house was built in 1936. The footprint of the house appears unchanged since 1963; possibly 1948 but aerial is not clear. A building in this location shows on 1961 highway map. A large barn was recently constructed east of the house. Presumed medium ranking due to age and possibly intact surrounding farmstead resources. No known significance for individual NRHP eligibility (high ranking).
27311		197 Rock House Dr	D, E, F	Y	Y	H	1896	Two-story, irregularly coursed limestone house with multiple brick chimneys, seamed metal hip roof with decorative metal cresting at roof dormer ridgeline, and two-story shed roof gallery/porch. Adjacent historic-age stucco outbuilding with metal gable roof and front porch that attaches to corner of limestone house. Outbuildings include: 1911 limestone and stucco wellhouse/cistern converted into guestroom, large c.1940 barn used as events center, and non-historic-age metal frame building used as lodging.	High ranking applies only to 1896 house. Other historic-age resources are highly altered.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
27996		457 Bob Moritz Dr	G, H	N	Y	H	c.1855	Two c.1855 one-and-one-half story side gable limestone house houses. House to the northeast has a large shed-roof rear addition, and two-story addition to the northeast. Property also includes several non-historic-age cottages, a swimming pool, and large metal storage shed.	Currently Back Forty B&B. According to GCHS and property owner, the property was a ten-acre outlot owned by Jacob Weinheimer, an early settler and community leader in Fredericksburg. Despite additions, the overall property retains integrity.
28390	34667	3567 E Us Hwy 290	D, E, G	Y	N	Presumed H	Unknown	Historic-age resources appear to include a side gable house with a metal roof and metal shed roof front porch and a small outbuilding with a gable metal roof to the northeast. The large barn and other outbuildings have been recently demolished based on Google Earth images. Property also includes a non-historic-age building in the northeast corner of the parcel constructed between 2014 and 2017.	House appears on aerial images in 1938, but may have been constructed earlier. Large barn and most outbuildings recently removed. Previous owners include descendants of Jakob Weinheimer, an early settler of Fredericksburg and Gillespie County. However, research and correspondence with GCHS indicates that Jacob Weinheimer's homes were constructed in other locations near Fredericksburg, so not likely to have direct association. No major additions or expansions to house based on review of historic aerials. Presumed high due to age and potential association with early settlement in the area.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
28752	33796	505 Upper Liveoak Rd	D	Y	N	Presumed H	c.1875	Historic-age resources appear to include a two-story, side gable limestone house with a one story enclosed shed-roof porch on the north elevation and attached to a side gable building of equal size to the to the southeast. The buildings have painted metal roofs. East of the house are several historic age and non-historic-age outbuildings.	Limited visibility from the ROW due to trees; some images obtained from Google Streetview (2011 and 2008). Two westernmost historic-age buildings on the parcel nearest Upper Liveoak appear to be residences; both appear on 1948 historic aerial imagery. Outbuildings east of residences constructed after 1948. Gillespie CAD date is 1875 for a 608-square-foot main area. CAD improvement data also shows 2193-square-foot main area, porches, and a patio with dates unknown. A building in this location shows on 1936 (rev 1940) highway map. No major non-historic alterations noted from review of historic aerials, Google Streetview, or limited survey. Potential significance for association with early settlement in Live Oak community area and apparent integrity based on limited survey and online sources.
28891		Pioneer Ln	E, F, G, H	Y	N	Presumed L	c.1970	Outbuilding with a metal roof located on west side of parcel.	Building appears on aerial images from 1976 to present. No known potential for significance.
29244	1111	271 and 293 Pyka Rd	F, H	Y	Y	M	c.1890	One-and-one-half-story farmhouse with two chimneys, asbestos cement shingle siding, and metal side gable roof. Multiple historic-age shed additions at front and rear of residence. Outbuildings include: hollow clay tile barn/shed with metal roof; c.1950 wood frame barn clad in corrugated metal; large, non-historic vehicle barn/shed; garage with wood siding and gable roof; and 6-foot uncoursed limestone wall.	Portion of the building appears to date to late nineteenth century but has undergone numerous alterations over time.
30800		Itz-Britz Rd		N	Y	L	c.1970	One-story frame building with metal side gable roof, shed porch, and stone veneer exterior.	
31470	13264	554 Shorty Crenwelge Rd	D, E, F	Y	Y	H	1859	Complex includes a partially collapsed c.1863 side gable, one-room, log and limestone schoolhouse; an 1859 side gable, limestone vernacular house with 1879 second story and south wing additions and a c.1950 shed roof rear addition; and ruins of a c.1860 limestone smokehouse. The property also contains non-historic-age resources including a c.1985 guest house and garage building north of the Kraus homestead.	Designated Recorded Texas Historic Landmark (RTHL) in 1984. According to RTHL documentation and local community histories, Christian Kraus Homestead was established in late-1850s. Stone vernacular house constructed in 1859 and second story and south wing in 1879. House restored in 1984. Kraus was instrumental in building St. Mary's Catholic Church and among first teachers at local Catholic school between 1858 and 1862. Kraus opened a private school on property in 1863 and taught there until 1867. Schoolhouse remains extant but partially collapsed.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
32220	5670	245 Danz Ln	D, E, G	Y	N	Presumed L	Unknown	Historic-age resources appear to include two outbuildings with metal gable roofs. Property also includes a non-historic-age rectangular plan building with a metal roof.	Extant outbuildings appear on 1938 aerial imagery, but may have been constructed earlier. Historic-age house was demolished or removed between 2014 and 2017 based on Google Earth imagery. Presumed medium due to age and potential association with early settlement in the area.
32562		29 Itz-Britz Rd	G, H	N	Y	L	1974	One-story frame residence with metal side gable roof, plywood panel exterior, and large attached carport.	
32971	5192	126 Morales-Duecker	D, E, G	Y	N	Presumed L	c.1970	Historic-age resources appear to include a rectangular plan house with a metal gable-on-hip roof and a large side gable barn northwest of house. Between these buildings is a non-historic-age rectangular plan building with a metal gable roof.	House and barn building appear on aerial images from 1976 to present. No known potential for significance.
33188		92 Balcones Dr	G, H	N	Y	L	1938	One-story frame residence clad in stone veneer with gable roof and large, front corner shed roof addition. Outbuildings include metal sheds and non-historic-age utility building/shed.	
33202	15514, 15515	3037 W Us Hwy 290	D	Y	Y	L	1971	One-story Ranch-style residence clad in brick veneer with shingle side gable roof and small gable entrance bay. Adjacent outbuildings include corrugated metal shed and non-historic-age shed.	
33206	15639	495 Eckhardt Ln	F, H	Y	Y	L	c.1880	c.1880 side gable log barn with non-historic-age metal siding, metal roof, and metal shed-roof side addition. Property also includes a 1971, L-plan, brick, Ranch-style house and several non-historic-age metal and CMU outbuildings.	Per property owner, the property was previously owned by the Moellering family. Eckhardts later acquired the property and established a peach orchard in the 1960s or 1970s. c.1880 log barn is covered with metal siding and has a metal shed-roof addition which result in diminished integrity.
33450	76862	2219 W Us Hwy 290	G, H	Y	Y	L	c.1970	One-story frame residence clad in stone veneer with metal side gable roof and large front porch. Secondary one-story frame dwelling with metal side gable roof and vertical siding and one-story c.1995 log building. Adjacent outbuildings include a non-historic-age garage and shed.	
33596	24270	1788 W Live Oak St	E, F	Y	Y	L	1954	One-story frame residence clad in aluminum siding with metal side gable roof and front shed roof addition. Adjacent features include detached metal carport and concrete block shed.	
33636	25203	676 Boerner-Weirich Rd	D	Y	Y	L	c.1955	One-story stucco residence with seamed metal side gable roof and front porch extension. Adjacent c.1940 stucco shed/garage with gable roof and c.1960 corrugated metal barn.	
33660	25816	850 Owl Ln	E, G	Y	Y	M	c.1915	One-story brick Ranch-style house (1971) with metal side gable roof. A c.1915 one-story gable wood bungalow is located south of the 1971 house. Outbuildings include a non-historic-age gable shed and open-air corrugated metal shed.	Medium ranking applies to c.1915 bungalow only.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
33699		221 Pyka Rd	F, H	N	Y	L	c.1965	One-story frame residence with offset cross-gable shingle roof, brick veneer and plywood panel siding exterior, inset porch, and attached two-car garage.	
33729	27246	64 Kerr Rd	E, F, G, H	Y	Y	L	c.1940	One-story frame residence with offset cross-gable metal roof, covered second front entrance, rock veneer exterior, and c.1970s addition. Outbuildings include a detached garage with gable roof and stone veneer, historic-age limestone barn or storage unit with corrugated metal roof, and non-historic-age metal shed.	Primary historic-age residence altered .
33803	83868	597 Otto Eckhardt Rd	E, G	Y	Y	M	c.1920	One-and-one-half-story frame residence with metal side gable, saltbox-style roof, covered front porch, vinyl siding, and carport. Historic-age outbuildings include: a nineteenth century wood smokehouse with metal side gable roof and shed addition; metal barn; wood barn with shed lean-to for hay storage; open-air metal shed; and metal barn with wooden shed addition and sliding doors.	House been highly altered including replacement vinyl siding and vinyl windows. Residence has an interior cistern.
33945	14329	111 Owl Ln	E, G	Y	Y	H	c.1915	One-story gable bungalow with projecting porch, wood siding, and metal roof. Historic-age outbuildings include: one-story gable metal barn with shed addition, open air shed, and wood shed.	High priority ranking is limited to Parcel 33945 which contains the house.
34071	17199, 17196, 17198	400 Gold Rd	G, H	Y	Y	M	c.1870	One-and-one-half-story limestone residence with metal side gable roof, two chimneys, covered front porch, and two additions: a one-story wood-clad shed roof addition on the front and a one-story Basse block rear addition. Adjacent uncoursed limestone carriage house/garage with double hinged doors and concrete roof. Outbuildings include a c.1975 side gable metal building; two small, historic-age metal sheds; and ruins of two c.1930s uncoursed limestone units (possibly small homes or tenant houses).	Alterations diminish overall integrity.
34142	4535	26 Old San Antonio Rd	E, G	Y	Y	L	c.1965	One-story frame residence clad in ashlar stone veneer with metal gable roof, two-story rear addition, and shed roof concrete block carport. Adjacent features include a historic-age concrete block storage unit with corrugated metal side gable roof and two non-historic age sheds, one metal and one wood.	

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
34147	27495	573 Pyka Rd	E, F, G, H	Y	Y	L	c.1955	One-story Ranch-style residence with metal side gable roof and asbestos cement shingle siding. Various c.1970 outbuildings include a barn, metal shed, and a small prefabricated secondary dwelling.	
34250	20739	1520 S Us Hwy 87	F, H	Y	N	Presumed L	c.1975	Historic-age resources appear to include a house with an offset cross gable, asphalt shingle roof and a barn or garage building with a metal gable roof just west of house.	House and barn building appear under construction on 1976 aerial imagery. No known potential for significance.
34333	106235	4544 S St Hwy 16	D	Y	Y	L	1913	One-story frame residence with metal hip roof, partial front porch, and asbestos cement shingle siding. Associated features include a historic-age well with wood supports, metal tank, and windmill; a metal frame open-air shed; and a board and batten shed with wood shake gable roof.	Formerly part of Meyer farm property to the north. House remodeled in early 1960s and undergoing renovation at time of survey in 2019.
34334		2023 FM 2093	D	N	Y	H	1915	One-story Basse block residence with metal cross gable roof and two chimneys. Front and rear porches supported by Corinthian columns. A 1917 Basse block addition houses an underground cistern with pump. Associated outbuildings include: c.1920 wood barn with gable roof and shed extension, open-air log barn, and wood smokehouse with a metal gable roof.	House and rural setting retain high level of integrity.
34399	20446	359 and 369 Pyka Rd	F, H	Y	Y	L	c.1970	One-story Ranch-style residence clad in brick veneer with metal side gable roof, covered front porch, and attached carport.	
34457	32933	265 Dos Rios Ln	D	Y	Y	M	1921	Ranch complex containing a historic-age Basse block house and a number of non-historic age resources: a second house, vehicle shed/garage, and large metal frame barns. A large pasture area begins at the right-of-way and continues to the complex.	Survey limited from ROW. All buildings are outside the survey area boundaries. Historic-age Basse block house in poor condition per resident. Second house serves as primary residence.
34518	25733	259 Granado Dr	E, F	Y	N	Presumed L	c.1970	Historic-age resources appear to include a house with a cross gable, asphalt shingle roof, and several outbuildings with gable metal roofs north located of the house.	House and outbuildings appear on aerial images from 1976 to present. No known potential for significance.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
34693	28895, 28901	290, 506, and 551 Pioneer Ln	G, H	Y	N	Presumed H	c.1880	Historic-age resources are located southwest on the parcel and include a small c.1880 side gable rock house with inset porch and metal roof, a c.1920 pyramidal-roof, wood-frame house, a c.1935 front gable house, a limestone barn or workshop building, and wood carport. Non-historic-age resources include metal and CMU storage sheds near the concentration of historic-age resources, and several houses along private roads east and north on the parcel.	Historic-age houses and outbuildings may have been associated with a late-nineteenth century and early twentieth century agricultural property. Original owners unknown. The property was purchased by the Scripps family in the 1970s and converted to an agri-tourism peach orchard called Pioneer Orchards. At that time, the c.1880 rock house was used to check in visiting tourists. Orchard fields were removed by early 2000s. Images were obtained through Google Streetview and dated to 2011. Presumed high-ranking due to potential association with early settlement in the area and good overall integrity based on Google Streetview.
34781		488 Horseshoe Bend	D	Y	N	Presumed L	Unknown	Historic-age resources appear to include a large barn with a gable metal roof and an outbuilding with a metal roof south of the barn.	Barn and outbuilding appear on aerial images in 1948, but may have been constructed earlier. Presumed medium ranking due to age and potential association with early settlement in the area.
35368		1440 Leyendecker Rd	D	Y	Y	M	c.1890	Two-story side gable residence clad in wood clapboard siding with rear shed roof addition. Associated historic-age features include a Basse block cistern/well, a c.1950 corrugated metal barn and small shed, and ruins of a log cabin.	Former Kuntz family farmhouse. Resources are in overall poor condition.
35453	14409	2306 Hollmig Ln	D	Y	Y	M	c.1880	Current residence is a c.1945 one-story bungalow with wood siding, stone chimney, and metal gable roof. Property also includes a c.1880 one-story limestone and board and batten house with side gable roof that encases an earlier log dwelling. Outbuildings include: hay shed with corrugated metal gable roof and shed extension; small corrugated metal shed; cylindrical limestone wellhouse; small board and batten house with gable roof and shed roof extension, stone cellar, and open-air garage; and a new shed and two-car garage.	Former Hollmig family farm property; acquired by the Crenwelge family in late 1930s. c.1880 board and batten limestone house is former Hollmig dwelling. c.1945 house moved to parcel in 1976. Buildings in poor condition.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
50180	15046, 72829	286 and 289 T9C Ranch Rd	D	Y	Y	M	1890	One-and-one-half-story, regularly coursed limestone residence with chimney and corrugated metal side gable roof. Notable details include limestone slab lintels and arched cellar entrance. Adjacent metal and wood one-car garage and non-historic-age manufactured house.	Poor condition.
52105		557 Hollmig Ln	F, H	Y	N	Presumed L	c.1970	Metal outbuilding with flat roof among several non-historic-age metal outbuildings on parcel.	Building appears on aerial images from 1976 to present. May be associated with residence on parcel to east (25993). No known potential for significance.
52964		598 Armory Rd	G, H	Y	Y	H	1963	Standardized National Guard Armory design. Two-story core with one-story wings, brick veneer, aluminum windows and central entry. Large barrel-vault Quonset hut building located to the west.	According to article in Fredericksburg Standard, March 27, 1963., the armory was a standardized design; local architect in charge of project was Jack Stehling. According to "Final Armory Historic Context" (June 2008), "if an armory survives with at least a moderate degree of integrity and embodies the distinctive characteristics of the type as defined in the historic overview (refer to ARNG historic context) it is eligible for listing in the National Register." Armory retains integrity and appears to exhibit characteristics of Cold War-era standardized armory designs.
57416		1694 W Live Oak St	G, H	Y	Y	L	c.1965	One-story U-plan residence with major alterations.	According to property owner, an older building behind the residence is in ruins and soon to be removed.
57442	90889, 103712	1560-1568 S Us Hwy 87	F, H	Y	Y	L	c.1925	Two-story residence with hip roof and plywood panel siding and a one-story dwelling with plywood panel or false stucco exterior (unable to discern roof type).	Several buildings on parcel; historic-age building located on back half along west edge.
63920	18501	86 Hodges Rd	E, G	Y	N	Presumed L	1967	Historic-age resources located in northeast corner of parcel and appear to include a rectangular plan, side gable house with a metal roof and several small outbuildings with metal roofs south of the house. Property also includes non-historic-age house with a shingle roof.	Historic-age resources appear on aerial images from 1976 to present. No known potential for significance.

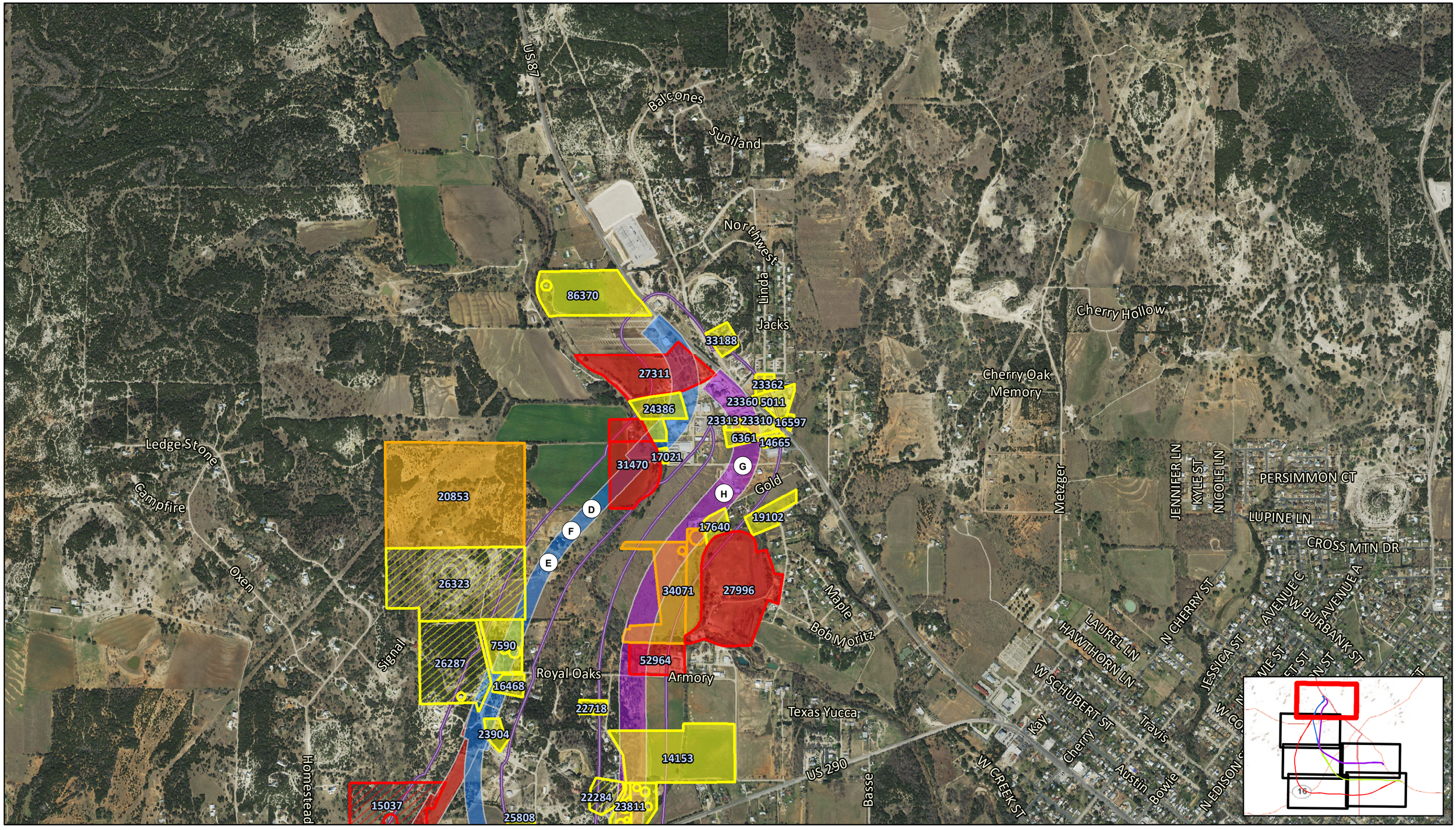
Historic Property Significance Rankings
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
83792		Pyka Rd	F, H	Y	Y	L	c.1920	Open-air metal barn with side gable roof and shed roof porch; barn with corrugated metal side gable roof and hollow clay tile exterior.	Historic-age resources located at southern corner of parcel. Remainder of buildings are manufactured residences.
86370	65510	2665 N Us Hwy 87	D, E, F	N	Y	L	c.1905	One-story limestone residence with metal side gable roof, central chimney, and wood frame additions with shed roof porch. Outbuildings include limestone ruins, shed ruins, and wood frame sheds.	According to property owner, the house dates to the early twentieth century. Additions and alterations diminish overall integrity.
86417	17887	2387 W Us Hwy 290	G, H	N	Y	L	1974	One-story shed with gable roof and residence with seamed metal gable roof.	
86468		1309 S St Hwy 16	F, H	N	Y	L	c.1970	One-story dwelling with concrete block exterior and metal gable roof. Adjacent metal outbuilding.	Dwelling vacant (windows boarded).
92911		1736 W Live Oak St	E, F, G, H	Y	Y	L	c.1970	Two one-story, non-historic-age houses and non-historic age outbuildings; one c.1970 wood frame shed with metal roof and walls.	
100141		1554 Upper Liveoak Rd	D	N	Y	L	1852	Two-story residence with large addition: original 1852 log dogtrot topped with board and batten second story and shed roof porch. A non-historic-age two-and-one-half-story stone and board and batten addition connects on the south side. Adjacent non-historic-age side gable garage and c.1995 two-story frame dwelling with metal side gable roof, vertical siding, and shed roof porch.	According to property owner, original dogtrot dates to 1852 and two story addition was constructed c.1995. Non-historic-age additions and alterations diminish overall integrity.
106746		3071 W Us Hwy 290	D	N	Y	L	c.1945	One-story residence with flagstone veneer, inset porch, brick chimney, and seamed metal gable roof. Outbuildings include a concrete block one-car garage with a corrugated metal gable roof, a small concrete block wellhouse, and a metal clad outbuilding.	Appears to have c.1960 exterior cladding.
179096	109682	471 Kerr Rd	E, F, G, H	N	Y	L	c.1965	side gable metal barn.	
179962	109736	555 Kerr Rd	E, F, G, H	Y	Y	L	c.1965	Barn with corrugated metal and fiber cement siding-clad walls and a metal side gable roof. Newly constructed house and garage immediately adjacent.	
181361		449 Kerr Rd	E, F, G, H	Y	N	Presumed L	c.1960	Historic-age resources appear to include four outbuildings with gable and flat metal roofs. Property also includes several non-historic-age buildings with metal roofs.	Historic-age resources appear on aerial images from 1963 to present. No known potential for significance.
23360, 23362		74 and 100 Northwest Dr	G, H	N	Y	L	c.1975	One-story brick duplex with side gable shingle roof and overhanging eaves.	

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2393, 102872		1120 Upper Liveoak Rd	D	Y	Y	M	1853	Log dog trot house with non-historic-age alterations, including: dog trot space enclosed, non-historic-age mortar, and replaced vinyl windows. Front gable, limestone garage or carriage house with board and batten hinged door. Prefabricated one-story metal residence with metal side gable roof and large front overhang. Adjacent outbuildings include a one-story prefabricated metal two-car garage and a collapsed barn/shed with corrugated metal roof.	According to property owner or family representative, house constructed by Fritz Kneese, an early settler of the area. 1853 farmhouse contains a mud brick oven that served as the first bakery in the rural Live Oak Creek community. House has undergone significant alterations.
25912, 2726	6676, 24141	29 and 311 Kerr Rd	G, H	Y	Y	L	c.1960	One-story frame residence with wood siding and a metal side gable roof. Shed roof extension is a carport. Adjacent wood barn with gable roof and metal wall shed extensions.	311 Kerr Road not visible from ROW. Historic-age resources at 311 Kerr Road include historic-age house and outbuildings constructed between 1953 and 1976.
29367, 101068	33906; 57607	915 and 1405 Boos Ln	E, G (101068); D (29367)	Y	Y	M	c.1955	Property includes several parcels and three distinct locations with historic-age resources. Former dairy located on parcel 29367 includes a c.1950 roman brick Ranch-style house with shingle hip roof; ruins of an 1800s half-timbered (fachwerk) smokehouse; several early twentieth century outbuildings constructed of wood, hollow clay tile, and corrugated metal; and, a c.1955 barn with 1978 and c.2000 additions and alterations. The property also includes two c.1970 feed silos and a feeder system. North of the dairy is c.1935 house now clad in non-historic-age limestone, a c.1960 metal barn, and a hollow clay tile garage. The Boos property also includes a c.1930 wood barn located on parcel 101068 approx. 0.8 miles north of the c.1935 house.	Property acquired by Boos family of Prussia in 1852. Established dairy in 1921. Family constructed modern dairy barn in 1950s that featured a glass pipeline system, improving safety and efficiency. The new system was featured in the Fredericksburg Radio Post on August 18, 1955. Barn was expanded in 1978 with concrete block addition on northwest elevation. According to owner, was first non-university computerized dairy barn in nation in late 1970s. The barn's original flat roof was replaced with a pitched roof and its interior spaces were reconfigured in the early 2000s. The c.1935 house north of dairy was originally constructed as government-funded worker housing according to property owner; house is now clad in non-historic-age limestone. The c.1930 barn located on parcel 101068 north is intact, but lacks individual significance as an isolated outbuilding. Property overall is potentially significant for associations with Boos family and early agricultural development. Outbuildings from each major period, including late-1800s, early twentieth century, and mid-twentieth century are extant, however non-historic-age alterations and deterioration result in overall diminished integrity.

Appendix B: Overview Maps



0 0.125 0.25 0.5 Miles

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Historic Resources Survey Area

Relief Route Options

D F H

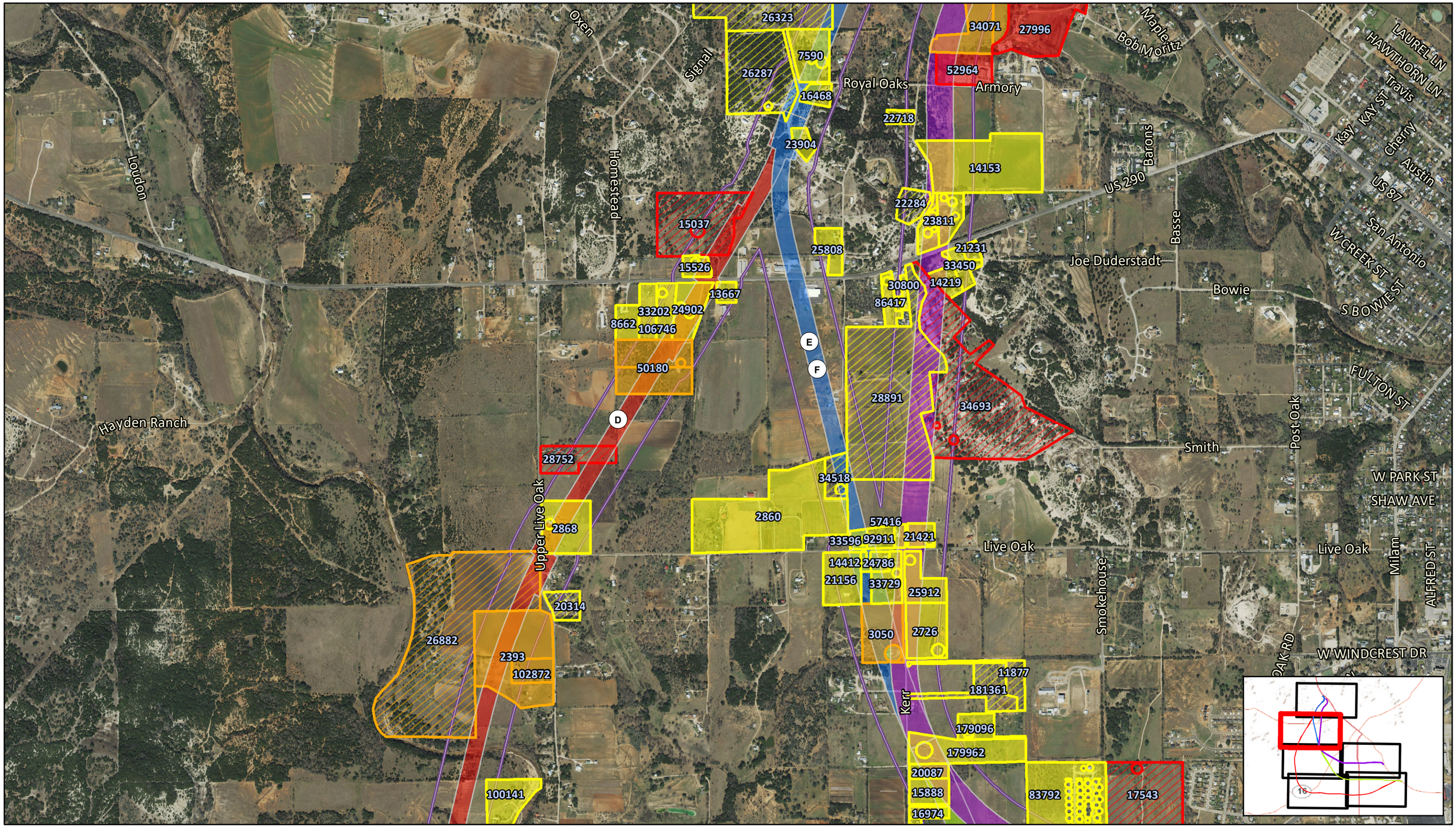
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

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0 0.125 0.25 0.5 Miles

Map 2 of 6

Historic Resources Survey Area

Relief Route Options

D F H

E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

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Potentially Historic Properties

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0 0.125 0.25 0.5 Miles

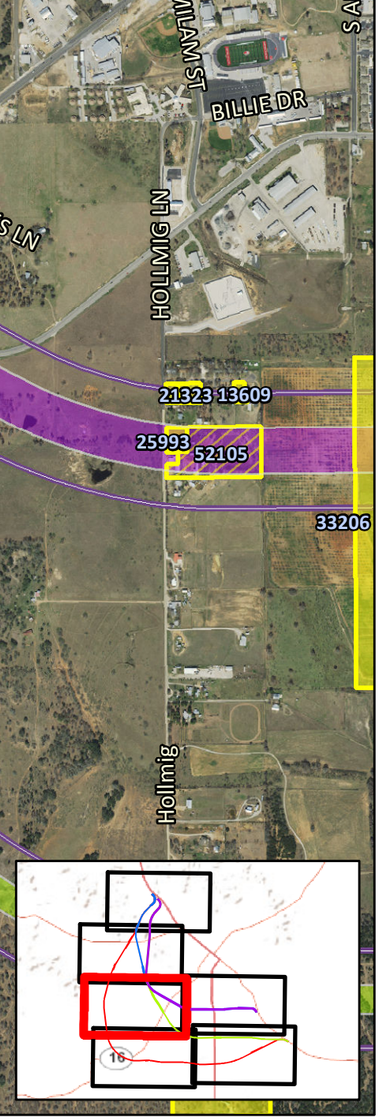
Historic Resources Survey Area

Relief Route Options

D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low



Potentially Historic Properties

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0 0.125 0.25 0.5 Miles

Map 4 of 6

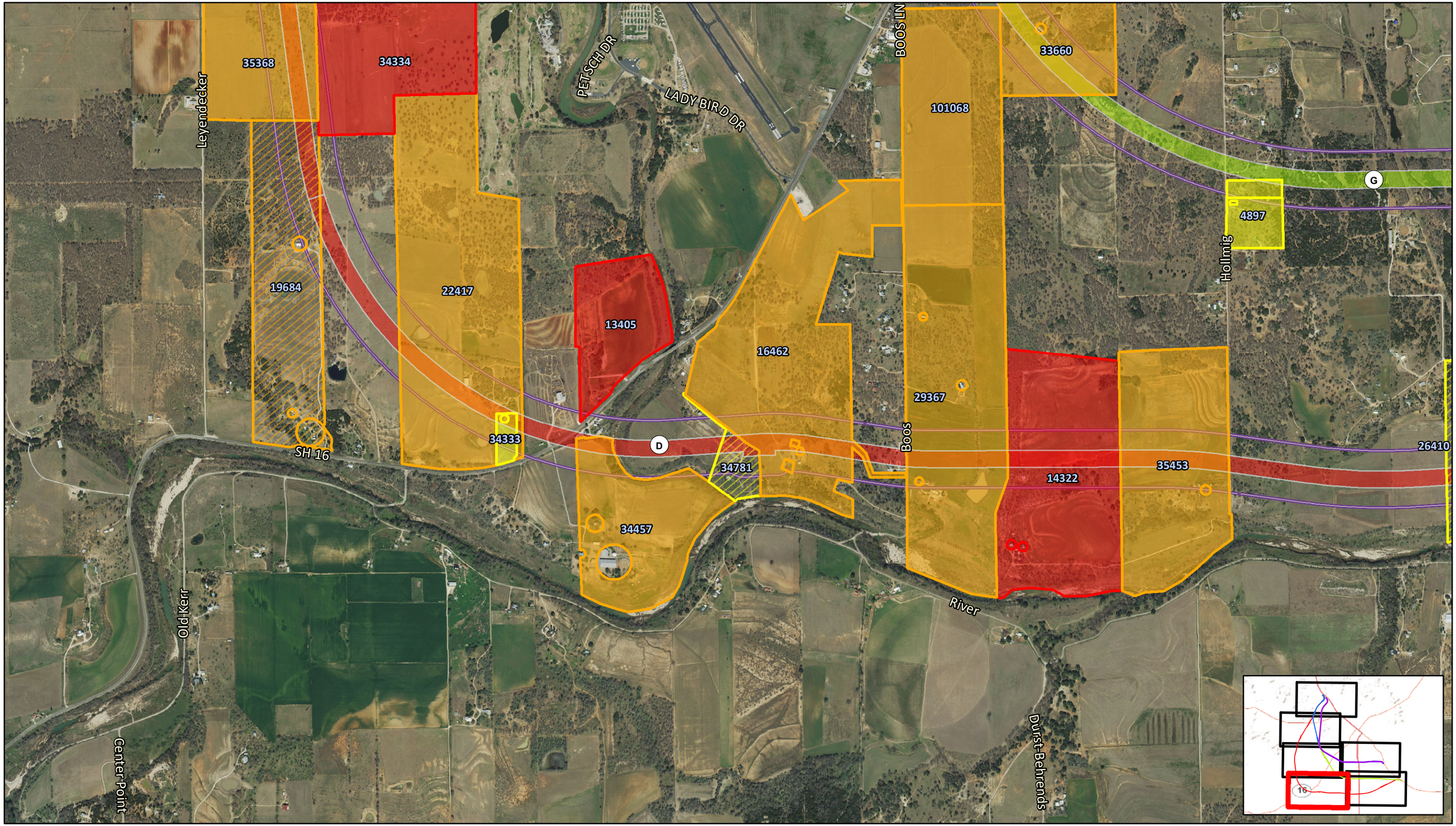
Historic Resources Survey Area

Relief Route Options

D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low



0 0.125 0.25 0.5 Miles

Map 5 of 6

Historic Resources Survey Area

Relief Route Options

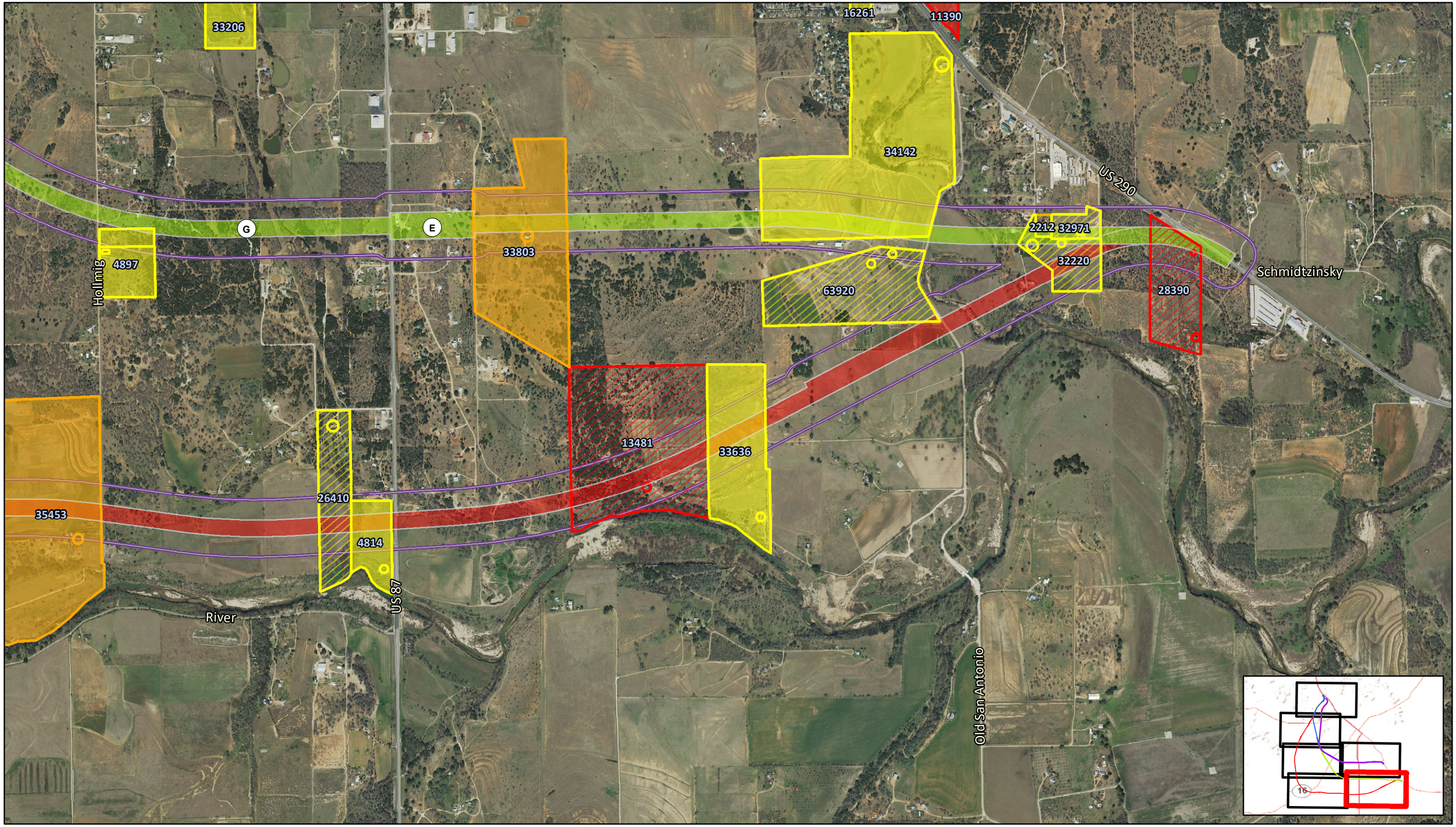
D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
December 2019



Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
December 2019

Appendix C: Survey Forms

(not included)

Addendum - Historic Resources Constraints Analysis Report

Project Name: U.S. Highway 290 Relief Route

District(s): Austin

County(s): Gillespie

Prinicipal Investigator: Rick Mitchell, Mead & Hunt, Inc.

Addendum Date: January 30, 2020

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 12-16-2014, and executed by FHWA and TxDOT.

Addendum to Historic Resources Constraints Analysis

Purpose of Addendum

The purpose of this addendum to the September 2019 Historic Resources Constraints Analysis report is to document additional information obtained from property owners at the Fredericksburg Relief Route Study Open House held in Fredericksburg on January 14, 2020. Documentation in the addendum includes updated map sheets, property list, and survey forms.

Update to Findings

As noted in the September 2019 Historic Resources Constraints Analysis report, a concentration of High or Medium ranking properties was identified along Routes D, E, and F between US 87 and approximately Falcon Hills Ranch Road. Several of these properties are associated with the history of early settlement and contain architecturally significant resources. As previously noted, this concentration includes the RTHL-designated Christian Kraus Homestead (Property ID 31470), an 1896 two-story house associated with the Strackbein family (Property ID 27311), and the mid-nineteenth century Strackbein family cemetery (Property ID 24386).

In addition, Property ID 20853, located west of these properties, had been identified in the Historic Resources Constraints Analysis as the former farmstead of John Kraus, son of Christian Kraus. This parcel retains several historic-age buildings associated with John Kraus but received a Medium ranking due to non-historic alterations to the buildings. The September 2019 report shows only Property ID 20853 as associated with the John Kraus farmstead. However, at the January 14th Open House, the current property owners (descendants of John Kraus) noted that the John Kraus property also includes four adjacent associated parcels. These parcels are numbered as 20850, 20851, 20852, and 20854 by the Gillespie County Appraisal District. Although these parcels do not contain historic-age buildings, they are still owned and farmed by the Kraus family and exhibit few non-historic-age intrusions. Furthermore, incorporation of these additional parcels reveals a larger contiguous area connecting the historically associated John Kraus and Christian Kraus farmsteads.

All four identified properties (31470, 24386, 27311, and 20853) are directly associated with early settlers of Fredericksburg and early settlement of the rural Klein Frankreich community. Therefore it may be appropriate to evaluate these properties together along with other potentially significant properties outside the surveyed area as part of a larger rural historic landscape. As noted in the Historic Resources Constraints Analysis, the proposed locations of Routes D, E, and F could require removal of several significant architectural resources. In addition, the characteristic rural setting of these properties along Barron Creek will be disrupted.

Updated Table of Potentially Historic Properties on Route Option Corridors

Historic Property Significance Rankings
Fredericksburg Relief Route Study
January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
2212		243 Danz Ln	E, G	Y	N	Presumed M	Unknown	Historic-age resources located in southwest corner of parcel and appear to include three outbuildings with metal gable roofs. Property also includes a non-historic-age house and outbuilding on north end of parcel.	Buildings appear on aerials from 1938 to present. May have been constructed prior to 1938. Primary buildings on parcel are non-historic age. Presumed medium due to age and potential association with early settlement or agricultural practices in the area.
2735		739 Kerr Rd	E, G	N	Y	L	c.1940	One-story frame residence with shingle side gable roof and gable porch.	
2860		2082 W Live Oak St	E, F	Y	Y	L	c.1945	One-story frame residence with metal gable roof and front porch dormer. Outbuildings include a hollow clay tile wellhouse/shed and a one-story frame building with metal gable roof and shed addition.	
2868	22850	705 Upper Liveoak Rd	D	Y	Y	L	1968	One-story corrugated metal barn/shed with gable roof.	
3050	25100	290 Kerr Rd	E, F, G, H	Y	Y	L	1900	One-story L-plan house with shed roof porch and vinyl siding/brick veneer exterior. Shed roof porch addition on rear elevation. Outbuildings include a c.1920 metal barn/shed and two non-historic-age sheds.	
4814	16481	3554 S Us Hwy 87	D	Y	Y	L	c.1930	Primary residence no longer extant, but rubble stone remnants remain. Ancillary buildings include a rubble stone building with metal gable roof, a corrugated metal garage and shed, and a stone outbuilding/wellhouse.	
4897	22723	1513 and 1627 Hollmig Ln	E, G	Y	Y	L	c.1970	One-story brick residence with shingle side gable roof and covered front porch with roof balustrade. Non-historic-age outbuildings include a concrete block garage and metal shed.	
5011		2254 N Us Hwy 87	G, H	N	Y	L	c.1970	Service yard complex several of metal frame outbuildings with side gable or shed roofs. Some units are open-air sheds.	Gillespie County Maintenance Shop
6361		2159 N Us Hwy 87	G, H	Y	Y	L	c.1970	One-and-one-half-story concrete block and seamed metal building with gable roof and shed roof extension. Outbuildings include enclosed and open-air metal sheds.	
7590	21462, 108191	764 Royal Oaks Loop	D, E, F	Y	Y	L	c.1975	One-story frame residence with side gable metal roof and stone veneer exterior. Other buildings include a two-car garage and a one-story secondary domestic building with side gable metal roof, covered porch, and stone veneer/wood exterior.	
8662		72 Grona Ln	D	N	Y	L	c.1970	One-story frame residence with metal gable roof and brick veneer exterior.	

Historic Property Significance Rankings
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11390		1606 E Main St	F, H	N	Y	H	1850	Historic fort containing original cut limestone guardhouse, three reproduction garrison buildings, and a farm shed. Rock foundation remains of other buildings throughout grounds.	National Register-listed and designated State Antiquities Landmark Texas Centennial Marker located on site.
11877		315 Kerr Rd	E, F, G, H	Y	N	Presumed L	c.1960	Historic-age resources appear to include outbuildings with metal gable roofs. Property also includes a non-historic-age ell-plan house with a metal roof.	Historic-age buildings appear on aerial images from 1963 to present. Primary buildings on parcel are non-historic-age. No known potential for significance.
13405		4222 S St Hwy 16	D	N	Y	H	1851	Complex of coursed limestone buildings with metal roofs: a one-and-one-half-story side gable house with a shed porch; a two-story side gable barn or storage building; a one-and-one-half-story partially stuccoed secondary dwelling with partial shed roof porch; and a side gable smokehouse. Property also includes a c.1960 metal barn north of the Guenther Mill complex.	Guenther's Live Oak Mill established in 1851 by Carl Hilmar Guenther. Guenther later established Pioneer Flour Mills in San Antonio. Complex includes original buildings and retains high level of overall integrity. OTHM located on SH 16 near the property.
13481	4543	1076 Boerner-Weirich Rd	D	Y	N	Presumed H	1901	Historic-age resources include a T-plan house with cross hip metal roof and a building (possibly a barn) with a metal gable roof located to the west. Property also includes several non-historic-age buildings with metal gable roofs south of the house.	According to property owner or family representative, the 1901 house was originally owned by a prominent general store owner. Name of store owner is unknown, however GCHS indicated that the property may be connected with Charles Schwarz, who opened a story in the 1907 Schwarz Building on West Main Street. Gillespie CAD date is 1901. Review of aerials shows the house and a barn as far back as 1938. Other buildings added between 1981 and present. Potentially significant due to association with prominent local merchant. Historic-age buildings appear to have few major additions based on aerial review.
13609		111 Bobwhite Trl	F, H	N	Y	L	1974	One-story brick Ranch-style residence with shingle side gable roof and half-shed porch.	

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
13667		2871 W Us Hwy 290	D	Y	Y	L	1962	One-story cross-gable residence with metal roof, side gable two-car garage, inset entry porch, and brick veneer exterior. A small prefabricated plywood building sits behind the garage and is covered by a carport roof.	
14153		Armory Rd	G, H	Y	Y	L	c.1970	Open air corrugated metal shed.	
14219		112 Daniel Dr	G, H	Y	Y	L	c.1930	One-story stucco residence with a shingle hip roof and a detached garage.	
14322	5828, 89744	638 and 718 Mesquite Flat	D	Y	Y	H	1909	1909 two-story, L-plan, Basse block house with original features including two-story wood and Basse block front porch, original wood windows, shutters, and doors with transoms. Property also includes two c.1870s log and half-timbered (fachwerk) houses and numerous historic-age limestone and log outbuildings, a smokehouse, and a Basse block well house and metal cistern. Property also contains a 1949 one-story, side gable, house clad in asbestos siding.	Family Land Heritage property as Louis-Gus Crenwelge Farm. Earliest buildings were constructed in 1870s by early Prussian settler Mathias Boos and wife and Karoline. Their heir Wilhelmina and husband Louis Crenwelge inherited the property in 1897 and constructed the two-story Basse block house in 1909. The property has remained in the Crenwelge family since this time. Significance due to association with period of early settlement and good example of Basse-block construction. Buildings exhibit few major alterations.
14412		1793 W Live Oak St	E, F	Y	Y	L	1961	One-story frame residence with side gable metal roof, covered porch dormer, and plywood panel siding.	
14665		2147 N Us Hwy 87	G, H	N	Y	L	c.1975	One-story seamed metal frame building with broad gable roof.	

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
15037	2931	2878 W Us Hwy 290	D	Y	N	Presumed H	c.1880	Based on photos provided by owner, historic-age resources include a two-story house with a one-story wraparound hip roof addition, clad in stucco and asbestos siding; several wood, limestone, and hollow clay tile outbuildings, and a large side gable wood and limestone barn.	According to the owner, property was formerly a prominent angora goat farm owned by Heinrich and Olga Dietz, who were brother and sister. Gillespie CAD date is 1880. Footprint of house and overall property layout appears unchanged since 1948. Presumed high ranking due to potential for significance for association with Dietz family who were early settlers of the area and presumed integrity based on aerial review and photographs provided by owner.
15526	15524	2928 W Us Hwy 290	D	Y	Y	L	1890	One-story limestone building with metal side gable roof; possibly a residence and barn joined together. Adjacent outbuilding a frame building with vertical siding and a shingle roof.	Buildings underwent major additions and alterations after 1976.
15678	15677	1721 S Us Hwy 87	F, H	Y	N	Presumed L	1976	Appears to be a side gable Ranch-style house with metal roof.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1976. No known potential for significance.
15888		695 Kerr Rd	E, F, G, H	Y	Y	L	c.1970	One-story gable frame residence with fiberboard siding. Several outbuildings, some of historic age, made of stuccoed cement block or clad with fiber cement siding. All have metal roofs.	
16261		1621 E Main St	F, H	N	Y	L	1963	Large metal warehouse or vehicle/material shed.	TxDOT maintenance office
16462	100123, 100122, 103690, 29255,1267, 100126, 100127	530 and 579 Quiet Dr	D	Y	Y	M	c.1945	Two c.1945 houses on parcel. Southernmost house (530 Quiet Dr) is a one-story frame residence with a metal cross gable roof and front porch. House to north (579 Quiet Dr) is one-story frame residence with metal gable roof and shed porch. Outbuildings include a large vehicle shed/garage and a smaller corrugated metal shed with gable roof.	Medium ranking applies to house at 530 Quiet Drive which exhibits architectural detail and retains good overall integrity. House at 579 Quiet Drive has been highly altered.
16468		825 Royal Oaks Loop	D, E, F	Y	Y	L	1971	One-story frame residence with metal gable roof and large deck. Adjacent buildings include an elevated, one-story frame residence with metal gable roof and deck and a metal frame, two-bay shed.	
16597		2162 N Us Hwy 87	G, H	N	Y	L	c.1965	One-story concrete block building with metal gable roof and one-story addition with a flat metal roof and covered porch. Adjacent concrete block storage unit with side gable metal roof.	

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
16974		733 Kerr Road		Y	Y	L	c.1945	One-story cross gable, frame house with horizontal wood siding. Front gable garage with horizontal wood siding.	House and garage in poor overall condition.
17021		460 Shorty Crenwelge Rd	D, E, F	Y	Y	L	c.1970	One-and-one-half or two-story domestic frame building with metal gable roof and vertical siding. Outbuildings include a detached carport and metal shed.	
17066		362 Fair Dr	E, G	N	Y	L	c.1970	Series of non-historic age-wood frame horse barns or stalls with corrugated metal gable roofs.	
17543		256 Pyka Rd	F, H	N	N	Presumed H	c.1890	Based on aerial images and photos from Lands of Texas (www.landsoftexas.com), historic-age resources include a two-story, side gable, limestone house with second story side entry, metal roof, and front porch with a shed metal roof.	According to Lands of Texas (www.landsoftexas.com), house dates late 1800s and was Gillespie CAD date is 1926 and the building appears on 1948 aerial imagery and 1936 highway map. Appears to retain high level of overall integrity from limited online photos. Potential significance for architecture and association with early settlement of the area.
17640	17639, 17641	273 Gold Rd	G, H	Y	Y	L	c.1950	One-story frame residence with metal side gable roof and asbestos cement shingle siding. Adjacent c.1970 metal shed outbuilding.	
18949		1609 E Main St	F, H	Y	Y	L	1971	One-story concrete block building/warehouse with one-story frame retail addition clad in plywood panel siding and topped with metal mansard roof and dormers (possibly a false front).	

Historic Property Significance Rankings
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
19102		659 Bob Moritz Dr	G, H	N	Y	L	c.1900	One-and-one-half-story stuccoed stone residence with side gable roof, chimney, and one-story gable wing. Metal roof has two gable dormers; side gable ends covered with wood siding. Adjacent features include a non-historic-age wood and corrugated metal barn and a small stone outbuilding.	Major alterations to building including replaced siding and added dormers.
19684	34190, 89717	77, 103, and 259 Buffalo Creek Rd	D	Y	N	Presumed M	c.1890	Historic-age resource appears to be a two-story, side gable house with horizontal wood or fiberboard siding and a metal roof. The house has a shed roof front porch with wrought-iron trim and supported by wrought-iron posts. A one-story addition extends from the rear (north) elevation. Property also includes several non historic-age cottages and outbuildings north of the house.	Only the southernmost building facing SH 16 is historic-age. Photos taken from ROW limited only to part of second story; view limited by high stone wall and mature trees. Large one-story rear addition, appears to have been added after 1981. Potentially significant for its age and association with early settlement in the area, but presumed medium ranking due to changes to setting and known alterations to the building including the wrought iron porch and large rear addition.
20087		641 Kerr Rd	E, F, G, H	Y	Y	L	1961	One-story frame residence with shingle side gable roof clad in fiberboard or fiber cement siding. Associated features include a one-story metal frame carport and one-story vehicle shed/garage with gable roof.	
20112		101 Bobwhite Trl	F, H	N	Y	L	1973	One-story Ranch-style brick residence with metal side gable roof and attached two-car garage with metal carport extension.	Part of Bobwhite Road subdivision, primarily developed in the 1970s with some 1980-2000s infill.
20314	20312	875 Upper Liveoak Rd	D	N	N	Presumed L	c.1970	Historic-age resources located north on parcel and appear to include a rectangular-plan, hip roof house with a rear addition, and several outbuildings with metal roofs. Property also includes multiple non-historic-age buildings.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1820 but no buildings visible before 1976 . No known potential for significance.

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Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
20853	20850, 20851, 20852, 20854, 100733	1291 Shorty Crenwelge Rd	D, E, F	N	Y	M	c.1890	Historic-age ranch complex with a two-story frame residence clad in vertical wood and metal siding and topped with metal side gable roof. Stuccoed masonry addition with shed roof attached to the rear of the building. Outbuildings include: limestone washhouse with metal gable roof, seamed metal barn, large wood barn, and non-historic-age shed. Associated features include: Aermotor windmill, water tank, concrete block cistern/wellhouse, and concrete trough.	Home of John Krause, son of early settler Christian Kraus (RTHL Christian Kraus Homestead located to the NE). c.1890 house has undergone numerous alterations and is in poor overall condition, including changes to fenestration and removal of entire front porch.
21156		1969 W Live Oak St	E, F	Y	Y	L	c.1970	One-story metal machine shed.	
21231	21229	2137 W Us Hwy 290	G, H	N	Y	L	1951	One-story frame residence with broad side gable roof and synthetic siding/wood shingle exterior.	
21323		103 Bobwhite Trl	F, H	N	Y	L	c.1970	One-story Ranch-style residence clad in brick veneer with side gable roof and gable porch.	
21377		1605 E Main St	F, H	Y	Y	L	1970	One-story concrete block commercial building with flat roof and shed roof porch.	
21421	8104	1602 W Live Oak St	G, H	Y	Y	L	1951	One-story frame residence with shingle side gable roof and gable porch.	
21669	55974	2593 S St Hwy 16	E, G	N	Y	L	c.1960	Two houses. One-story concrete block and seamed metal residence with metal side gable roof. One-story frame residence clad in asbestos cement siding with shingle side gable roof and carport extension.	
22284		187 Royal Oaks Loop	G, H	Y	N	Presumed L	1971	Historic-age resources appear to include a rectangular-plan side gable house and an open-air shed with a metal roof.	House appears on aerial images from 1976 to present. Gillespie CAD date is 1971. No known potential for significance.
22417		S St Hwy 16	D	Y	Y	M	c.1920	One-story frame residence clad in horizontal siding with central brick chimney, shed porch, and metal side gable roof. Historic-age outbuildings include: wood hay barn/seed shed with vertical paneling and metal gable roof; side gable metal frame barn; cylindrical metal feed storage tank; three small c.1950 corrugated metal sheds; and large c.1970 corrugated metal, open-air vehicle shed.	Historically associated with parcel 34333 and 34334, but different current owners. Part of Meyer farm property.
22718		417 Royal Oaks Loop	G, H	N	Y	L	1973	One-story stone veneer Ranch-style residence with side gable roof and asymmetrical projecting front gable. Adjacent detached metal frame garage.	
23310		2207 N Us Hwy 87	G, H	Y	Y	L	c.1975	Large two-story seamed metal warehouse with gable roof and one-story brick veneer retail/showroom addition with broad gable roof and porch.	

Historic Property Significance Rankings
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
23313		51 Jack Nixon Rd	G, H	Y	Y	L	c.1970	One-story seamed metal building with metal side gable roof and shed roof extension. Adjacent tall one-story metal frame building with gable roof and two vehicle bays.	
23811	23813, 23815, 82016, 67787 65329, 23808	41 and 113 Tejano Ln	G, H	Y	Y	L	1971	Complex of residential units of varying sizes, including: one-story frame house clad in plywood and stone veneer with metal side gable roof; one-story frame house with plywood paneling and corrugated metal side gable roof; two-story frame house clad in plywood paneling and stone with metal roof and large one- and two-story shed additions; and a series of smaller wood frame buildings with metal roofs and plywood exteriors.	
23904		999 Royal Oaks Loop	D, E, F	Y	Y	L	1971	One-story partially stuccoed concrete block house with central chimney, metal gable roof, and porch and barrel tile window/door overlay.	
24386	70736	163 Wilhelm Rd	D, E, F	Y	Y	L	1854	Historic-age limestone house enclosed by a modern stucco residence with gable roof. Outbuildings include non-historic-age open air sheds, garage, and wellhouse. A family cemetery dating to mid-to-late nineteenth century (1855-1892) is located west of the house and bound by an in-ground limestone perimeter.	1854 house constructed by the Strackbein family, who were early settlers in the area. Most of historic-age house no longer visible from exterior. Historic-age family cemetery is located on property within proposed relief route.
24786		1729 W Live Oak St	E, F, G, H	Y	Y	L	1966	One-story Ranch-style residence with synthetic siding, seamed metal roof, and attached garage and carport.	
24902	24901, 179106	84 T9C Ranch Rd	D	Y	Y	L	1979	One-story residence clad in brick veneer with metal side gable roof and offset gable wing.	
25808		1296 Royal Oaks Loop	F, G	N	Y	L	1905	Two-story masonry and log residence with metal gable roof and one-and-one-half-story masonry addition. Outbuildings include a limestone barn with metal side gable roof and non-historic stucco addition, and a one-story frame dwelling with clerestory-style metal roof and horizontal wood siding.	House and barn have been highly altered and no longer retain integrity.
25993		519 Hollmig Ln	F, H	Y	Y	L	1972	One-story brick Ranch-style house with metal side gable roof.	
26283	4542	1412 S Eagle St	F, H	Y	Y	L	c.1965	One-story concrete block residence with metal cross gable roof and shed porch. Adjacent small outbuilding and open air shed.	
26287	107051	954 Royal Oaks Loop	D,E,F	Y	N	Presumed L	Unknown	Several small outbuildings with metal roofs present on center of property. Property also includes non-historic-age house on southeast corner of parcel.	Added due to owner request. Buildings appear to have been constructed in 2000s.

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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
26323	26311, 26312, 26313, 26314, 26323, 26325, 26326, 26327, 26328, 26329	466 Falcon Hills Ranch Road	D,E,F	Y	N	Presumed L	c.1970	Outbuilding or barn with metal gable roof and shed side addition located on northeast corner of parcel.	Building appears on aerial images from 1976 to present. No known potential for significance.
26410	33685	155 Moellering Rd	D	Y	N	Presumed L	c.1945	Historic-age resources appear to include several outbuildings with metal gable roofs located south of a non-historic-age house with shingle side gable roof. A historic-age barn or outbuilding with a metal gable roof and shed roof extension is located southeast of the house.	Barn building southeast of residence appears on aerial images between 1938 and 1948. Other historic-age outbuildings are c.1976. Gillespie CAD date for house is 1978. No known potential for significance.
26882		549 Burgess-Stehling Ln	D	Y	N	Presumed M	1936	Historic-age resources appear to include a side gable bungalow with a front gable porch and metal roof, a barn and several outbuildings with metal roofs.	Aerial imagery and Gillespie CAD improvement data show a large metal building constructed northeast of the house in 2018. According to Realtor.com the house was built in 1936. The footprint of the house appears unchanged since 1963; possibly 1948 but aerial is not clear. A building in this location shows on 1961 highway map. A large barn was recently constructed east of the house. Presumed medium ranking due to age and possibly intact surrounding farmstead resources. No known significance for individual NRHP eligibility (high ranking).
27311		197 Rock House Dr	D, E, F	Y	Y	H	1896	Two-story, irregularly coursed limestone house with multiple brick chimneys, seamed metal hip roof with decorative metal cresting at roof dormer ridgeline, and two-story shed roof gallery/porch. Adjacent historic-age stucco outbuilding with metal gable roof and front porch that attaches to corner of limestone house. Outbuildings include: 1911 limestone and stucco wellhouse/cistern converted into guestroom, large c.1940 barn used as events center, and non-historic-age metal frame building used as lodging.	High ranking applies only to 1896 house. Other historic-age resources are highly altered.

Historic Property Significance Rankings
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27996		457 Bob Moritz Dr	G, H	N	Y	H	c.1855	Two c.1855 one-and-one-half story side gable limestone house houses. House to the northeast has a large shed-roof rear addition, and two-story addition to the northeast. Property also includes several non-historic-age cottages, a swimming pool, and large metal storage shed.	Currently Back Forty B&B. According to GCHS and property owner, the property was a ten-acre outlot owned by Jacob Weinheimer, an early settler and community leader in Fredericksburg. Despite additions, the overall property retains integrity.
28390	34667	3567 E Us Hwy 290	D, E, G	Y	N	Presumed H	Unknown	Historic-age resources appear to include a side gable house with a metal roof and metal shed roof front porch and a small outbuilding with a gable metal roof to the northeast. The large barn and other outbuildings have been recently demolished based on Google Earth images. Property also includes a non-historic-age building in the northeast corner of the parcel constructed between 2014 and 2017.	House appears on aerial images in 1938, but may have been constructed earlier. Large barn and most outbuildings recently removed. Previous owners include descendants of Jakob Weinheimer, an early settler of Fredericksburg and Gillespie County. However, research and correspondence with GCHS indicates that Jacob Weinheimer's homes were constructed in other locations near Fredericksburg, so not likely to have direct association. No major additions or expansions to house based on review of historic aerials. Presumed high due to age and potential association with early settlement in the area.

Historic Property Significance Rankings
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January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
28752	33796	505 Upper Liveoak Rd	D	Y	N	Presumed H	c.1875	Historic-age resources appear to include a two-story, side gable limestone house with a one story enclosed shed-roof porch on the north elevation and attached to a side gable building of equal size to the to the southeast. The buildings have painted metal roofs. East of the house are several historic-age and non-historic-age outbuildings.	Limited visibility from the ROW due to trees; some images obtained from Google Streetview (2011 and 2008). Two westernmost historic-age buildings on the parcel nearest Upper Liveoak appear to be residences; both appear on 1948 historic aerial imagery. Outbuildings east of residences constructed after 1948. Gillespie CAD date is 1875 for a 608-square-foot main area. CAD improvement data also shows 2193-square-foot main area, porches, and a patio with dates unknown. A building in this location shows on 1936 (rev 1940) highway map. No major non-historic alterations noted from review of historic aerials, Google Streetview, or limited survey. Potential significance for association with early settlement in Live Oak community area and apparent integrity based on limited survey and online sources.
28891		Pioneer Ln	E, F, G, H	Y	N	Presumed L	c.1970	Outbuilding with a metal roof located on west side of parcel.	Building appears on aerial images from 1976 to present. No known potential for significance.
29244	1111	271 and 293 Pyka Rd	F, H	Y	Y	M	c.1890	One-and-one-half-story farmhouse with two chimneys, asbestos cement shingle siding, and metal side gable roof. Multiple historic-age shed additions at front and rear of residence. Outbuildings include: hollow clay tile barn/shed with metal roof; c.1950 wood frame barn clad in corrugated metal; large, non-historic vehicle barn/shed; garage with wood siding and gable roof; and 6-foot uncoursed limestone wall.	Portion of the building appears to date to late nineteenth century but has undergone numerous alterations over time.
30800		Itz-Britz Rd		N	Y	L	c.1970	One-story frame building with metal side gable roof, shed porch, and stone veneer exterior.	
31470	13264	554 Shorty Crenwelge Rd	D, E, F	Y	Y	H	1859	Complex includes a partially collapsed c.1863 side gable, one-room, log and limestone schoolhouse; an 1859 side gable, limestone vernacular house with 1879 second story and south wing additions and a c.1950 shed roof rear addition; and ruins of a c.1860 limestone smokehouse. The property also contains non-historic-age resources including a c.1985 guest house and garage building north of the Kraus homestead.	Designated Recorded Texas Historic Landmark (RTHL) in 1984. According to RTHL documentation and local community histories, Christian Kraus Homestead was established in late-1850s. Stone vernacular house constructed in 1859 and second story and south wing in 1879. House restored in 1984. Kraus was instrumental in building St. Mary's Catholic Church and among first teachers at local Catholic school between 1858 and 1862. Kraus opened a private school on property in 1863 and taught there until 1867. Schoolhouse remains extant but partially collapsed.

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
32220	5670	245 Danz Ln	D, E, G	Y	N	Presumed L	Unknown	Historic-age resources appear to include two outbuildings with metal gable roofs. Property also includes a non-historic-age rectangular plan building with a metal roof.	Extant outbuildings appear on 1938 aerial imagery, but may have been constructed earlier. Historic-age house was demolished or removed between 2014 and 2017 based on Google Earth imagery. Presumed medium due to age and potential association with early settlement in the area.
32562		29 Itz-Britz Rd	G, H	N	Y	L	1974	One-story frame residence with metal side gable roof, plywood panel exterior, and large attached carport.	
32971	5192	126 Morales-Duecker	D, E, G	Y	N	Presumed L	c.1970	Historic-age resources appear to include a rectangular plan house with a metal gable-on-hip roof and a large side gable barn northwest of house. Between these buildings is a non-historic-age rectangular plan building with a metal gable roof.	House and barn building appear on aerial images from 1976 to present. No known potential for significance.
33188		92 Balcones Dr	G, H	N	Y	L	1938	One-story frame residence clad in stone veneer with gable roof and large, front corner shed roof addition. Outbuildings include metal sheds and non-historic-age utility building/shed.	
33202	15514, 15515	3037 W Us Hwy 290	D	Y	Y	L	1971	One-story Ranch-style residence clad in brick veneer with shingle side gable roof and small gable entrance bay. Adjacent outbuildings include corrugated metal shed and non-historic-age shed.	
33206	15639	495 Eckhardt Ln	F, H	Y	Y	L	c.1880	c.1880 side gable log barn with non-historic-age metal siding, metal roof, and metal shed-roof side addition. Property also includes a 1971, L-plan, brick, Ranch-style house and several non-historic-age metal and CMU outbuildings.	Per property owner, the property was previously owned by the Moellering family. Eckhardts later acquired the property and established a peach orchard in the 1960s or 1970s. c.1880 log barn is covered with metal siding and has a metal shed-roof addition which result in diminished integrity.
33450	76862	2219 W Us Hwy 290	G, H	Y	Y	L	c.1970	One-story frame residence clad in stone veneer with metal side gable roof and large front porch. Secondary one-story frame dwelling with metal side gable roof and vertical siding and one-story c.1995 log building. Adjacent outbuildings include a non-historic-age garage and shed.	
33596	24270	1788 W Live Oak St	E, F	Y	Y	L	1954	One-story frame residence clad in aluminum siding with metal side gable roof and front shed roof addition. Adjacent features include detached metal carport and concrete block shed.	
33636	25203	676 Boerner-Weirich Rd	D	Y	Y	L	c.1955	One-story stucco residence with seamed metal side gable roof and front porch extension. Adjacent c.1940 stucco shed/garage with gable roof and c.1960 corrugated metal barn.	

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
33660	25816	850 Owl Ln	E, G	Y	Y	M	c.1915	One-story brick Ranch-style house (1971) with metal side gable roof. A c.1915 one-story gable wood bungalow is located south of the 1971 house. Outbuildings include a non-historic-age gable shed and open-air corrugated metal shed.	Medium ranking applies to c.1915 bungalow only.
33699		221 Pyka Rd	F, H	N	Y	L	c.1965	One-story frame residence with offset cross-gable shingle roof, brick veneer and plywood panel siding exterior, inset porch, and attached two-car garage.	
33729	27246	64 Kerr Rd	E, F, G, H	Y	Y	L	c.1940	One-story frame residence with offset cross-gable metal roof, covered second front entrance, rock veneer exterior, and c.1970s addition. Outbuildings include a detached garage with gable roof and stone veneer, historic-age limestone barn or storage unit with corrugated metal roof, and non-historic-age metal shed.	Primary historic-age residence altered .
33803	83868	597 Otto Eckhardt Rd	E, G	Y	Y	M	c.1920	One-and-one-half-story frame residence with metal side gable, saltbox-style roof, covered front porch, vinyl siding, and carport. Historic-age outbuildings include: a nineteenth century wood smokehouse with metal side gable roof and shed addition; metal barn; wood barn with shed lean-to for hay storage; open-air metal shed; and metal barn with wooden shed addition and sliding doors.	House been highly altered including replacement vinyl siding and vinyl windows. Residence has an interior cistern.
33945	14329	111 Owl Ln	E, G	Y	Y	H	c.1915	One-story gable bungalow with projecting porch, wood siding, and metal roof. Historic-age outbuildings include: one-story gable metal barn with shed addition, open air shed, and wood shed.	High priority ranking is limited to Parcel 33945 which contains the house.
34071	17199, 17196, 17198	400 Gold Rd	G, H	Y	Y	M	c.1870	One-and-one-half-story limestone residence with metal side gable roof, two chimneys, covered front porch, and two additions: a one-story wood-clad shed roof addition on the front and a one-story Basse block rear addition. Adjacent uncoursed limestone carriage house/garage with double hinged doors and concrete roof. Outbuildings include a c.1975 side gable metal building; two small, historic-age metal sheds; and ruins of two c.1930s uncoursed limestone units (possibly small homes or tenant houses).	Alterations diminish overall integrity.

Historic Property Significance Rankings
Fredericksburg Relief Route Study
January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
34142	4535	26 Old San Antonio Rd	E, G	Y	Y	L	c.1965	One-story frame residence clad in ashlar stone veneer with metal gable roof, two-story rear addition, and shed roof concrete block carport. Adjacent features include a historic-age concrete block storage unit with corrugated metal side gable roof and two non-historic age sheds, one metal and one wood.	
34147	27495	573 Pyka Rd	E, F, G, H	Y	Y	L	c.1955	One-story Ranch-style residence with metal side gable roof and asbestos cement shingle siding. Various c.1970 outbuildings include a barn, metal shed, and a small prefabricated secondary dwelling.	
34250	20739	1520 S Us Hwy 87	F, H	Y	N	Presumed L	c.1975	Historic-age resources appear to include a house with an offset cross gable, asphalt shingle roof and a barn or garage building with a metal gable roof just west of house.	House and barn building appear under construction on 1976 aerial imagery. No known potential for significance.
34333	106235	4544 S St Hwy 16	D	Y	Y	L	1913	One-story frame residence with metal hip roof, partial front porch, and asbestos cement shingle siding. Associated features include a historic-age well with wood supports, metal tank, and windmill; a metal frame open-air shed; and a board and batten shed with wood shake gable roof.	Formerly part of Meyer farm property to the north. House remodeled in early 1960s and undergoing renovation at time of survey in 2019.
34334		2023 FM 2093	D	N	Y	H	1915	One-story Basse block residence with metal cross gable roof and two chimneys. Front and rear porches supported by Corinthian columns. A 1917 Basse block addition houses an underground cistern with pump. Associated outbuildings include: c.1920 wood barn with gable roof and shed extension, open-air log barn, and wood smokehouse with a metal gable roof.	House and rural setting retain high level of integrity.
34399	20446	359 and 369 Pyka Rd	F, H	Y	Y	L	c.1970	One-story Ranch-style residence clad in brick veneer with metal side gable roof, covered front porch, and attached carport.	
34457	32933	265 Dos Rios Ln	D	Y	Y	M	1921	Ranch complex containing a historic-age Basse block house and a number of non-historic age resources: a second house, vehicle shed/garage, and large metal frame barns. A large pasture area begins at the right-of-way and continues to the complex.	Survey limited from ROW. All buildings are outside the survey area boundaries. Historic-age Basse block house in poor condition per resident. Second house serves as primary residence.
34518	25733	259 Granado Dr	E, F	Y	N	Presumed L	c.1970	Historic-age resources appear to include a house with a cross gable, asphalt shingle roof, and several outbuildings with gable metal roofs north located of the house.	House and outbuildings appear on aerial images from 1976 to present. No known potential for significance.

Historic Property Significance Rankings
Fredericksburg Relief Route Study
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Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
34693	28895, 28901	290, 506, and 551 Pioneer Ln	G, H	Y	N	Presumed H	c.1880	Historic-age resources are located southwest on the parcel and include a small c.1880 side gable rock house with inset porch and metal roof, a c.1920 pyramidal-roof, wood-frame house, a c.1935 front gable house, a limestone barn or workshop building, and wood carport. Non-historic-age resources include metal and CMU storage sheds near the concentration of historic-age resources, and several houses along private roads east and north on the parcel.	Historic-age houses and outbuildings may have been associated with a late-nineteenth century and early twentieth century agricultural property. Original owners unknown. The property was purchased by the Scripps family in the 1970s and converted to an agri-tourism peach orchard called Pioneer Orchards. At that time, the c.1880 rock house was used to check in visiting tourists. Orchard fields were removed by early 2000s. Images were obtained through Google Streetview and dated to 2011. Presumed high-ranking due to potential association with early settlement in the area and good overall integrity based on Google Streetview.
34781		488 Horseshoe Bend	D	Y	N	Presumed L	Unknown	Historic-age resources appear to include a large barn with a gable metal roof and an outbuilding with a metal roof south of the barn.	Barn and outbuilding appear on aerial images in 1948, but may have been constructed earlier. Presumed medium ranking due to age and potential association with early settlement in the area.
35368		1440 Leyendecker Rd	D	Y	Y	M	c.1890	Two-story side gable residence clad in wood clapboard siding with rear shed roof addition. Associated historic-age features include a Basse block cistern/well, a c.1950 corrugated metal barn and small shed, and ruins of a log cabin.	Former Kuntz family farmhouse. Resources are in overall poor condition.
35453	14409	2306 Hollmig Ln	D	Y	Y	M	c.1880	Current residence is a c.1945 one-story bungalow with wood siding, stone chimney, and metal gable roof. Property also includes a c.1880 one-story limestone and board and batten house with side gable roof that encases an earlier log dwelling. Outbuildings include: hay shed with corrugated metal gable roof and shed extension; small corrugated metal shed; cylindrical limestone wellhouse; small board and batten house with gable roof and shed roof extension, stone cellar, and open-air garage; and a new shed and two-car garage.	Former Hollmig family farm property; acquired by the Crenwelge family in late 1930s. c.1880 board and batten limestone house is former Hollmig dwelling. c.1945 house moved to parcel in 1976. Buildings in poor condition.

Historic Property Significance Rankings
Fredericksburg Relief Route Study
January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
50180	15046, 72829	286 and 289 T9C Ranch Rd	D	Y	Y	M	1890	One-and-one-half-story, regularly coursed limestone residence with chimney and corrugated metal side gable roof. Notable details include limestone slab lintels and arched cellar entrance. Adjacent metal and wood one-car garage and non-historic-age manufactured house.	Poor condition.
52105		557 Hollmig Ln	F, H	Y	N	Presumed L	c.1970	Metal outbuilding with flat roof among several non-historic-age metal outbuildings on parcel.	Building appears on aerial images from 1976 to present. May be associated with residence on parcel to east (25993). No known potential for significance.
52964		598 Armory Rd	G, H	Y	Y	H	1963	Standardized National Guard Armory design. Two-story core with one-story wings, brick veneer, aluminum windows and central entry. Large barrel-vault Quonset hut building located to the west.	According to article in Fredericksburg Standard, March 27, 1963., the armory was a standardized design; local architect in charge of project was Jack Stehling. According to "Final Armory Historic Context" (June 2008), "if an armory survives with at least a moderate degree of integrity and embodies the distinctive characteristics of the type as defined in the historic overview (refer to ARNG historic context) it is eligible for listing in the National Register." Armory retains integrity and appears to exhibit characteristics of Cold War-era standardized armory designs.
57416		1694 W Live Oak St	G, H	Y	Y	L	c.1965	One-story U-plan residence with major alterations.	According to property owner, an older building behind the residence is in ruins and soon to be removed.
57442	90889, 103712	1560-1568 S Us Hwy 87	F, H	Y	Y	L	c.1925	Two-story residence with hip roof and plywood panel siding and a one-story dwelling with plywood panel or false stucco exterior (unable to discern roof type).	Several buildings on parcel; historic-age building located on back half along west edge.

Historic Property Significance Rankings
Fredericksburg Relief Route Study
January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
63920	18501	86 Hodges Rd	E, G	Y	N	Presumed L	1967	Historic-age resources located in northeast corner of parcel and appear to include a rectangular plan, side gable house with a metal roof and several small outbuildings with metal roofs south of the house. Property also includes non-historic-age house with a shingle roof.	Historic-age resources appear on aerial images from 1976 to present. No known potential for significance.
83792		Pyka Rd	F, H	Y	Y	L	c.1920	Open-air metal barn with side gable roof and shed roof porch; barn with corrugated metal side gable roof and hollow clay tile exterior.	Historic-age resources located at southern corner of parcel. Remainder of buildings are manufactured residences.
86370	65510	2665 N Us Hwy 87	D, E, F	N	Y	L	c.1905	One-story limestone residence with metal side gable roof, central chimney, and wood frame additions with shed roof porch. Outbuildings include limestone ruins, shed ruins, and wood frame sheds.	According to property owner, the house dates to the early twentieth century. Additions and alterations diminish overall integrity.
86417	17887	2387 W Us Hwy 290	G, H	N	Y	L	1974	One-story shed with gable roof and residence with seamed metal gable roof.	
86468		1309 S St Hwy 16	F, H	N	Y	L	c.1970	One-story dwelling with concrete block exterior and metal gable roof. Adjacent metal outbuilding.	Dwelling vacant (windows boarded).
92911		1736 W Live Oak St	E, F, G, H	Y	Y	L	c.1970	Two one-story, non-historic-age houses and non-historic age outbuildings; one c.1970 wood frame shed with metal roof and walls.	
100141		1554 Upper Liveoak Rd	D	N	Y	L	1852	Two-story residence with large addition: original 1852 log dogtrot topped with board and batten second story and shed roof porch. A non-historic-age two-and-one-half-story stone and board and batten addition connects on the south side. Adjacent non-historic-age side gable garage and c.1995 two-story frame dwelling with metal side gable roof, vertical siding, and shed roof porch.	According to property owner, original dogtrot dates to 1852 and two-story addition was constructed c.1995. Non-historic-age additions and alterations diminish overall integrity.
106746		3071 W Us Hwy 290	D	N	Y	L	c.1945	One-story residence with flagstone veneer, inset porch, brick chimney, and seamed metal gable roof. Outbuildings include a concrete block one-car garage with a corrugated metal gable roof, a small concrete block wellhouse, and a metal clad outbuilding.	Appears to have c.1960 exterior cladding.
179096	109682	471 Kerr Rd	E, F, G, H	N	Y	L	c.1965	Side gable metal barn.	
179962	109736	555 Kerr Rd	E, F, G, H	Y	Y	L	c.1965	Barn with corrugated metal and fiber cement siding-clad walls and a metal side gable roof. Newly constructed house and garage immediately adjacent.	

Historic Property Significance Rankings
Fredericksburg Relief Route Study
January 2020

Primary Property ID	Additional Property IDs	Property Address	Route(s)	Within Proposed ROW? (Y/N)	Surveyed?	Ranking	Primary Resource Construction Date	Description	Comments
181361		449 Kerr Rd	E, F, G, H	Y	N	Presumed L	c.1960	Historic-age resources appear to include four outbuildings with gable and flat metal roofs. Property also includes several non-historic-age buildings with metal roofs.	Historic-age resources appear on aerial images from 1963 to present. No known potential for significance.
23360, 23362		74 and 100 Northwest Dr	G, H	N	Y	L	c.1975	One-story brick duplex with side gable shingle roof and overhanging eaves.	
2393, 102872		1120 Upper Liveoak Rd	D	Y	Y	M	1853	Log dog trot house with non-historic-age alterations, including: dog trot space enclosed, non-historic-age mortar, and replaced vinyl windows. Front gable, limestone garage or carriage house with board and batten hinged door. Prefabricated one-story metal residence with metal side gable roof and large front overhang. Adjacent outbuildings include a one-story prefabricated metal two-car garage and a collapsed barn/shed with corrugated metal roof.	According to property owner or family representative, house constructed by Fritz Kneese, an early settler of the area. 1853 farmhouse contains a mud brick oven that served as the first bakery in the rural Live Oak Creek community. House has undergone significant alterations.
25912, 2726	6676, 24141	29 and 311 Kerr Rd	G, H	Y	Y	L	c.1960	One-story frame residence with wood siding and a metal side gable roof. Shed roof extension is a carport. Adjacent wood barn with gable roof and metal wall shed extensions.	311 Kerr Road not visible from ROW. Historic-age resources at 311 Kerr Road include historic-age house and outbuildings constructed between 1953 and 1976.
29367, 101068	33906; 57607	915 and 1405 Boos Ln	E, G (101068); D (29367)	Y	Y	M	c.1955	Property includes several parcels and three distinct locations with historic-age resources. Former dairy located on parcel 29367 includes a c.1950 roman brick Ranch-style house with shingle hip roof; ruins of an 1800s half-timbered (fachwerk) smokehouse; several early twentieth century outbuildings constructed of wood, hollow clay tile, and corrugated metal; and, a c.1955 barn with 1978 and c.2000 additions and alterations. The property also includes two c.1970 feed silos and a feeder system. North of the dairy is c.1935 house now clad in non-historic-age limestone, a c.1960 metal barn, and a hollow clay tile garage. The Boos property also includes a c.1930 wood barn located on parcel 101068 approx. 0.8 miles north of the c.1935 house.	Property acquired by Boos family of Prussia in 1852. Established dairy in 1921. Family constructed modern dairy barn in 1950s that featured a glass pipeline system, improving safety and efficiency. The new system was featured in the Fredericksburg Radio Post on August 18, 1955. Barn was expanded in 1978 with concrete block addition on northwest elevation. According to owner, was first non-university computerized dairy barn in nation in late 1970s. The barn's original flat roof was replaced with a pitched roof and its interior spaces were reconfigured in the early 2000s. The c.1935 house north of dairy was originally constructed as government-funded worker housing according to property owner; house is now clad in non-historic-age limestone. The c.1930 barn located on parcel 101068 north is intact, but lacks individual significance as an isolated outbuilding. Property overall is potentially significant for associations with Boos family and early agricultural development. Outbuildings from each major period, including late-1800s, early twentieth century, and mid-twentieth century are extant, however non-historic-age alterations and deterioration result in overall diminished integrity.

Updated Overview Maps

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020

0 0.125 0.25 0.5 Miles

Map 1 of 6

Historic Resources Survey Area

Relief Route Options

D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020

Map 2 of 6

0 0.125 0.25 0.5 Miles

Historic Resources Survey Area

Relief Route Options

D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020

Map 3 of 6

0 0.125 0.25 0.5 Miles

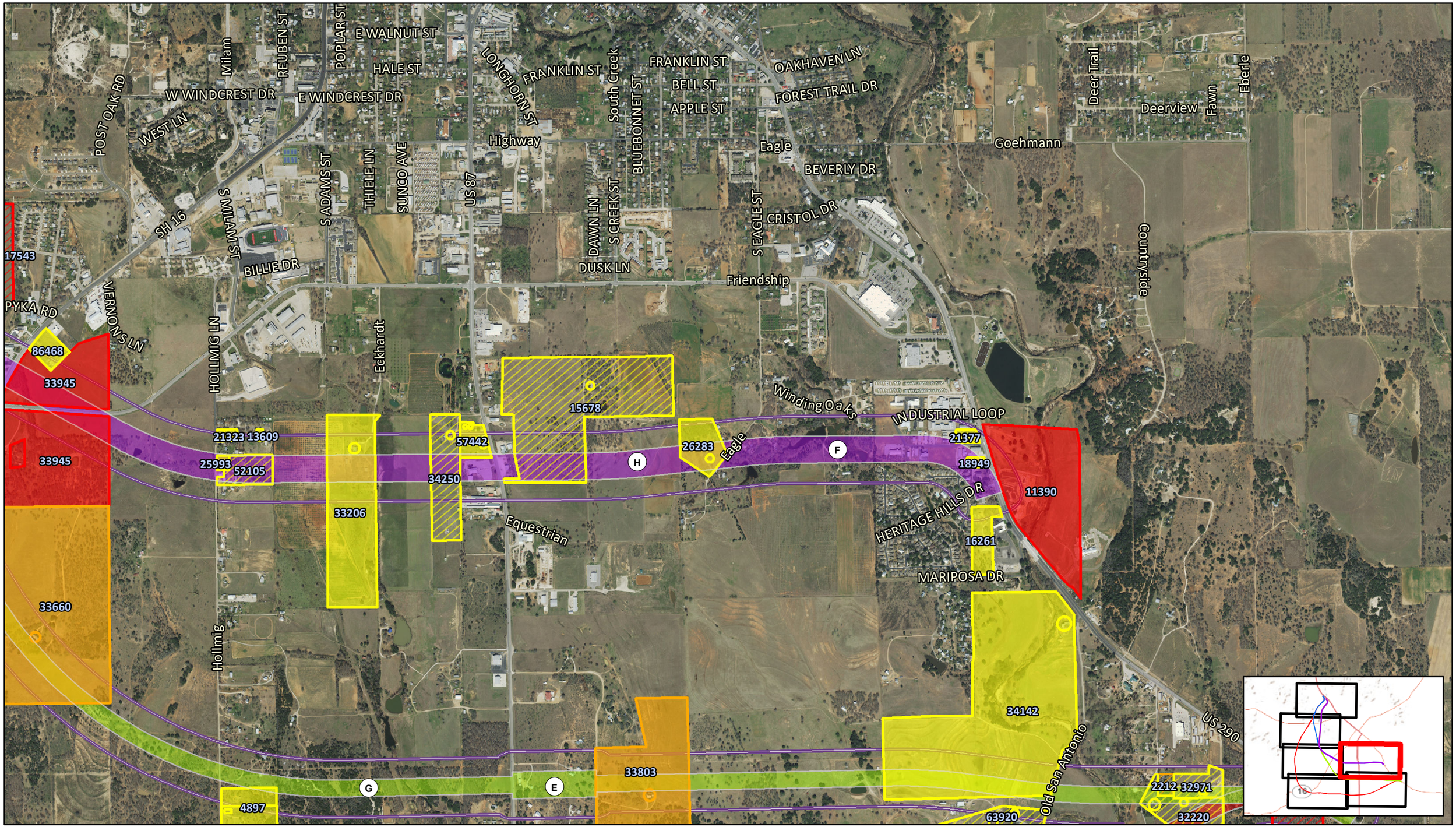
Historic Resources Survey Area

Relief Route Options

D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low



0 0.125 0.25 0.5 Miles

Map 4 of 6

Historic Resources Survey Area

Relief Route Options

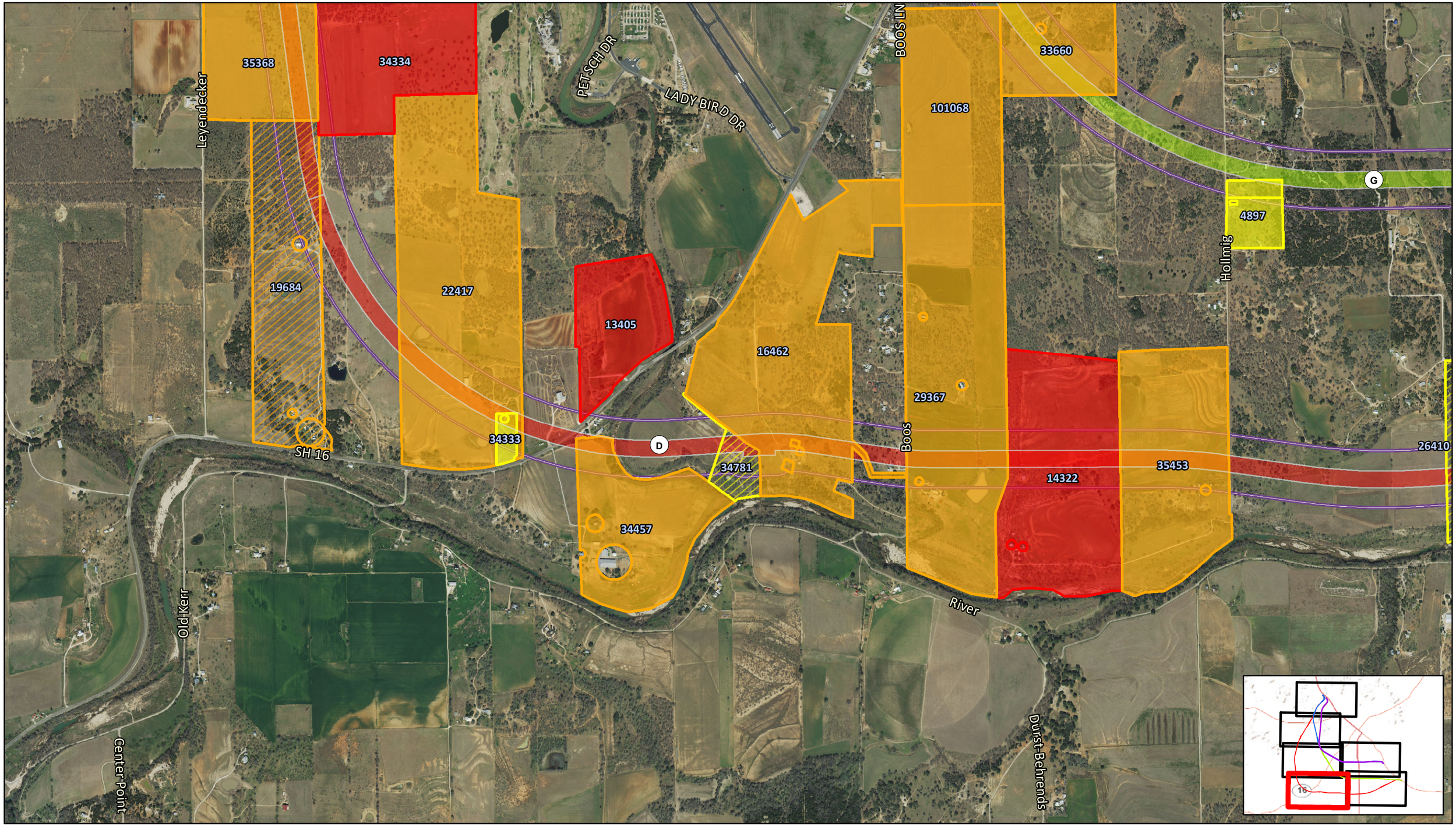
D F H E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020



0 0.125 0.25 0.5 Miles

Map 5 of 6

Historic Resources Survey Area

Relief Route Options

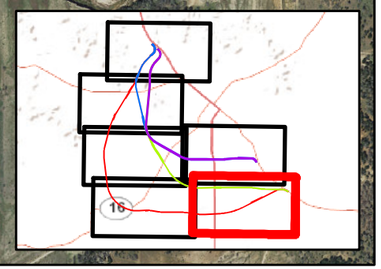
D F H
E G

Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020

33206
16261
11390
34142
US 290
G
E
33803
4897
Hollmig
2212
32971
32220
63920
28390
Schmidtzinsky
13481
33636
26410
35453
4814
US 87
River
Old San Antonio


0 0.125 0.25 0.5 Miles

Map 6 of 6

Historic Resources Survey Area

Relief Route Options

D F H

E G

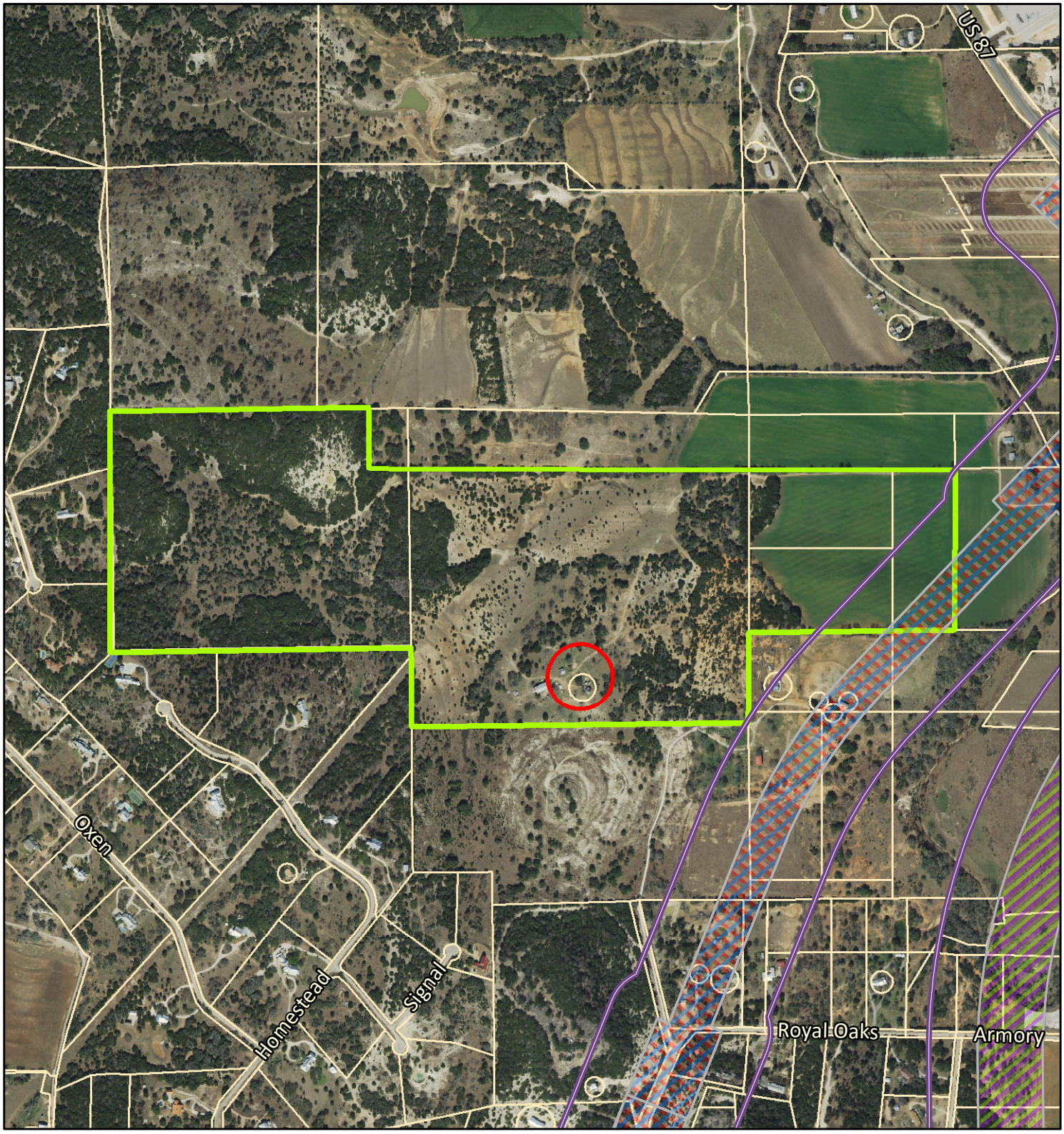
Ranking

High
Medium
Low
Presumed High
Presumed Medium
Presumed Low

Potentially Historic Properties

US 290 Fredericksburg Relief Route Study
Historic Resources Constraints Analysis
January 2020

Updated Survey Forms



Property ID: 20853

Address: 1291 SHORTY CRENWELGE RD

US 290 Fredericksburg Relief Route Study
Historic Resource Constraints Analysis
January 2019

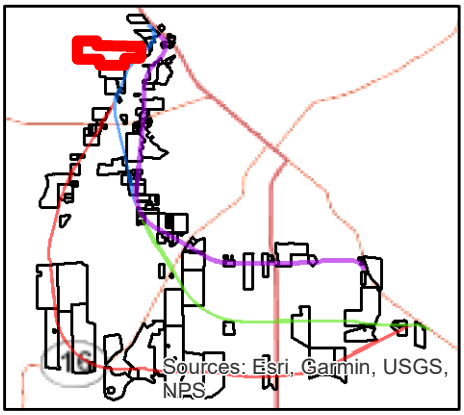
Legend

- Historic-Age Property
- Location of Historic-Age Resources
- Parcels
- Historic Resources Survey Area

Relief Route Options

D F H
E G

0 400 800 1,600 Feet



Survey Date: September and October 2019

Primary Property Parcel ID: 20853

Additional Parcel IDs: 20850, 20851, 20852, 20854, 100733

Address: 1291 Shorty Crenwelge Rd

☑ Route D ☑ Route E ☑ Route F ☐ Route G ☐ Route H

Within Proposed ROW? N **Surveyed?** Y

Construction Date: c. 1890 **Significance Ranking:** Medium

Description: Historic-age ranch complex with a two-story frame residence clad in vertical wood and metal siding and topped with metal side gable roof. Stuccoed masonry addition with shed roof attached to the rear of the building. Outbuildings include: limestone washhouse with metal gable roof, seamed metal barn, large wood barn, and non-historic-age shed. Associated features include: Aermotor windmill, water tank, concrete block cistern/wellhouse, and concrete trough.

Comments: Home of John Kraus, son of early settler Christian Kraus (RTHL Christian Kraus Homestead located to the NE). c.1890 house has undergone numerous alterations and is in poor overall condition, including changes to fenestration and removal of entire front porch.



Survey Date: September and October 2019

Primary Property Parcel ID: 20853

Additional Parcel IDs: 20850, 20851, 20852, 20854, 100733

Address: 1291 Shorty Crenwelge Rd

☑ Route D ☑ Route E ☑ Route F ☐ Route G ☐ Route H

Within Proposed ROW? N **Surveyed?** Y

Construction Date: c. 1890 **Significance Ranking:** Medium

Description: Historic-age ranch complex with a two-story frame residence clad in vertical wood and metal siding and topped with metal side gable roof. Stuccoed masonry addition with shed roof attached to the rear of the building. Outbuildings include: limestone washhouse with metal gable roof, seamed metal barn, large wood barn, and non-historic-age shed. Associated features include: Aermotor windmill, water tank, concrete block cistern/wellhouse, and concrete trough.

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Appendix E

Preliminary Traffic Study Memorandum
(Travel Demand Forecast Development and Route Evaluation)



Preliminary Traffic Study Memorandum

US 290 Fredericksburg Relief Route Study – Travel Demand Forecast Development & Route Evaluation

TxDOT – Transportation Planning and Programming Division

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Introduction

The US 290 Fredericksburg Relief Route Study seeks to evaluate potential relief routes surrounding the City of Fredericksburg in Gillespie County, Texas. Potential routes ("Primary Route Options") are proposed south of Downtown Fredericksburg, connecting US 290, US 87, and SH 16, as shown in Figure 1. The Study was initiated in early 2018; since then, four public workshops have been held to solicit public input to refine the goals and objectives of the study and the potential route options for further study. Based on public input, five route alternatives were selected as Primary Route Options, which are being further evaluated to determine the most feasible option. As a part of the evaluation effort, travel demand models were developed for each route option for the year 2040. This report summarizes the results of the travel demand models.

Figure 1 and Table 1 provide details about the Primary Route Options. The proposed routes are all high speed (70 miles per hour (mph) speed limit) four-lane divided facilities. In addition to the east and west termini, three interchanges are proposed at S US 87, SW SH 16, and W US 290. The longest Primary Route Option is **Option D** (11.4 miles), and the shortest Primary Route Option is **Option H** (6.7 miles)

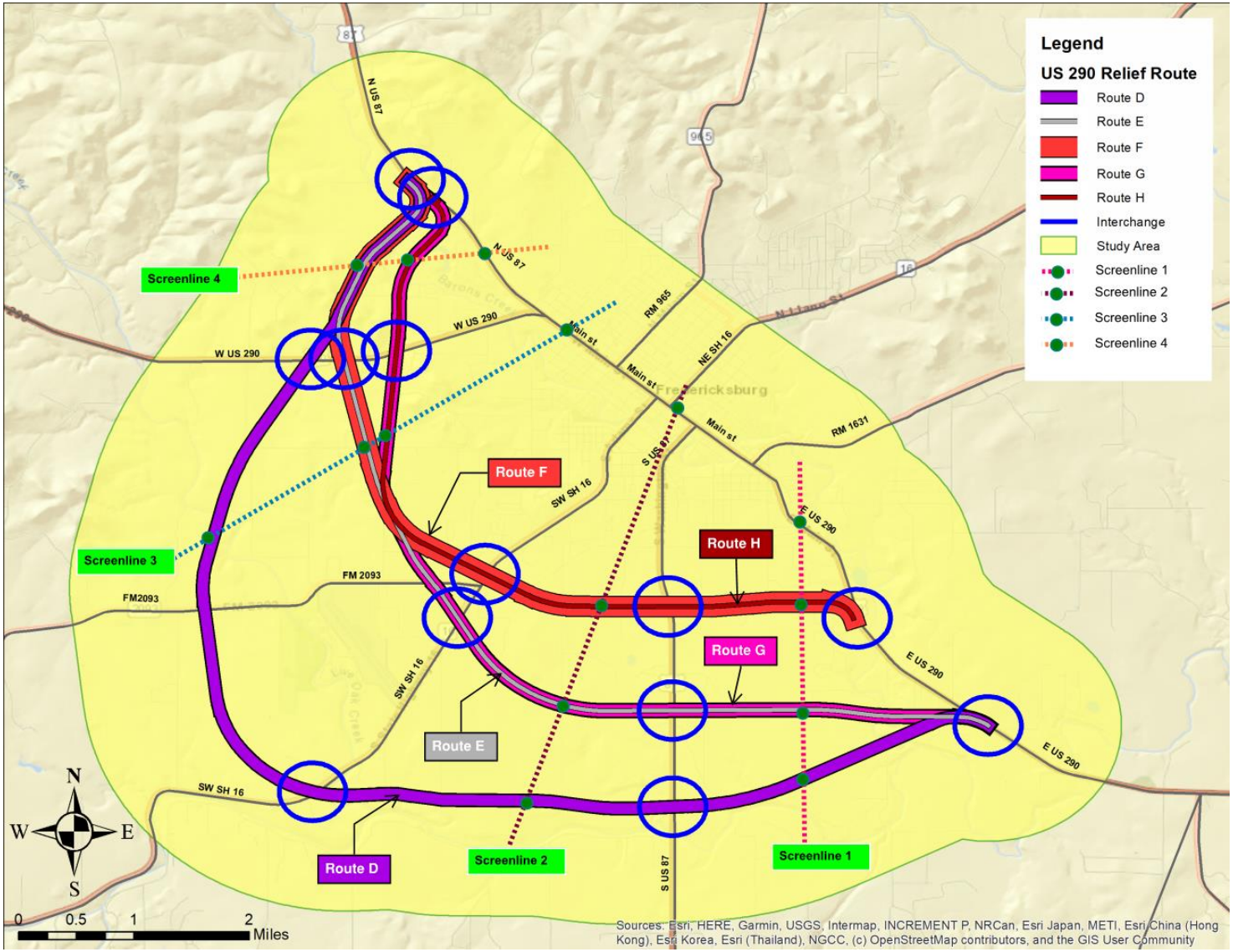


Figure 1: US 290 Fredericksburg Relief Primary Route Options and Study Area

Table 1: US 290 Fredericksburg Relief Route – Primary Route Options

Option	Length (Miles)	Eastern Termini (At E US 290)	Western Termini (At N US 87)	Interchanges
Option D	11.4	North of Schmidtzinsky Rd	North of Wilhelm Rd	1. S US 87, South of River Rd 2. SW SH 16, North of Heidis Riverview Farm 3. W US 290, West of Homestead Dr
Option E	8.6	North of Schmidtzinsky Rd	North of Wilhelm Rd	1. S US 87, North of Prairie View Trail 2. SW SH 16, South of Tivydale Rd 3. W US 290, West of Royal Oaks Dr
Option F	7	North of Old San Antonio Rd	North of Wilhelm Rd	1. S US 87, South of Friendship Ln 2. SW SH 16, North of Tivydale Rd 3. W US 290, West of Royal Oaks Dr
Option G	8.3	North of Schmidtzinsky Rd	North of Wilhelm Rd	1. S US 87, North of Prairie View Trail 2. SW SH 16, South of Tivydale Rd 3. W US 290, East of Royal Oaks Dr
Option H	6.7	North of Old San Antonio Rd	North of Wilhelm Rd	1. S US 87, South of Friendship Ln 2. SW SH 16, North of Tivydale Rd 3. W US 290, East of Royal Oaks Dr

Roadways Characteristics

The major roadways are located within the study area are US 290, US 87, and SH 16. To describe the significance of these roadways adequately, further characterization is provided below. The average daily traffic estimates for the existing roadways are taken from Texas Statewide Planning Map (Ref. 1).

US 290

E US 290, between Johnson City and Fredericksburg, is a four-lane undivided highway. The speed limit is 70 mph, east of FM 1623, and 60 mph, west of FM 1623. The 2018 Average Annual Daily Traffic (AADT) is 11,200 vehicles per day (vpd) along this segment, north of Schmidtzinsky Road. W US 290, between I-10 and Fredericksburg, is also a four-lane undivided highway. Along most of the segment, the speed limit is 70 mph. The 2018 AADT is 5,200 vpd along this segment, south of N US 87. Inside the Fredericksburg city limit, the road is known as Main Street, which connects with other major north-south roadways (US 87 and SH 16), and the speed limit is 30 mph. Main Street provides direct access to local business and commercial facilities and has on-street parking spaces. The 2018 AADT is approximately 15,000 vpd along this segment.

US 87

S US 87, between I-10 and Fredericksburg, is a four-lane undivided highway. The speed limit is 70 mph or lower on the northern segment and 55 mph on the southern segment. The 2018 AADT is 7,600 vpd along this segment, south of Main Street. N US 87, between Mason

and Fredericksburg, is also a two- lane undivided highway. Along most of the segment, the speed limit is 70 mph. The 2018 AADT is 8,200 vpd along this segment, north of W US 290.

SH 16

SW SH 16, between I-10 at Kerrville and Fredericksburg, is a two-lane undivided highway. The speed limit is 70 mph or lower, south of Heidis Riverview Farm, and 55 mph, north of Heidis Riverview Farm. The 2018 AADT is 10,400 vpd along this segment, south of Main Street. NE SH 16, between Llano and Fredericksburg, is also a two- lane undivided highway. Along most of the segment, the speed limit is 70 mph. The 2018 AADT is 6,600 vpd along this segment, north of Main Street.

Methodology

Texas Statewide Analysis Model Version 3 (SAM-V3) (Ref. 2) was utilized as the basis for the travel demand modeling effort. Separate traffic models were created for each Primary Route Option and 2040 socio-demographic data included with SAM-V3 were utilized to develop travel demand models. It should be noted that no additional network improvement or socio-demographic update were considered for the evaluation process. It should also be noted that no recalibration of the travel demand models was conducted as part of this study.

The traffic forecasting for different scenarios in this study was conducted using SAM-V3. SAM-V3 is a state-of-the-practice multimodal travel model that provides highway traffic forecasts for both highway passenger travel and freight transport. The SAM-V3 is a trip-based model that uses the traditional Four-Step sequential process, including:

- Trip Generation: Trips are produced as a function of land use.
- Trip Distribution: What is the origin and destination of the trip?
- Mode Choice: How is the trip made?
- Trip Assignment: What route choices are made to reach the destination?

The SAM-V3 has separate models for passenger and freight travel. The passenger model distinguishes between long distance and daily trips; trips that are less than 150 miles are considered as day trips or intra-city trips, and trips that exceed 150 miles are considered as long distance trips or inter-city trips.

Seven internal trip purposes are identified in the SAM-V3 model application:

- Intra-city trips
  - Home-based work
  - Home-based other
  - Home-based school
  - Non-home-based other
  - Non-home-based visitor

- Inter-city trips
  - Infrequent long distance business trips
  - Infrequent long distance other trips

SAM-V3 utilizes 2009 National Household Travel Survey (NHTS) data to estimate passenger trips production. Trip attractions are estimated from work place surveys for four urban areas in the state and from the 2009 NHTS.

For passenger trip distribution, SAM-V3 utilizes a traditional gravity model with calibrated friction factors by trip purpose. Trip lengths are derived from the NHTS, and separate distribution models are run for the income segments within each trip purpose.

The passenger mode choice model is structured as a nested logit model. The mode choice models are structured in a manner similar to many urban models in which peak travel times are used for work related trip purposes and midday travel times are used for non-work related trip purposes.

For freight, the units of measurement for the productions and attractions at the origin and destination of the trips are expressed as annual tons for 15 commodity types. SAM-V3 uses an incremental logit choice model, producing flow tables for the 15 distinct commodities.

In freight trip distribution, the productions and attractions developed in trip generation are distributed based on distance skims (impedances) to get an origin-destination (O-D) trip table for each commodity group.

In freight mode choice, the origin and destination table developed during trip distribution are allocated to modes of travel based on the change in the utilities of those modes, as well as the existing mode share, to forecast an O-D trip table, by mode, for each commodity group. Modes include truck, carload rail, and intermodal rail. The baseline for applying the increments was a Texas focused TRANSEARCH database purchased by TxDOT.

In SAM-V3, the passenger and freight highway trips are combined and assigned using a multi-class highway assignment procedure. The model is designed to perform at the daily level with the flexibility to examine four distinct time periods: a.m. peak, midday, p.m. peak, and overnight.

The SAM-V3 was designed to apply multiple volume delay functions (VDFs), varied by functional classification and to account for both link and intersection delay. This approach allows:

- The attributes of specific types of roadways to affect delay
- The assignment to be influenced by both link delay and delay experienced at intersections regulated by traffic control devices (signals and stop signs)

A set of VDF parameters was developed for different facility types and traffic control types. The SAM-V3 feeds the congested highway travel times produced during the traffic assignment step back to the trip distribution model. This feedback procedure uses the method of successive averages (MSA) with convergence based on changes in link volumes between iterations.

The following scenarios were run as a part of this study

- No-Build: No proposed relief route
- Scenario 1: Traffic network with Option D
- Scenario 2: Traffic network with Option E
- Scenario 3: Traffic network with Option F
- Scenario 4: Traffic network with Option G
- Scenario 5: Traffic network with Option H

Performance Measures

In addition to daily volume, the travel demand modeling process focused on three measures of transportation system performance, including:

Vehicle Miles of Travel

Vehicle-miles of travel (VMT) is a measure of cumulative distance traveled by all of the trips within the study area. It provides a measure of the total magnitude of travel in a given area.

Vehicle Hours of Travel

Vehicle-hours of travel (VHT) is a measure of cumulative duration of all the trips within the study area and provides an indication of system delay, speed, and congestion impacts.

Volume-to-Capacity

Volume-to-capacity (V/C) is a conventional performance measure for roadways, comparing roadway demand (vehicle volumes) with roadway supply (carrying capacity).

Travel Demand Model Results

Table 2 summarizes the 2040 forecasts of total volume at different key locations in the study area. Based on the model results, under all build scenarios, the total traffic volume on US 290, north of Schmidtzinsky Road, shows an increase in traffic volume, when compared with the No-Build scenario, due to the relative attractiveness of a new route. At the above

mentioned location (east of central Fredericksburg), Scenario 2 (**Option E**) shows the maximum increase (**3,100 vpd**) in total traffic, and Scenario 1 (**Option D**) and Scenario 5 (**Option H**) show the minimum increase (**2,100 vpd**) in total traffic when compared with the No-Build scenario. Traffic volumes on other major existing roadways decrease under all build scenarios to varying degrees, though the traffic on Main Street decreases significantly. East of NE SH 16, one of the most congested sections of Main Street, Scenario 2 (**Option E**) and Scenario 4 (**Option G**) show the greatest amount of traffic reduction (**6,400 vpd**), while Scenario 1 (**Option D**) shows the least reduction (**4,600 vpd**) when compared with the No-Build scenario. On the relief route itself, Scenario 2 (**Option E**) shows more traffic volume compared to the other scenarios, and the segment between S US 87 and SW SH 16 has the highest total traffic volume (**9,500 vpd**) along the relief route.

Table 3 summarizes the 2040 forecasts of heavy truck (five or more axles) volume at different key locations in the study area. Based on the model results, under all build scenarios, the 2040 heavy truck volume on US 290, north of Schmidtzinsky Road, shows an increase in truck volume when compared with the No-Build scenario. At the above mentioned location, Scenario 2 (**Option E**) shows the greatest increase (**480 trucks per day**) in trucks, and Scenario 1 (**Option D**) shows the smallest increase (**190 trucks per day**) in trucks. Truck volumes on other major existing roadways decrease under all build scenarios to varying degrees. The trucks on Main Street decrease significantly under all build scenarios when compared with the No-Build scenario. East of NE SH 16, Scenario 2 (**Option E**) and Scenario 4 (**Option G**) show the greatest amount of truck volume reduction (**1,610 trucks per day**), while Scenario 1 (**Option D**) shows the smallest reduction of truck volumes (**1,480 trucks per day**) when compared with the No-Build scenario. On the relief route itself, Scenario 2 (**Option E**) shows higher truck volume overall compared to the other scenarios, and the segment between S US 87 and SW SH 16 has the highest total trucks volume (**2,010 trucks per day**) along the relief route.

To understand the impact of a relief route on the adjacent major roadways in the study area, VMT and VHT were calculated. Figure 1 shows the study area—central Fredericksburg extending out to a one-mile buffer surrounding US 290 and proposed Option D, represented in yellow—that was selected for this study. The network in SAM-V3 is composed of only major state highways, such as US 87, SH 16 and US 290. Table 4 shows the aggregated daily performance in terms of VMT and VHT for these roadways inside the study area. The results show that the total VMT in the study area increases under all build scenarios when compared with the No-Build scenario. This is due to traffic re-routing to the relief route. In addition, vehicles traveling on the relief route need to traverse longer distances to bypass downtown Fredericksburg. Scenario 2 (**Option E**) shows the greatest increase (**6.1 percent**) in total VMT, while Scenario 3 (**Option F**) shows the smallest increase (**3.7 percent**) in total VMT when compared with the No-Build scenario. Total VHT in the study area, however, decreases under all build scenarios when compared with No-Build, which indicates an

improvement in performance of roadways in the study area. Scenario 5 (**Option H**) shows the greatest decrease (**3.2 percent**) in total VHT, while Scenario 1 (**Option D**) shows the lowest decrease (**1.9 percent**) in total VHT when compared with the No-Build scenario.

The VMT and VHT of trucks indicates that the relief route will improve flow of heavy trucks in the study area. Scenario 1 (**Option D**) shows the greatest increase (**19.5 percent**) in heavy truck VMT, and Scenario 5 (**Option H**) shows the smallest increase (**10.9 percent**) in heavy truck VMT, when compared with the No-Build scenario. Conversely, the heavy truck VHT in the study area decreases more than 36 percent under all build scenarios when compared with No-Build, which indicates a significant improvement in performance of truck flow in the study area. Scenario 5 (**Option H**) shows the greatest decrease (**38.3 percent**) in heavy truck VHT, and Scenario 4 (**Option G**) shows the smallest decrease (**36.5 percent**) in heavy truck VHT when compared with the No-Build scenario.

Table 5 summarizes the volume-to-capacity ratios at a daily level across four screenlines. The V/C ratios improve under all build scenarios when compared with the No-Build scenario. The V/C ratio of screenline 2, which includes one of the most congested section of Main Street, decreases from 0.42 to 0.14. Table 6 shows the V/C ratios on Main Street only, east of NE SH 16, for the 2020 model year as well as for all build and no-build scenarios in the 2040 model year. As per the SAM V-3 model, the AM peak period is from 6:30 to 8:30, and the PM Peak period is from 2:30 to 6:30. Based on a weighted average of the AM and PM peak period V/C ratios, traffic congestion will worsen on Main Street without improvements (V/C increases from 0.63 in 2020 to 0.90 in 2040). Under all build scenarios, traffic congestion on Main Street will improve. Scenario 2 (**Option E**) and Scenario 4 (**Option G**) show the greatest improvement (a V/C of 0.69), and Scenario 1 (**Option D**) shows the smallest improvement (a V/C of 0.76), when compared with the No-Build scenario. It should be noted that the capacities used in Table 5 and Table 6 are computed at a high-level for typical facility types across the state and do not explicitly consider on-street parking and other unique aspects of Main Street in Fredericksburg. Further, the traffic volumes are arithmetic sums of passenger cars and trucks—no adjustments were made to account for differences between the two types (e.g., a passenger car equivalent factor).

Table 2: Year 2040 Total Traffic Volume Forecasts

Roadway	Location	Daily Traffic Volume (vpd) (Difference Compared to the No-Build Scenario)					
		No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)
E US 290	North of Schmidtzinsky Rd	15,700 (-)	17,800 (+2,100)	18,800 (+3,100)	18,100 (+2,400)	18,700 (+3,000)	17,800 (+2,100)
E US 290	East of North Olive St	15,700 (-)	12,300 (-3,400)	10,600 (-5,100)	11,300 (-4,400)	10,600 (-5,100)	10,800 (-4,900)
E US 290	East of S US 87	27,700 (-)	25,000 (-2,700)	23,600 (-4,100)	24,200 (-3,500)	23,600 (-4,100)	23,800 (-3,900)
Main St	East of NE SH 16	35,100 (-)	30,500 (-4,600)	28,700 (-6,400)	29,500 (-5,600)	28,700 (-6,400)	29,400 (-5,700)
Main St	East of SW SH 16	35,600 (-)	31,000 (-4,600)	29,200 (-6,400)	30,000 (-5,600)	29,200 (-6,400)	29,800 (-5,800)
Main St	West of N Milam St	18,300 (-)	15,500 (-2,800)	15,100 (-3,200)	15,200 (-3,100)	15,100 (-3,200)	15,200 (-3,100)
W US 290	West of N US 87	2,200 (-)	500 (-1,700)	500 (-1,700)	500 (-1,700)	600 (-1,600)	600 (-1,600)
N US 87	North of W US 290	4,300 (-)	3200 (-1100)	2700 (-1600)	2,800 (-1,500)	2,700 (-1,600)	2,800 (-1,500)
S US 87	South of E US 290	13,200 (-)	11,400 (-1,800)	11,000 (-2,200)	11,200 (-2,000)	11,000 (-2,200)	11,800 (-1,400)
NE SH 16	North of Main St	20,300 (-)	20,100 (-200)	20,000 (-300)	20,000 (-300)	20,000 (-300)	20,100 (-200)
SW SH 16	South of Main St	20,700 (-)	17,500 (-3,200)	18,600 (-2,100)	17,900 (-2,800)	18,500 (-2,200)	18,300 (-2,400)
Relief Route	Between E US 290 and S US 87	n/a (-)	5,600 (+5,600)	8,200 (+8,200)	6,900 (+6,900)	8,100 (+8,100)	7,100 (+7,100)
Relief Route	Between S US 87 and SW SH 16	n/a (-)	6,700 (+6,700)	9,500 (+9,500)	7,800 (+7,800)	9,400 (+9,400)	8,300 (+8,300)
Relief Route	Between SW SH 16 and W US 290	n/a (-)	2,700 (+2,700)	3,100 (+3,100)	2,900 (+2,900)	2,900 (+2,900)	2,700 (+2,700)
Relief Route	Between N US 87 and W US 290	n/a (-)	1,200 (+1,200)	1,900 (+1,900)	1,800 (+1,800)	1,900 (+1,900)	1,800 (+1,800)

Table 3: Year 2040 Heavy Truck Volume Forecasts

Roadway	Location	Daily Traffic Volume (vpd) (Difference Compared to the No-Build Scenario)					
		No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)
E US 290	North of Schmidtzinsky Rd	1,560 (-)	1,750 (+190)	2,040 (+480)	1,920 (+360)	2,010 (+450)	1,870 (+310)
E US 290	East of North Olive St	1,560 (-)	300 (-1,260)	230 (-1,330)	230 (-1,330)	230 (-1,330)	220 (-1,340)
E US 290	East of S US 87	2,090 (-)	800 (-1,290)	710 (-1,380)	730 (-1,360)	720 (-1,370)	730 (-1,360)
Main St	East of NE SH 16	2,990 (-)	1,510 (-1,480)	1,380 (-1,610)	1,410 (-1,580)	1,380 (-1,610)	1,440 (-1,550)
Main St	East of SW SH 16	2,410 (-)	940 (-1,470)	820 (-1,590)	840 (-1,570)	820 (-1,590)	830 (-1,580)
Main St	West of N Milam St	1,740 (-)	360 (-1,380)	300 (-1,440)	300 (-1,440)	300 (-1,440)	320 (-1,420)
W US 290	West of N US 87	1,070 (-)	80 (-990)	60 (-1,010)	70 (-1,000)	70 (-1,000)	80 (-990)
N US 87	North of W US 290	480 (-)	100 (-380)	50 (-430)	50 (-430)	50 (-430)	50 (-430)
S US 87	South of E US 290	1,070 (-)	850 (-220)	840 (-230)	850 (-220)	830 (-240)	900 (-170)
NE SH 16	North of Main St	1,230 (-)	1200 (-30)	1,170 (-60)	1,170 (-60)	1,160 (-70)	1,190 (-40)
SW SH 16	South of Main St	810 (-)	650 (-160)	630 (-180)	620 (-190)	620 (-190)	610 (-200)
Relief Route	Between E US 290 and S US 87	n/a (-)	1,450 (+1,450)	1,810 (+1,810)	1,690 (+1,690)	1,790 (+1,790)	1,650 (+1,650)
Relief Route	Between S US 87 and SW SH 16	n/a (-)	1,610 (+1,610)	2,010 (+2,010)	1,880 (+1,880)	1,990 (+1,990)	1,830 (+1,830)
Relief Route	Between SW SH 16 and W US 290	n/a (-)	1,370 (+1,370)	1,330 (+1,330)	1,260 (+1,260)	1,180 (+1,180)	1,120 (+1,120)
Relief Route	Between N US 87 and W US 290	n/a (-)	410 (+410)	540 (+540)	520 (+520)	550 (+550)	510 (+510)

Table 4: Network Performance in the Study Area

Performance Measure	Value						Difference Compared to No-Build Scenario				
	No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)
Total Vehicle Miles Traveled	344,631	358,859	365,538	357,293	365,038	361,286	+4.1%	+6.1%	+3.7%	+5.9%	+4.8%
Total Vehicle Hours Traveled	6,999	6,866	6,815	6,862	6,819	6,776	-1.9%	-2.6%	-2.0%	-2.6%	-3.2%
Heavy Truck Vehicle Miles Traveled	26,172	31,277	30,468	29,136	30,475	29,022	+19.5%	+16.4%	+11.3%	+16.4%	+10.9%
Heavy Truck Vehicle Hours Traveled	754	470	478	471	479	465	-37.7%	-36.6%	-37.5%	-36.5%	-38.3%

Table 5: Network Performance in the Study Area

Screenline	Location	Daily Capacity (veh/day)	Daily Traffic Volume (veh/day)						Daily V/C					
			No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)	No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)
1	E US 290	120,000	15,700	17,800	18,800	18,100	18,700	17,800	0.13	0.08	0.09	0.08	0.09	0.08
	Relief Route	178,000	-	5,600	8,200	6,900	8,100	7,100						
2	Main St	84,000	35,100	30,500	28,700	29,500	28,700	29,400	0.42	0.14	0.14	0.14	0.14	0.14
	Relief Route	178,000	-	6,700	9,500	7,800	9,400	8,300						
3	Main St	84,000	18,300	15,500	15,100	15,200	15,100	15,200	0.22	0.07	0.07	0.07	0.07	0.07
	Relief Route	178,000	-	2,700	3,100	2,900	2,900	2,700						
4	N US 87	66,000	4,300	3,200	2,700	2,800	2,700	2,800	0.07	0.02	0.02	0.02	0.02	0.02
	Relief Route	178,000	-	1,200	1,900	1,800	1,900	1,800						

Table 6: Peak Period Volume-to-Capacity Ratio on Main Street, East of NE SH 16

Time Period	2020 Model	2040 Model					
		No-Build	Scenario 1 (Option D)	Scenario 2 (Option E)	Scenario 3 (Option F)	Scenario 4 (Option G)	Scenario 5 (Option H)
AM Peak (6:30 AM – 8:30 AM)	0.64	0.93	0.77	0.70	0.72	0.70	0.73
PM Peak (2:30 PM – 6:30 PM)	0.62	0.88	0.75	0.69	0.73	0.69	0.71
Weighted Average	0.63	0.90	0.76	0.69	0.73	0.69	0.72

Summary

This memorandum summarizes the methodology and results of the travel demand modeling that was developed to evaluate five Primary Route Options. The travel demand models were developed for the Primary Route Options using SAM-V3, and 2040 daily traffic and other measures of effectiveness were analyzed for each of the proposed alternatives. The results indicate:

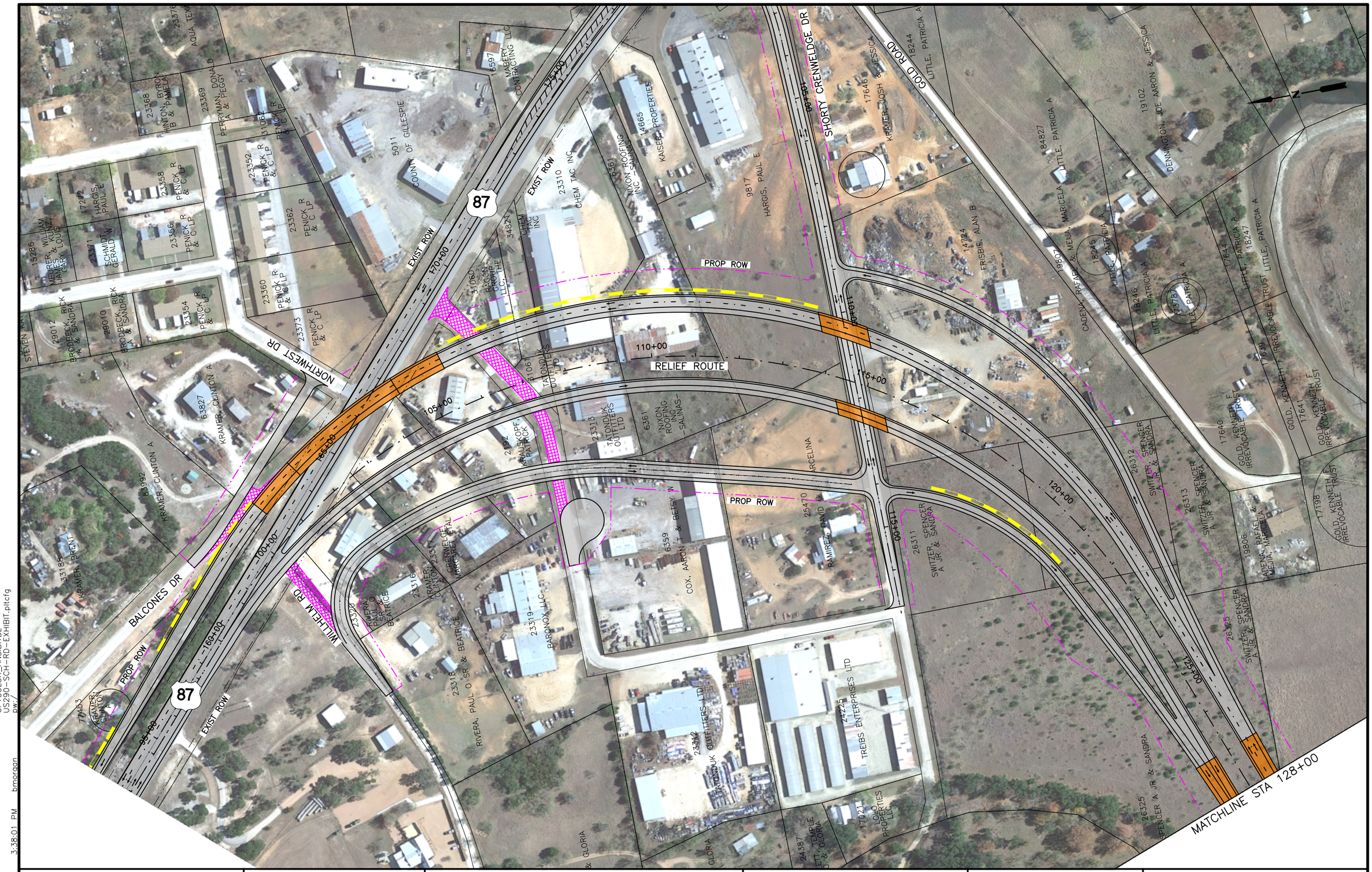
- On Main Street, east of NE SH 16, one of the most congested sections of Main Street, Scenario 2 (**Option E**) and Scenario 4 (**Option G**) shows the greatest reduction in total traffic (**6,400 vpd**), and Scenario 1 (**Option D**) shows the smallest reduction in total traffic (**4,600 vpd**) , when compared with the No-Build scenario.
- On Main Street, east of NE SH 16, Scenario 2 (**Option E**) and Scenario 4 (**Option G**) shows the greatest reduction in heavy trucks (**1,610 trucks per day**), and Scenario 1 (**Option D**) shows the smallest reduction in heavy trucks (**1,480 trucks per day**) when compared with the No-Build scenario.
- In the selected study area, Scenario 2 (**Option E**) shows the greatest increase (**6.1 percent**) in total VMT, and Scenario 3 (**Option F**) shows the smallest increase (**3.7 percent**) in total VMT when compared with the No-Build scenario.
- In the selected study area, Scenario 1 (**Option D**) shows the greatest increase (**19.5 percent**) in heavy truck VMT, and Scenario 5 (**Option H**) shows the smallest increase (**10.9 percent**) in heavy truck VMT when compared with the No-Build scenario.
- In the selected study area, Scenario 5 (**Option H**) shows the greatest decrease (**3.2 percent**) in total VHT, and Scenario 1 (**Option D**) shows the smallest decrease (**1.9 percent**) in total VHT when compared with the No-Build scenario.
- In the selected study area, Scenario 5 (**Option H**) shows the greatest decrease (**38.3 percent**) in heavy truck VHT, and Scenario 4 (**Option G**) shows the lowest decrease (**36.5 percent**) in heavy truck VHT when compared with the No-Build scenario.
- On Main Street, east of NE SH 16, Scenario 2 (**Option E**) and Scenario 4 (**Option G**) shows the greatest improvement (a V/C of 0.69), and Scenario 1 (**Option D**) shows the smallest improvement (a V/C of 0.76), when compared with the No-Build scenario (a V/C of 0.9).

References

1. Statewide Planning Map, Texas Department of Transportation, Austin, Texas, txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html, accessed November 2019
2. Statewide Analysis Model – Third Version (SAM-V3), Texas Department of Transportation, Austin, Texas, October 2013.

Appendix F

(final) Preliminary Schematic of the Technically Preferred Route Option


87
EXIST ROW
PROP ROW
RELIEF ROUTE
SHORTY CRENWELDGE DR
GOLD ROAD
NORTHWEST DR
BALCONES DR
WILLHELM RD
MATCHLINE STA 128+00
95+00
100+00
105+00
110+00
115+00
120+00
125+00
160+00
165+00
170+00
175+00
KRAMER, CLINTON A
KRAMER, BRENT
MEURER, WILLIAM JAMES & LOUIS
HARGIS, PAUL E
SCHMIDT, GERALD W
BRODBECK, RICK A & SANDRA A
PENICK R & C LP
CHEM TAC INC
NIXON ROOFING INC - SALINAS
KAISER PROPERTIES
MABERY CONTRACTING LLC
COUNTY OF GILLESPIE
HINTON, BYRON B & PAMELA
PERRYMAN, DONALD A & PEGGY
AQUA TEXAS
TATONDUK OUTFITTERS LTD
RIVERA, PAUL O SR & BEATRICE
KRAMER, CLINTON A & CRENWELDGE MARGARET ETAL
BARONOX LLC
COX, AARON T & BETSY W
RAMIREZ, DAVID G
TREIBS ENTERPRISES LTD
LOBO PROPERTIES LLC
GLORIA
KRAUSKOPF, PATRICK
KRAMER, CLINTON A
KRAMER, CLINTON A
KRAMER, CLINTON A



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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 2 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 3 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

MATCHLINE STA 178+00

MATCHLINE STA 207+00

ROYAL OAKS LOOP

SQUIRREL RUN

290

RELIEF ROUTE

PROP ROW

EXIST ROW

180+00

185+00

190+00

195+00

200+00

205+00

125+00

130+00

120+00

115+00

N

WILLIAMSON, MARC & CAMILLE 81858

81984 FREDBG JUNIOR CHAMBER OF COMMERCE

BOHNERT, NEAL W & BOHNERT, ROBERT F 77147

FLETCHER, FREDERICK A & TEDDI 15017

FLETCHER, FREDERICK A & TEDDI 15018

CARRELL, JAMES RICHARD & HASSON, SHELLEY KAY 25808

HAMILTON, TAWA & PATRICIA 11878

JUENKE, RANDELL & SHELLEY 25880

CLAYTON W & JANELL S ITZ 69329

ITZ, CLAYTON W 77145

FLETCHER, FREDERICK A & TEDDI 70582

FRITZ, KODY 105710

FRITZ, KEVIN & SUSAN 82232

FRITZ, KEVIN & SUSAN 82234

FRITZ, KEVIN & SUSAN 82233

FRITZ, GERALD W 15033

FRITZ, GERALD W 15030

KEG TEXAS 1 NORTH PROPERTIES LLC 13960

GOEHMANN, MARK A 2513

GOEHMANN, MARK A 2514

RODE, WAYNE E & SHERRY K 13963

WUNDERLICH, RANDALL & ELIZABETH 50185

WAHL, TERRY W 17888

RISTAU, RICKY R & VICKI 81021

HALL, GENE 101802

WOMACK, DOYAL 22978

VANN, JAMES & HALEY 70025

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

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FREDERICKSBURG RELIEF ROUTE

SHEET 4 OF 27

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MATCHLINE STA 207+00

MATCHLINE STA 237+00

N

PIONEER ORCHARD

65369 GRANADO, RAY H & CORINA

65370 GRANADO, RAY H & CORINA

65371 GRANADO, RAY H & CORINA

92911 KLOWER, STEVEN & CHRISTY

24786 REEH, WALTON & WANDA - LIFE ESTATE -

EXIST ROW

WEST LIVE OAK STREET

115+00

110+00

105+00

100+00

PROP ROW

RELIEF ROUTE

210+00

215+00

220+00

225+00

230+00

235+00

24064 VANN, JAMES & HALLEY E

70025 VANN, JAMES & HALLEY E

13962 GRANADO, RAY H & CORINA

34518 WILKE, MARGARET - LIFE ESTATE -

25733 WILKE, MARGARET - LIFE ESTATE -

91351 GRANADO, CORINA S

33 [illegible] - LIFE ESTATE -

PHESTER, [illegible] - LIFE ESTATE -

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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 5 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 6 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

MATCHLINE STA 266+00

MATCHLINE STA 296+00

RELIEF ROUTE

PROP ROW

PROP ROW

KERR ROAD

PYKA ROAD

270+00

275+00

280+00

285+00

290+00

295+00

109736 JONS, HUGH R JR

16975 STROEHER & OLFERS PROPERTIES

14414 YOUNGBLOOD, JOHN

5784 STROEHER & OLFERS PROPERTIES

27495 HOHMANN, VIOLA H

27496 HOHMANN, VIOLA H

20087 KLEIN, BONNIE WAYNE SUPPLEMENTAL NEEDS TRUST

15888 TRAVIS, RICKEY & CYNTHIA LIFE ESTATE

5783 STROEHER & OLFERS PROPERTIES

16974 GARZA, LEOPOLDO JR

2736 DELGADO, ANDRES & RODRIGUEZ LUZ MARIA

5784 STROEHER & OLFERS PROPERTIES

27496 HOHMANN, VIOLA H

57410 KRAUS, CAROL E

52377 TOONE, GEORGE G

5563 INGRAM ROADWAY NO 1 LLC

16413 STRAUER, ROBERT & ANN MARIE

73963 POGER, LANDIE

16412 HALEY, WILLIAM M JR & COLLEEN M

52376 PETER D & TIMOTHY J

LTD

N

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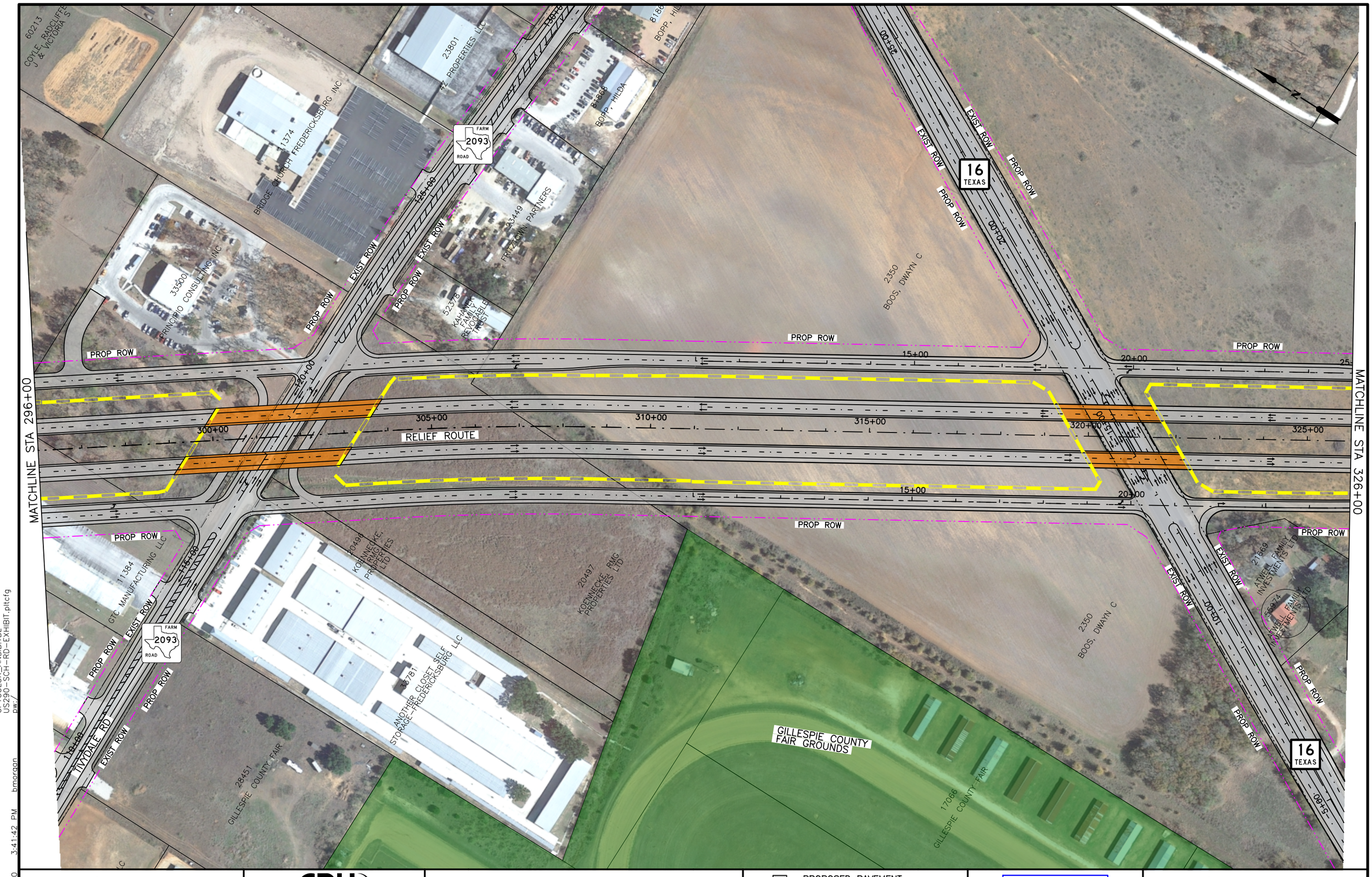
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SHEET 7 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 8 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

MATCHLINE STA 326+00

MATCHLINE STA 355+00

N

SCHMIDT, CHARLES D
25816

HILL COUNTRY MEMORIAL HOSPITAL
57602

SCHMIDT, CHARLES D
33660

PROP ROW

RELIEF ROUTE

10+00
15+00
20+00
25+00
30+00
330+00
335+00
340+00
345+00
350+00
355

RELIEF ROUTE

PROP ROW

HILL COUNTRY MEMORIAL HOSPITAL
57602

BOOS, RICKY DEAN
101068

SCHMIDT, CHARLES D
25816

HILL COUNTRY MEMORIAL HOSPITAL
24664

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FREDERICKSBURG RELIEF ROUTE

SHEET 9 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

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SCALE FEET

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MATCHLINE STA 384+00

179894
GEORGE, KENNETH TYLER & MELISSA ANNA

87323
TIKA LAND HOLDINGS LLC

87324
MAURER, STEVEN L

10102
WELGEHAUSEN, JAMES A & V RUTH

PROP ROW

PROP ROW

RELIEF ROUTE

HOLLMIG LN

355+00

360+00

365+00

370+00

375+00

380+00

385+00

5+00

10+00

15+00

20+00

N

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FREDERICKSBURG RELIEF ROUTE

SHEET 10 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

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SCALE FEET

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WELGEHAUSEN, JAMES A & V RUTH

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JOHNSON, MALCOM L

19245
JOHNSON, MALCOM L

104875
AYSHEH, JOWAD

22971
WELGEHAUSEN, DALE

22723
MOFFETT, JEAN

PROP ROW

RELIEF ROUTE

385+00 390+00 395+00 400+00 405+00 410+00

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FREDERICKSBURG RELIEF ROUTE

SHEET 11 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

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SCALE FEET

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MATCHLINE STA 442+00

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HSB NORTH LLC

15659
EARHART FAMILY TRUST

76063
RODDY, KENNETH R & SUZANNE

OTTO ECKHARDT RD

71316
GREMMER, GREGORY S & DIANA S

71340
RODDY, KENNETH R & SUZANNE

8065
COYOTE FLATS LLC

32564
OBY, SUE ANN

32567
JACOBY, CHRISTINE

71317
STAFFEL, BRUCE C & EVELYN A

71339
ALLISON, WAYNE & CHARLOTTE LIVING TRUST

ALLISON, WAYNE & CHARLOTTE

CULL

87

PROP ROW

EXIST ROW

RELIEF ROUTE

35+00 40+00 415+00 420+00 425+00 430+00 435+00 440+00

15+00 20+00

25+00 30+00

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181516
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ALBITER, PEDRO & DEYSI

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ALBITER, PEDRO & DEYSI

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CALHOUN, CHERYL

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SCHECK, LAURENCE & ELIZABETH

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ALBITER, JOEL & SILVIA

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ALBITER, JOEL & SILVIA

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ALBITER, PEDRO & DEYSI

101789
ALBITER, GUILLERMINA

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67460
ALBITER, VENANCIO

82216
ALBITER, JOEL & GUADALUPE

74873
ALBITER, VENANCIO

69664
ALBITER, PEDRO & DEYSI

71319
LEATHERS, MICHAEL R & NANCY M

178556
LEATHERS, MICHAEL R & NANCY M

84752
SUMNERS, JOHN C & CHRISTINA

71338
SUMNERS, JOHN C & CHRISTINA

178790
LOCHTE, SOPHIE A

85788
ALDRICH, SAM

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FREDERICKSBURG RELIEF ROUTE

SHEET 12 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

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SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 13 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

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SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 14 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

MATCHLINE STA 500+00

MATCHLINE STA 529+00

OLD SAN ANTONIO RD

DANZ LN

PROP ROW

RELIEF ROUTE

PROP ROW

500+00

505+00

510+00

515+00

520+00

525+00

10+00

25362
ECKERT, MIKE M & DORIS J

5222
ECKERT, MIKE M & DORIS J

30944
EMERSON, CADE & KIMBERLY

84751
LITTLE, BRADFORD P & ANDREA JAN

2212
MASUCCI, TERRY

28155
SPIRIT TS FREDERICKSBURG TX LLC

5223
HALEY, WILLIAM H III & COLLEEN

67226
HALEY, WILLIAM H III & COLLEEN

5192
MORALES, EMILY & BALL, BENJAMIN

MORALES, EMILY & BALL, BENJAMIN

5222
ECKERT, MIKE M & DORIS J

84751
LITTLE, BRADFORD P & ANDREA JAN

182009
KROEGER, W STEVE & NICOLE V

31851
KROEGER, W STEVE & NICOLE V

29863
KROEGER, W STEVE & NICOLE V

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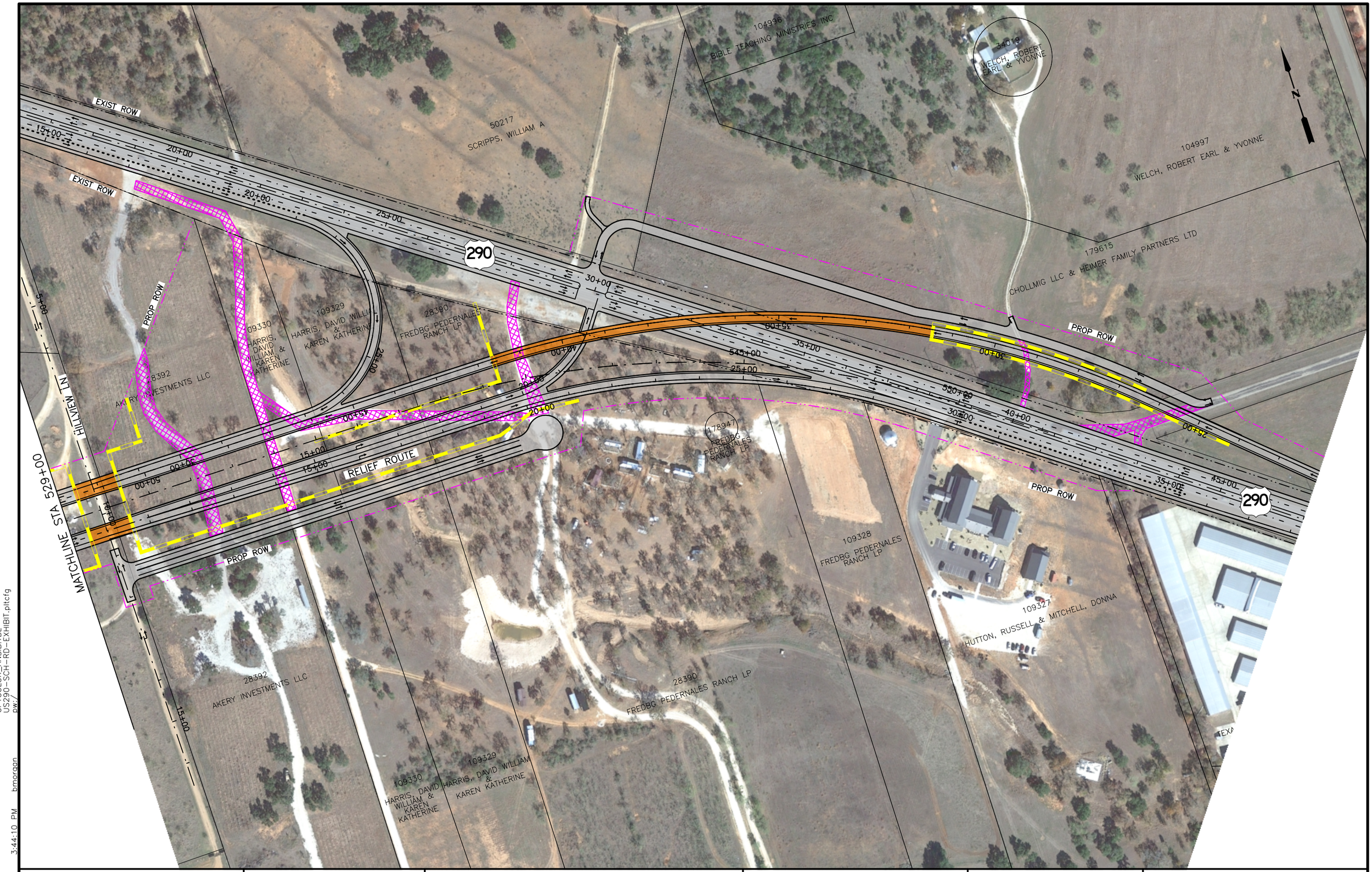
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SHEET 15 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 16 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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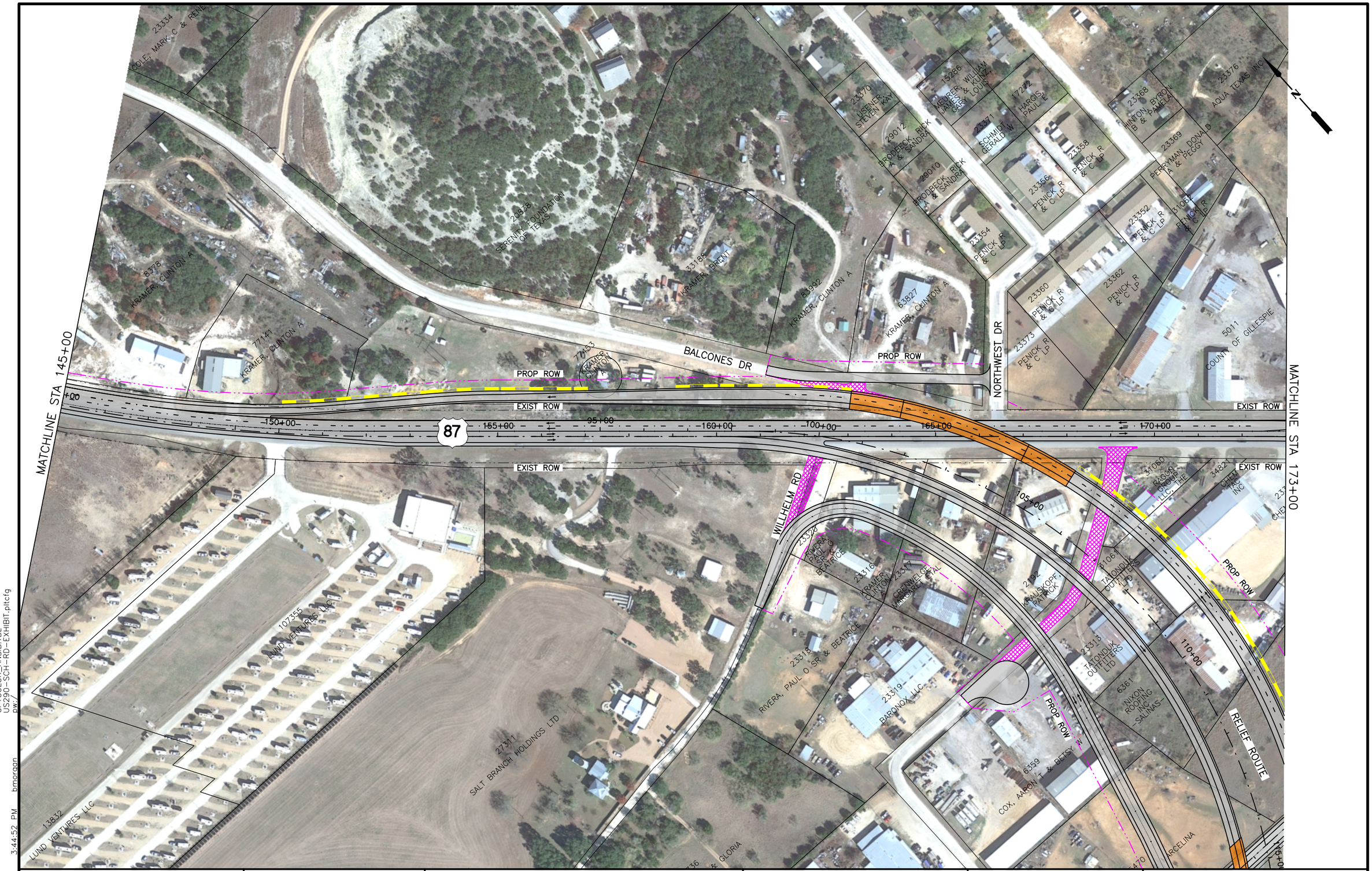
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SHEET 17 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 18 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 19 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 20 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 21 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

52376
DARTEZ, PETER D & TIMOTHY J

52377
TOONE, GEORGE G

57410
KRAUS, CAROL E

27496
HOHMANN, VIOLA H

27495
HOHMANN, VIOLA H

13249
HEARTLAND ENTERPRISES LTD

2902
HERNANDEZ, ZULEIMA & PEREZ,ERNESTO HERNANDEZ

77313
HERNANDEZ, ERNESTO & ZULEIMA

2899
SCHNEIDER KOHORT INC

2897
GOFF, KIM & TINA

83832
ZYGMUNT, MICHAEL DAVID

16412
HAILEY, WILLIAM H II & COLLEEN

73963
POOSER, LADDIE

16413
STRAUBE, ROBERT & LIN MARIE

5563
INGRAM READYMIX NO 1 LLC

11384
GTC MANUFACTURING LLC

33500
PRINCIPIO CONSULTING INC

PROP ROW
EXIST ROW
PROP ROW
PROP ROW
PROP ROW
PROP ROW
PROP ROW

100+00
105+00
110+00
115+00
120+00
295+00
300+00
305+00

TIVYDALE RD

FARM 2093 ROAD

RELIEF ROUTE

MATCHLINE STA 122+00

N

108870
UNIVERSITY SYSTEM OF REGENTS

19388
ATWELL FAMILY INVESTMENTS LTD

34176
ATWELL FAMILY INVESTMENTS LTD

83730
ATWELL FAMILY INVESTMENTS LTD

75160
AJP REAL ESTATE LLC

19390
TIVYDALE BUSINESS PARK LLC

28451
GILLESPIE COUNTY FAIR

17068
GILLESPIE COUNTY FAIR

33781
ANOTHER CLOSET SELF STORAGE-FREDERICKSBURG LLC

20496
KOENNECKE, RMG PROPERTIES LTD

20497
KOENNECKE, RMG PROPERTIES LTD

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TEXAS REGISTERED ENGINEERING FIRM F-1741

FREDERICKSBURG RELIEF ROUTE

SHEET 22 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET

60213
COYLE, RADCLIFFE J & VICTORIA S

20446
OTTMERS, WILBERT & CLARA ANN

1111
SCHROEDER, CHARLES

4841
OAKWOOD RV RESORT OF TEXAS LLC

23451
B & B PARTNERSHIP

10291
KAISER, PROPERTIES

10292
FRANTZEN, ALICIA

10293
ADAMS MARTIAL TRUST

11374
BRIDGE CHURCH FREDERICKSBURG INC

23801
4Z PROPERTIES LLC

2237
OAKWOOD RV RESORT OF TEXAS LLC

16 TEXAS

101435
HAM, BILL ESTATE

N

MATCHLINE STA 122+00

FARM 2093 ROAD

125+00

130+00

135+00

PROP ROW

EXIST ROW

FM 2093/TIVYDALE RD

FRIENDSHIP LN

52378
KAHANEK FAMILY REVOCABLE TRUST

23449
FRITZTOWN PARTNERS

81868
BOPP, HILDA

81867
BOPP, HILDA

67487
MDC COAST 9 LLC

30+00

6459
PF HILL COUNTRY REAL ESTATE LLC

55967
PF HILL COUNTRY REAL ESTATE LLC

25+00

310+00

RELIEF ROUTE

16 TEXAS

33945
HAM, BILL ESTATE

14329
HAM, BILL ESTATE

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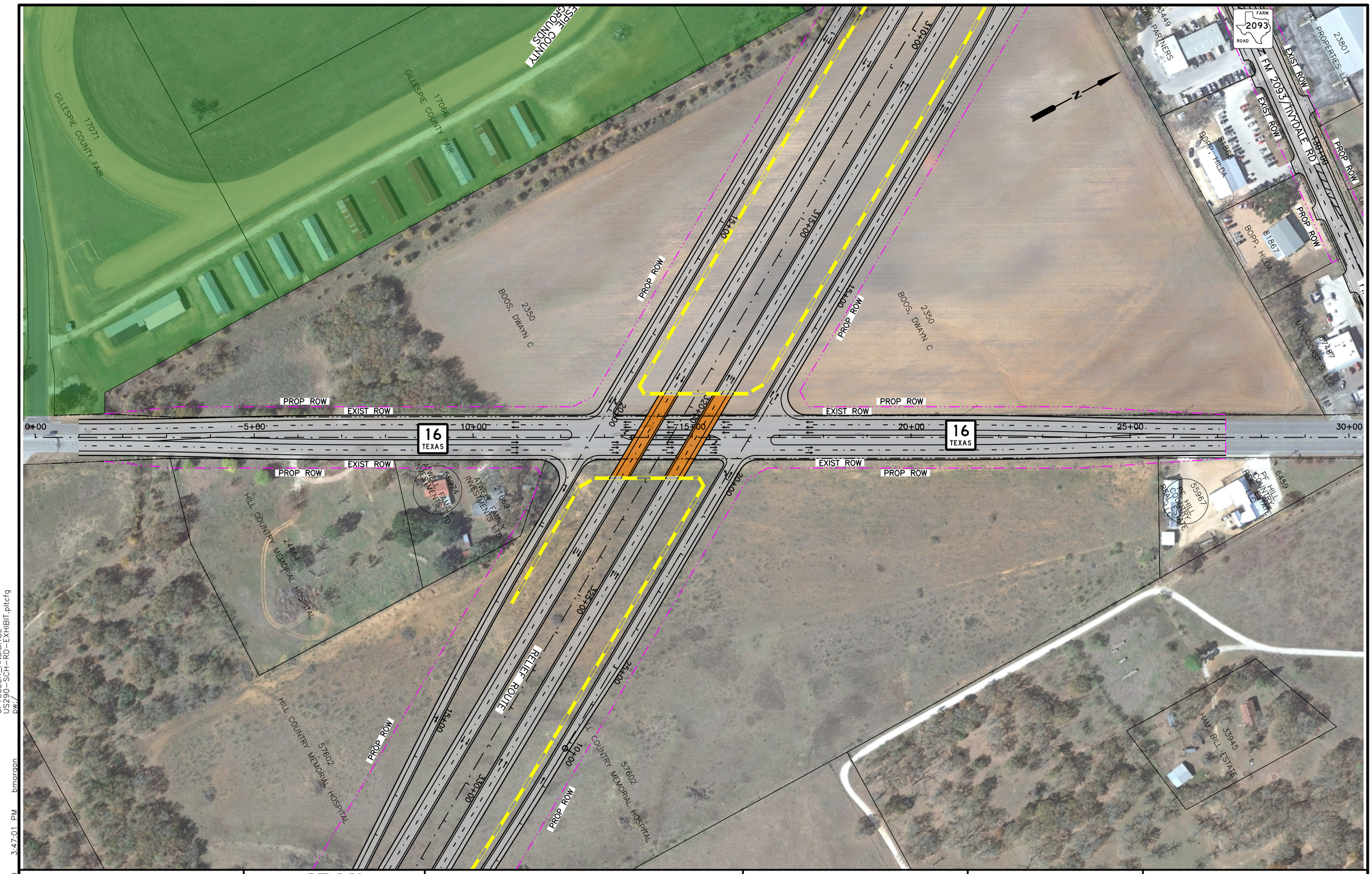
FREDERICKSBURG RELIEF ROUTE

SHEET 23 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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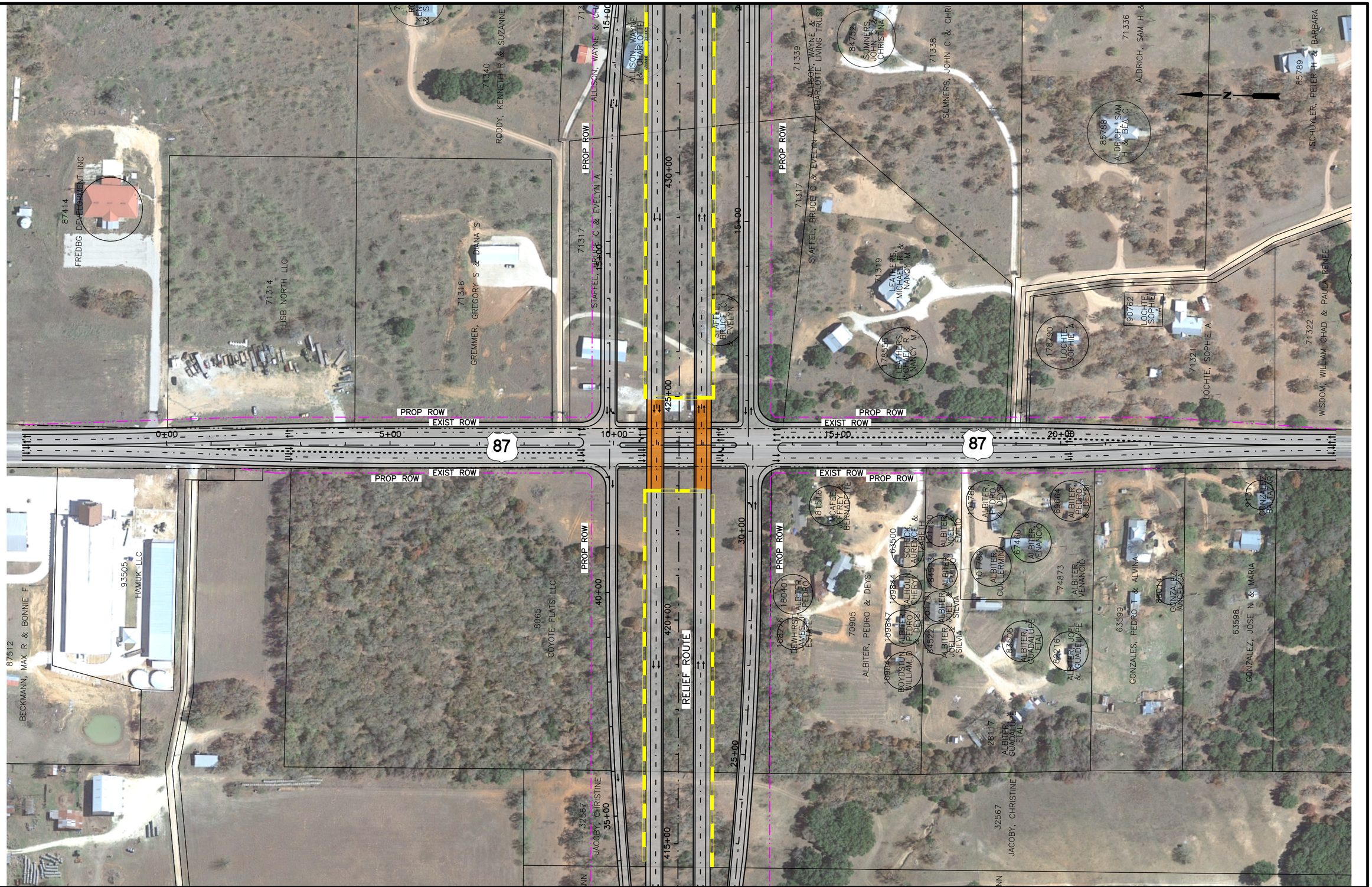
FREDERICKSBURG RELIEF ROUTE

SHEET 24 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 25 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 26 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET



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FREDERICKSBURG RELIEF ROUTE

SHEET 27 OF 27

PROPOSED PAVEMENT
PROPOSED BRIDGE
PAVEMENT REMOVAL
APPROX RETAINING WALL LIMITS

PRELIMINARY
SUBJECT TO CHANGE

100 50 0 100 200
SCALE FEET