

THE FM 150 WEST CHARACTER PLAN: CORRIDOR FEATURES AND THEMES REPORT

Hays County Texas

April 5, 2016



Prepared for:

Hays County Government

Ray Whisenant, Precinct 4
Will Conley, Precinct 3

Prepared by:

K Friese & Associates

1120 S Capital of Texas Hwy
Suite 100
Austin, Texas 78746

In association with:

CD&P, Austin, Texas

Hicks & Company, Austin, Texas

HNTB Corporation, Austin, Texas

Kittelson & Associates, Inc., Portland, Oregon

Prime Strategies, Inc., Austin, Texas



(back of cover)

ACKNOWLEDGEMENTS

COMMISSIONERS

Commissioner Will Conley, Hays County Precinct 3
Commissioner Ray Whisenant, Hays County Precinct 4

CITIZEN ADVISORY PANEL

David Braun
Casey Cutler
Dennis Dement
Shelby Eckohls
Sharon Michaelis
Mark Oechsner
Roger Pruitt
Maile Roberts
Judge Bob Shannon
Mike Steinert
Bruce Turbow

FM 150 WEST CHARACTER PLAN STUDY TEAM

K Friese & Associates, Inc. (KFA)

Greg Blackburn
Joseph Cantalupo
Dan Cryan
Joseph Skidmore

--- *with* ---

Concept Development & Planning, LLC (CD&P)

Albert Castro
Arin Gray
Julie Richey

Hicks & Company

John Kuhl
Julie LeClair

Kittelson & Associates, Inc. (KAI)

Kelly Laustsen
Brian Ray

FOR HAYS COUNTY

HNTB Corporation

Laura Harris
Stephanie Russell

Prime Strategies, Inc.

Paula Gruber
Mike Weaver



Public Meeting #2



Citizens Advisory Panel Meeting #6A

The Hays County Commissioners Court, the Citizens Advisory Panel, and the Study Team wish to thank The Salt Lick and the Driftwood Community Center for their generous donation of space and services throughout the study process.

Page left intentionally blank

PREFACE

This report documents the unique and proactive approach the Hays County Commissioners Court has taken to ultimately develop a long-range master plan for establishing the future form and function of FM 150. When completed, the master plan, which is also called the FM 150 West Character Plan, will serve as the “blueprint” from which future FM 150 corridor projects are developed. A long-range master plan approach will result in an FM 150 roadway facility that will serve forecasted growth while protecting the unique history, heritage, rural, and natural character of this portion of Hays County. This Corridor Features and Themes Report documents the process used to define the nature and character of roadway elements that are to be preserved and protected, to the extent possible, while considering long range FM 150 corridor improvements. A master plan approach, via the FM 150 West Character Plan, is the means of integrating the unique natural and developed features along the FM 150 corridor between Dripping Springs and Kyle through the years – well outside the typical timeline of constructing projects. This Character Plan will set foundation for future County Commissioners, project stakeholders, and the community.

The approach for this Character Plan is considered unique and proactive because both stakeholders and the public were heavily engaged early in the planning process. This is not a traditional study approach where plans are quickly established to facilitate immediate impending construction. These FM 150 corridor evaluations are occurring long before roadway congestion or public safety needs are acute. The study efforts described in this document are in advance of when traditional environmental documentation typically occurs. This proactive approach means the community has time to engage in a meaningful way without agency teams being rushed to meet imposed deadlines, or otherwise truncate the stakeholder outreach efforts.

A first step in developing the Character Plan has been documenting the corridor’s features and themes, which will be used to guide future planning activities. This report describes this work, which has been driven and guided by extensive community outreach. This outreach has been characterized by the strong passion and ownership of those who serve in County-appointed roles on the Citizens Advisory Panel (CAP), and demonstrated commitment and participation by local property

owners and the community at large. These community partners have devoted an unprecedented amount of time to articulate and share key qualities and characteristics of the area. The features and themes they have identified form the foundation upon which the technical transportation corridor planning will be completed. The local community has helped define timelines of early and subsequent settlements, shared information about caves and other natural features, and revealed special places that represent connections to their family roots that may otherwise have been lost. It is this information that has helped the technical team understand critical corridor elements to be documented and protected when developing a plan to meet impending long term growth and associated transportation demand.

Hays County is developing and integrating new and emerging methods and technical approaches to ensure future corridor concepts are developed in flexible ways. Flexibility in highway design and performance-based approaches allow the range of solutions to be adaptive and better integrated into the natural and developed environment. Historical highway design has used a brute force method to cut, fill, and straighten roadway alignments. Wider is not always better. Straighter is not always safer. Adding roadway capacity does not mean the traffic must go faster. FM 150 is a continuous corridor from Dripping Springs to Kyle however; the corridor itself is a composite of unique and special character zones. Employing performance-based approaches means an ultimate master plan for FM 150 can be integrated into the surrounding landscape and consider the discrete and unique contexts along the entire corridor.

This is the first step in a series of incremental corridor development activities. Future stages will include:

- delving in deeper to further ensure specific corridor needs commensurate with the study context;
- integrate project stakeholders and the community at large as more refined solutions are developed and prioritized;
- refined solutions will integrate the nature and character of the corridor’s physical form into the surrounding landscape; and

- as needs are better defined and prioritized, they will be documented in a master plan (the Character Plan) that defines the corridor improvement plan over time.

The activities documented have led to a continuum of project improvements to enhance the safety, performance, and reliability of the corridor. Many of the initial activities could be programmed with routine pavement and roadway maintenance and management activities. These initial actions would be relatively low impact and occur within the corridor right of way. Initial study elements could be safety focused, such as widening shoulders and improving or creating clear areas next to the roadway. Isolated intersection designs could include elements that make the intersection presence more pronounced and visually apparent so drivers can react and adapt to the increased conflicts at public roads or driveways.

In future steps for FM 150-specific needs and for other non-FM 150 projects that may result, Hays County is committed to a transparent process that continuously and meaningfully engages and integrates community ownership, commitment, and passion. More significant corridor treatments will include proactive and collaborative planning processes, tailored to each project need. This Corridor Features and Themes Report sets the tone for future work on FM 150.

Page left intentionally blank

TABLE OF CONTENTS

1	OVERVIEW AND PURPOSE.....	3
1.1	BACKGROUND	3
1.2	PURPOSE OF REPORT.....	6
1.3	NEXT STEPS.....	6
2	STUDY GOALS.....	9
3	PUBLIC INVOLVEMENT	13
3.1	CITIZEN ADVISORY PANEL ACTIVITIES	13
3.2	PUBLIC MEETINGS	14
3.3	ADDITIONAL MEETINGS.....	16
4	CORRIDOR OPPORTUNITIES AND CONSTRAINTS	21
4.1	EXISTING LAND USES	21
4.2	KEY FEATURES AND POINTS OF INTEREST.....	21
4.3	CULTURAL AND ENVIRONMENTAL RESOURCES.....	21
4.4	CORRIDOR CONTEXT ZONES.....	27
5	EXISTING CONDITIONS	33
5.1	INTERSECTION VOLUMES AND OPERATIONS.....	33
5.2	ROADWAY VOLUMES	33
5.3	CRASH HISTORY	35
5.4	CORRIDOR SPEEDS.....	41
5.5	EXISTING CROSS SECTION.....	43
6	FUTURE PLANNING FRAMEWORK	47
6.1	CONTEXT SENSITIVE SOLUTIONS APPROACH.....	47
6.2	FEATURES AND THEMES.....	48
6.3	FORECAST TRAFFIC	51

7	CONTINUUM OF IMPROVEMENTS	55
7.1	FUTURE ALIGNMENT AND CONCEPTS.....	55
8	NEXT STEPS	69
9	REFERENCES.....	73

VOLUME 2 (TECHNICAL APPENDICES)

SECTION 1: Land Use Figures

SECTION 2: List of Land Uses

SECTION 3: Potential Environmental and Cultural Constraints Figures

SECTION 4: List of Vegetation

SECTION 5: Intersection Turning Movement Counts and Operations

SECTION 6: Roadway Tube Counts

SECTION 7: Crash Data

VOLUME 3 (PUBLIC MEETING REPORTS)

SECTION 1: October 2014 Meeting Report

SECTION 2: March 2015 Meeting Report

SECTION 3: October 2015 Meeting Report

Page left intentionally blank

LIST OF EXHIBITS AND TABLES

Exhibit 1. Hays County Transportation Plan Major Thoroughfares.....	3	Exhibit 26. Crashes by Type versus Severity.....	36	Exhibit 49. FM 150 at RM 3237.....	60
Exhibit 2. Study Area.....	4	Exhibit 27. Crashes by Location versus Severity.....	36	Exhibit 50. Existing Roadway (westbound approach on FM 150)	60
Exhibit 3. Project Schedule.....	5	Exhibit 28a. Crash Type (a)	37	Exhibit 51. Conceptual Future Improvements.....	60
Exhibit 4. Low Water Crossing on FM 150.....	9	Exhibit 28b. Crash Type (b)	38	Exhibit 52. RM 3237 to Double Low Water Crossings.....	61
Exhibit 5. Michaelis Ranch.....	9	Exhibit 29a. Crash Severity (a)	39	Exhibit 53. Existing Roadway (traveling westbound on FM 150).....	61
Exhibit 6. CAP Meeting #6 – August 2015.....	13	Exhibit 29b. Crash Severity (b)	40	Exhibit 54. Example of potential future cross section (Winter Mills Parkway)	61
Exhibit 7. CAP Meeting #6 – August 2015.....	13	Exhibit 30. Informational Guide.....	41	Exhibit 55. FM 150 at the Double Low Water Crossings.....	62
Table 1: CAP Meeting Summary.....	14	Exhibit 31. Application Design Speed versus Speed Consistency Methodologies.....	41	Exhibit 56. Existing Roadway (traveling westbound on FM 150).....	62
Exhibit 8: Public Meeting #2 – March 2015.....	14	Exhibit 32. Horizontal Curve Inferred Speed on Corridor.....	42	Exhibit 57. Conceptual Future Improvements.....	62
Exhibit 9: Map Comments from Public Meeting #2.....	15	Exhibit 33. Horizontal curve with a posted (advisory) speed of 45 miles per hour and inferred speed 52 miles per hour.....	42	Exhibit 58. Driftwood Community Zone.....	63
Exhibit 10: Public Meeting #2 Comments – Related Area.....	15	Exhibit 34. Diagram of Existing Cross Section.....	43	Exhibit 59. Existing Roadway (traveling westbound on FM 150).....	63
Exhibit 11: Public Meeting #2 Comments – Theme.....	15	Exhibit 35. Examples of Cross Section along FM 150 corridor.....	43	Exhibit 60. Conceptual Future Improvements.....	63
Exhibit 13: Comments - Reoccurring Topics.....	16	Exhibit 36. Project Develop Process and Associated Activities.....	47	Exhibit 61. North Section.....	64
Exhibit 12: Public Meeting #3 – October 2015.....	16	Exhibit 37. Example Application of Context Sensitive Solutions	48	Exhibit 62. Existing Roadway (traveling westbound on FM 150 at Darden Hill).....	64
Table 2: FM 150 West Character Plan Stakeholder Meetings.....	17	Exhibit 38. Population and Employment Projections.....	51	Exhibit 63. Conceptual Future Improvements.....	64
Exhibit 14: Land Use Study Area.....	22	Exhibit 39. Change in Population (left) and Employment (right) Density 2010 to 2040.....	52	Exhibit 64. Existing Roadway (traveling westbound on FM 150 at RM 12)	65
Exhibit 15: Potential Environmental and Cultural Restraints.....	24	Exhibit 40. Project Timeline.....	55	Exhibit 65. Conceptual Future Improvements.....	65
Exhibit 16. Corridor Context Zones.....	27	Exhibit 41. Near-, Mid-, and Long-Term Improvements.....	55	Exhibit 66. Future Study Area.....	66
Exhibit 17. Driftwood.....	28	Exhibit 42. Safety Section Cross-Section.....	56	Exhibit 67. Existing Roadway (traveling westbound towards Elder Hill Road).....	69
Exhibit 18. FM 150 Traveling Westbound.....	28	Exhibit 43. Safety Section Example from RM 12.....	56		
Exhibit 19. Low Water Crossing.....	28	Exhibit 44. Example Curve Treatment Applications.....	57		
Exhibit 20. Michaelis Ranch.....	29	Exhibit 45. Potential Future Capacity on Corridor.....	58		
Exhibit 21. Approach to Driftwood from the East.....	29	Exhibit 46. South Section (from Arroyo Ranch to RM 3237)	59		
Exhibit 22 Approach to Darden Hill Road from the East.....	29	Exhibit 47. Existing Roadway (traveling westbound on FM 150).....	59		
Exhibit 23. Corridor Peak Hour Volume Patterns.....	33	Exhibit 48. Conceptual Improvements for South Section.....	59		
Table 3. Average Weekday Daily Volumes by Direction.....	33				
Exhibit 24. Tube Count Volumes.....	34				
Exhibit 25. Fatal Crash Locations (January 2010 – June 2014)	35				

Page left intentionally blank

SECTION 1 Overview and Purpose

Page left intentionally blank

1 OVERVIEW AND PURPOSE

1.1 BACKGROUND

The FM 150 corridor runs from Ranch-to-Market Road (RM) 12 in Dripping Springs, through Driftwood and Kyle, to State Highway (SH) 21 east of Interstate Highway 35 (I-35). FM 150 is under TxDOT jurisdiction and ownership while being managed and maintained by Hays County who serves as the steward of the facility.

The FM 150 West Character Plan study is focused on the west portion of FM 150 between RM 12 in Dripping Springs and Arroyo Ranch Road at the north end of Kyle, as shown in Exhibit 2. A separate and distinct alignment study is focused on the portion from Arroyo Ranch Road heading east near I-35. FM 150 is currently a two-lane roadway with limited shoulders. The area surrounding the corridor is rural with primarily low-density residential uses. There are a few areas of commercial development and community centers, which are discussed later in this report.

The character varies along the length of the corridor and contains several community zones, such as the FM 150 and FM 3237 intersection, the town of Driftwood, and the FM 150 and RM 12 intersection. The corridor is valued for its natural beauty, cultural, and historic features. The double low water crossings over Onion Creek are a significant feature for area residents and preservation is a high priority for the community. The corridor is also home to many historical properties and features that hold significant importance to the families that have lived along the corridor for many years, some for more than a century.

The areas surrounding the corridor have grown significantly over the past few decades and are projected to continue to grow and develop. To plan for this growth while preserving the character of the FM 150 Corridor, Hays County has elected to take a proactive approach and begin planning for the future now. This study of the western section of FM 150 is the first step in a series of incremental corridor plan development activities. The purpose of this study is to document the

FM 150 corridor nature and character and plan for potential future improvements to enhance corridor operational and safety performance.

In the future, Hays County roads such as FM 150 are forecast to serve increased travel demand. Specifically, FM 150 will need to accommodate efficient travel between population and employment centers. Population growth is primarily concentrated in San Marcos, Kyle, and Buda and the County roads serving these areas are expected to become more congested if no improvements are made ahead of time.

2013 Hays County Transportation Plan

The 2013 Hays County Transportation Plan (HCTP, Reference 1) was adopted in January 2013 to update the County's previous 10-year old plan. Since the 2013 HCTP was adopted population and employment projections have increased beyond original projections. The HCTP accounts for recent population growth (around 60,000 people have moved to the County since the last plan was adopted) and considers future growth corridors. Developing the HCTP included extensive involvement of the community through several public workshops and advisory groups. The HCTP identifies current and future transportation needs and seeks to maintain and improve mobility and accessibility throughout the County, as seen in Exhibit 1. The HCTP includes a major thoroughfare plan to preserve the

right-of-way needed for future transportation facilities. The HCTP follows the County's philosophy of focused improvements, which looks to serve forecast travel demand by:

- improving the safety and efficiency of roadways when opportunities arise;
- adding capacity to certain, key roadways; and,
- adding new roadways only when needed.

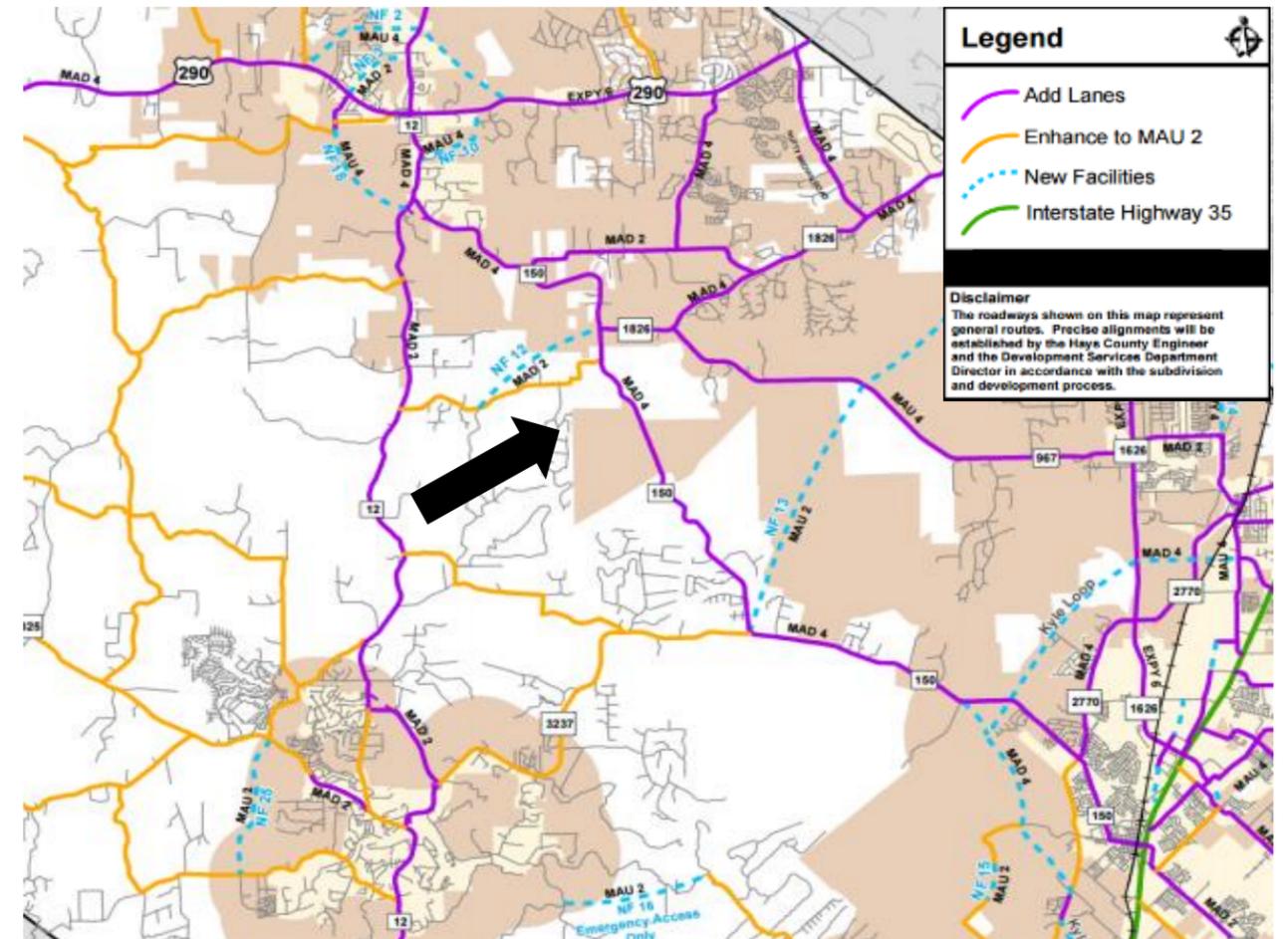
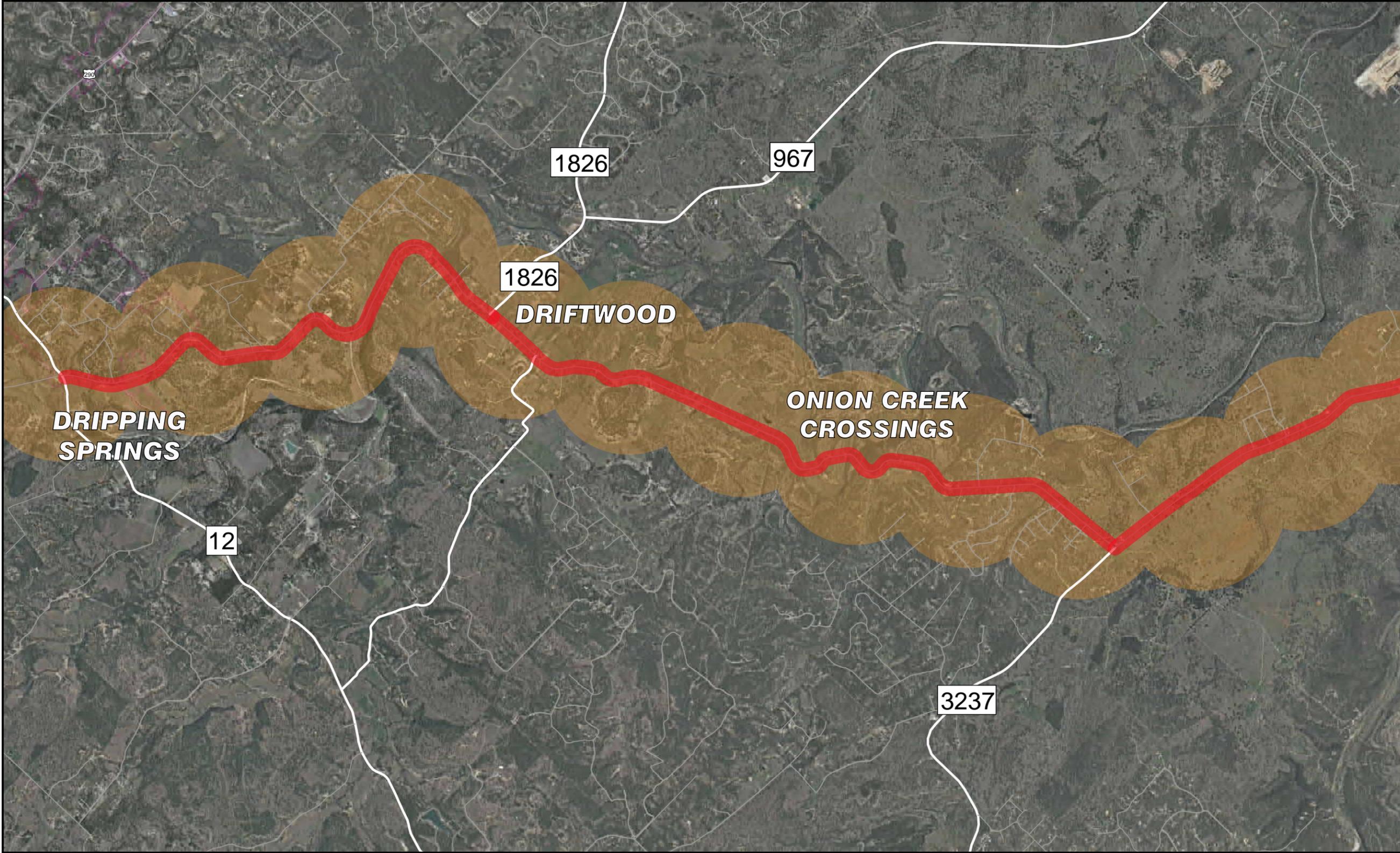
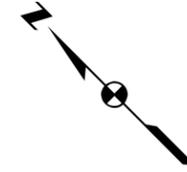


Exhibit 1. Hays County Transportation Plan Major Thoroughfares

-  Study Corridor
-  Existing FM 150 Alignment




HAYS COUNTY

EXHIBIT 2:
FM 150 STUDY
CORRIDOR

The HCTP identified FM 150 as a four-lane roadway with a 150 feet right-of-way in the major thoroughfare plan. However, it did not specifically define how those four-lanes would be provided, what the roadway would be like, or the timing of the improvements. The right-of-way width noted for FM 150 is for planning purposes only, and the details of the roadway width and right-of-way are intended to be worked out in more focused planning efforts, like the FM 150 West Character Plan study. The map in Exhibit 1 shows the portion of the HCTP major thoroughfare map around FM 150. As seen in the exhibit, FM 150 and several of the roadways in the area are planned for future expansion.

As the County’s Pass-Through Finance and Priority Road Bond programs are moving into their final stages of development and construction, the County has initiated its next roadway improvement program: the Hays County-Texas Department of Transportation (TxDOT) Partnership Program. The Partnership Program was formalized in the summer of 2013 when the Texas Transportation Commission committed \$40 million of construction funding to the program. The County is funding this study, as well as the FM 150 Alignment Study with a focus on corridor preservation.

The County has been clear in the value and importance of the entire FM 150 corridor and its desire to develop solutions meeting the long-term objectives of the HCTP. The County has also been clear that whatever the ultimate solutions might be, it must address and honor the unique and similar context zones within the corridor. Finally, solutions for this portion of FM 150 must integrally tie into the FM 150 Alignment Study west of downtown Kyle (“East”) project. As such, the vision for this west segment of FM 150 must satisfy two needs:

1. the county-wide need to provide sufficient capacity to serve forecasted growth, and
2. the more local need to provide safe and efficient travel without compromising community character, integrity, values, and assets.

This FM 150 West Character Plan study began in October 2014 with a public workshop and the first phase was completed in early 2016. An

overview of the study schedule is provided in Exhibit 3, which highlights public workshops and Citizen Advisory Panel (CAP) meetings throughout the study. The first public workshop in October 2014 introduced the study to the 129 community members in attendance by providing an overview of the purpose of the study and the HCTP, along with county growth projections to illustrate the future need for improvements. A CAP of community stakeholders was appointed by the Hays County Commissioner’s Court for the study team to present preliminary ideas and themes to at regular progress meetings and gather valuable input throughout the duration of the study. The second public workshop in March 2015 presented large-scale maps of the corridor study area to the 93 community members in attendance. The community members provided 178 mapped comments and 35 written narrative comments identifying sensitive areas of concern throughout the corridor.

Among the comments collected, key themes identified include the community’s desire to maintain historical, environmental and aesthetic characteristics of the corridor, concern over the treatment of the existing low water crossings, the desire to preserve the Driftwood community area, and the potential to consider other roadways and future projects in the surrounding area to reduce the amount of additional right-of-way needed along the existing FM 150 corridor.

In response to this public input the study team worked with the CAP to establish study “context zones” to identify areas along the corridor with unique values and characteristics, as well as identified a range of potential FM 150 corridor concept improvements. The final public workshop in October 2015 presented the draft findings and potential concepts and gathered further input and comments from the 228 community members in attendance. The final CAP meeting in January 2016 reviewed the updates to the corridor concepts based on the public meeting. More details on the public involvement are provided in this report.

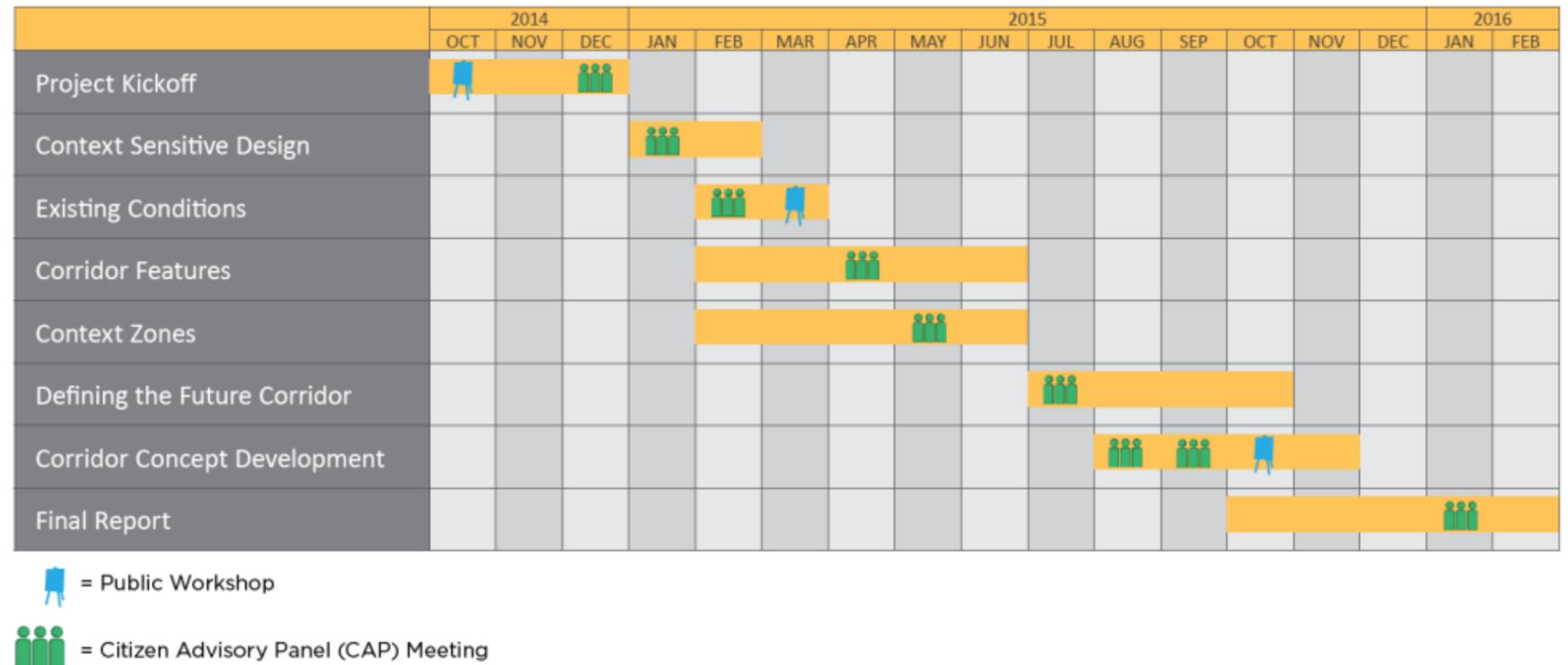


Exhibit 3. Project Schedule

1.2 PURPOSE OF REPORT

This Corridor Features and Themes Report documents the stakeholder outreach and technical activities undertaken to identify corridor-specific and area wide qualities, attributes, and elements that should be considered when investigating the range of alternatives to serve existing and projected travel needs in the vicinity of the FM 150 corridor. The agreed upon features and themes form the basis for considering how to best serve impending travel on FM 150 between Dripping Springs and Kyle while protecting and preserving the unique heritage, natural features, and historical character that makes the corridor area such a special place. The features and themes form the foundation for subsequently developing more specific plans for the types of future projects and the sequencing of incremental construction packages from the vicinity of Arroyo Ranch Road to RM 12 in Dripping Springs. Incremental improvements that initially are founded on safety and evolving to address travel demand will cumulatively serve the long range FM 150 corridor capacity and safety performance needs. This Corridor Features and Themes Report is a milestone and acknowledges and values the extensive time and contributions of the public and community to identify and document the existing features and themes that will shape and form the future projects along and around the FM 150 corridor. This report will help memorialize the work done in this phase of work and allow the findings and recommendations to be appropriately integrated in future study and design efforts.

For reference, Volume 2 of this report (provided in a separate document) includes more detailed technical documentation referenced throughout this report.

1.3 NEXT STEPS

This Corridor Features and Themes Report is the first work product from the FM 150 West Character Plan study. Moving forward, the County intends to undertake more detailed planning processes for segments of the study corridor that will further assess specific needs. While the schedule for these next studies has not yet been defined, they are expected to result in a master plan that identifies incremental improvements to be made overtime. More detail on next steps is presented in Section 8 of this document.

SECTION 2 Study Goals

Page left intentionally blank

2 STUDY GOALS

The goals presented below build from the philosophy established as part of the Hays County Transportation Plan (HCTP) and embrace the concept of context sensitive solutions (CSS). CSS is a collaborative approach to develop transportation facilities in a way that considers the environmental, cultural, and historic character of the area. The County and its citizens have been clear in communicating the value and importance of the entire FM 150 Corridor and their desire to develop a solution meeting the long-term objectives of the HCTP. The County and its citizens have also been clear in stating that whatever the ultimate solution might be, it must address and honor the unique and similar context zones within the corridor. In addition, solutions for this portion of FM 150 must integrally tie into the FM 150 Alignment Study to the east. As such, the vision for this segment of FM 150 must satisfy two needs: the county-wide need to provide sufficient capacity to serve forecasted growth, and the more local need to provide safe and efficient travel without compromising community character and integrity, values, and assets. The overall goals are:

- **Support the safe and efficient movement of traffic within the corridor and through Hays County.** Aside from I-35, FM 150 is one of three primary routes through the County, the others being RM 12 and US 290. FM 150 supports northwest and southeast movements to and from Dripping Springs, Driftwood, Kyle, and I-35. As Hays County and its cities continue to grow at rates above even those experienced and expected for the all of Central Texas, FM 150 must carry the commensurate growth of the traffic. The solutions must serve this forecast demand in a sensible form that maintains the unique and rich heritage and character of the area.
- **Minimize impacts to community resources, cohesion and character.** The County and its citizens understand the value of its resources whether natural, cultural or visual, and the values of community cohesion and character. The corridor study must go beyond technical solutions and work with Hays County citizens to provide solutions that best maintain the natural, environmental, and cultural significance of the corridor. Meaningful and continuous stakeholder engagement will take more time up front; however, in

the long run it will save time (and therefore money) by helping produce a plan that is implementable, integrates County and resident values and culture, and stands the test of time.

- **Support forecasted growth.** Hays County is one the fastest growing counties in Texas and in the Country. The growth is expected to include an influx of residential population, as well as commercial opportunities along the I-35 corridor and throughout the County. Therefore, improvements to FM 150 are needed to support forecasted growth and development. This growth is inevitable and the plan must result in practical and right-sized solutions serving anticipated needs while respecting the community.
- **Integrate principles of context sensitive solutions.** The study process should integrate a range of stakeholders, efficiently use resources of all involved parties, and add lasting value to the community.
- **Develop design options that align with the corridor character and future objectives.** Potential corridor improvements should be cost effective, implementable, and maintainable, while meeting the short and long-term transportation goals of the County.



Exhibit 4. Low Water Crossing on FM 150



Exhibit 5. Michaelis Ranch

Page left intentionally blank

SECTION 3 Public Involvement

Page left intentionally blank

3 PUBLIC INVOLVEMENT

The Hays County Commissioners Court established the most important guiding principle in developing the FM 150 West Character Plan: that it be developed through a community-based process that is transparent, open, and inclusive. The overarching ideas, concepts, and projects identified must stand the test of time. To accomplish this, the Court wanted the Plan developed through a series of phases with an engaging public involvement program. The study team used many outreach tools including developing and closely working with a CAP, conducting public meetings and having outreach meetings with property owners and interested citizens in the area. Study efforts included, coordinating with the media to share information, developing a website, using postcards, advertisements, and signage to promote study meetings, distributing update emails to a growing contact list of over 400 contacts in the study database, and open communications with the public. Below are highlights of major activities and full public meeting reports are available in Volume 3 of this report and on the study website: www.improvefm150.com/nature-character-study.

3.1 CITIZEN ADVISORY PANEL ACTIVITIES

A CAP of 11 local stakeholders was established to represent corridor stakeholders in the development of the Corridor Features and Themes Report. The CAP helped to define the best methods and means of communicating with the public at large. The CAP was selected and appointed by Precinct 3 Commissioner Will Conley and Precinct 4 Commissioner Ray Whisenant. The CAP and study team met 11 times throughout the development of this report. The following are some highlights of CAP activities and contributions:

Highlights:

- Shared valuable input on the area, driving patterns, unique characteristics, and environmental considerations
- Worked with the study team to identify context zones along the corridor
- CAP member developed a video flyover of the study to share input and historical details
- Served as a sounding board to improve the presentation of materials in public meetings
- Helped inform the community of the study and opportunities to participate
- Developed a Driftwood Heritage Corridor concept to identify and preserve the Driftwood character which evolved into two different bypass concepts

Table 1 on the following page provides a summary of CAP meetings held throughout the study efforts.



Exhibit 6. CAP Meeting #6 – August 2015



Exhibit 7. CAP Meeting #6 – August 2015

Table 1: CAP Meeting Summary

Meeting Date	Meeting Purpose	Meeting Highlight
December 9, 2014	Introductory meeting	Overview of the study and schedule
January 15, 2015	Principles of context sensitive solutions (CSS) & context zones	CAP members introduced to CSS and context zones
February 19, 2015	Corridor features, Public Workshop #2 walk through	CAP members participated in mapping exercise used at Workshop #2
April 16, 2015	Public Workshop #2 results, context zones, layering	Overview of Workshop #2 results; open table discussion with study team & Hays County Commissioners
June 18, 2015	Hays County Transportation Plan, Driftwood Heritage Corridor	CAP members participated in a work session on transition zones and intersection safety; 8-minute flyover video shared with team and CAP
July 15 & 16, 2015	Defining the future corridor	Overview of speed and roadway geometry; bicycle and pedestrian travel
August 19 & 20, 2015	Defining the future corridor (Heritage Trail bypass concepts and existing FM 150 corridor)	CAP members participated in a mapping exercise which helped to develop two different bypass concepts
September 17, 2015	Corridor concept recap, Public Workshop #3 walk through	Dry run of Public Workshop #3
January 21, 2016	Corridor features and themes completion	CAP review of public input, review of concepts that will move forward, and wrap up of Phase I

3.2 PUBLIC MEETINGS

Hays County hosted three public meetings at Thurman’s Mansion in Driftwood, Texas that served as opportunities to meet with community members, share study information and collect input. Feedback and input were collected from the community through mapping exercises, comment cards and extensive discussions with study team members. These meetings allowed study team members to continue to update the community on the progress of the study as well as the findings of the CAP.

October 2014

The purpose of this meeting was to introduce the study and process to the community, as well as seek applicants for the study CAP, which worked closely with the county and study team throughout the study.

Highlights:

- 129 attendees
- Received letters of intent to participate in CAP



Exhibit 8: Public Meeting #2 – March 2015

March 2015

The purpose of this meeting was to share background information on the corridor and to collect input. Attendees were able to share input using two different methods, a comment card and mapping exercise. Attendees were asked to leave comments on special characteristics and features along the corridor using color-coded sticky notes that represented five different categories: safety, historical and personal property, environmental, mobility, and aesthetics. These notes were then placed on large environmental data and context zones maps. The study team then categorized and grouped these comments to identify and analyze the corridor priorities and themes shared by participants.

Highlights:

- 95 attendees
- 178 comments collected from mapping exercise
- 35 general comments received via email and mail
- Context zones confirmed through input received

Key themes heard from the workshop:

- Desire to maintain historical, environmental, and aesthetic characteristics of the corridor
- Concerns about treatment of low water crossings
- Desire to preserve Driftwood – consider designation of Driftwood
- Suggestion to consider other roadways and future projects in the area

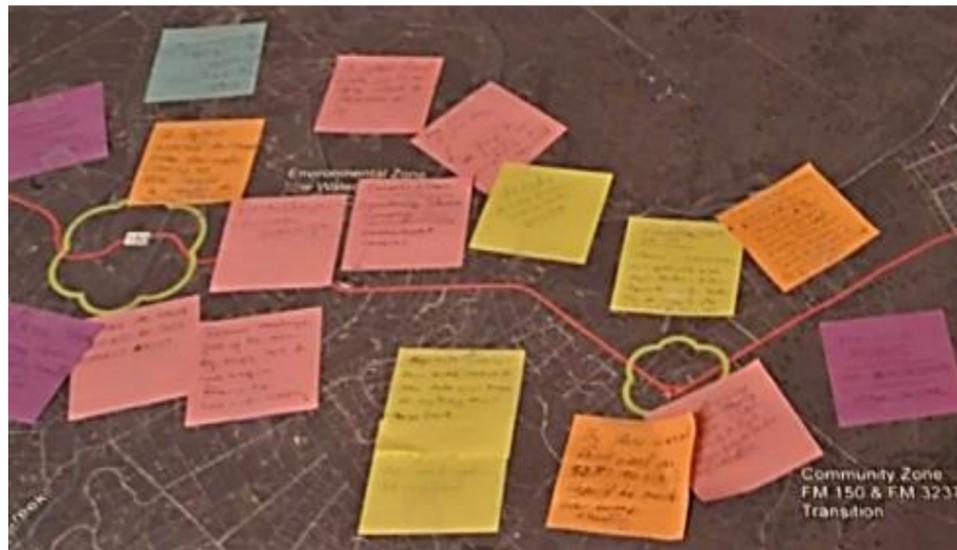


Exhibit 9: Map Comments from Public Meeting #2

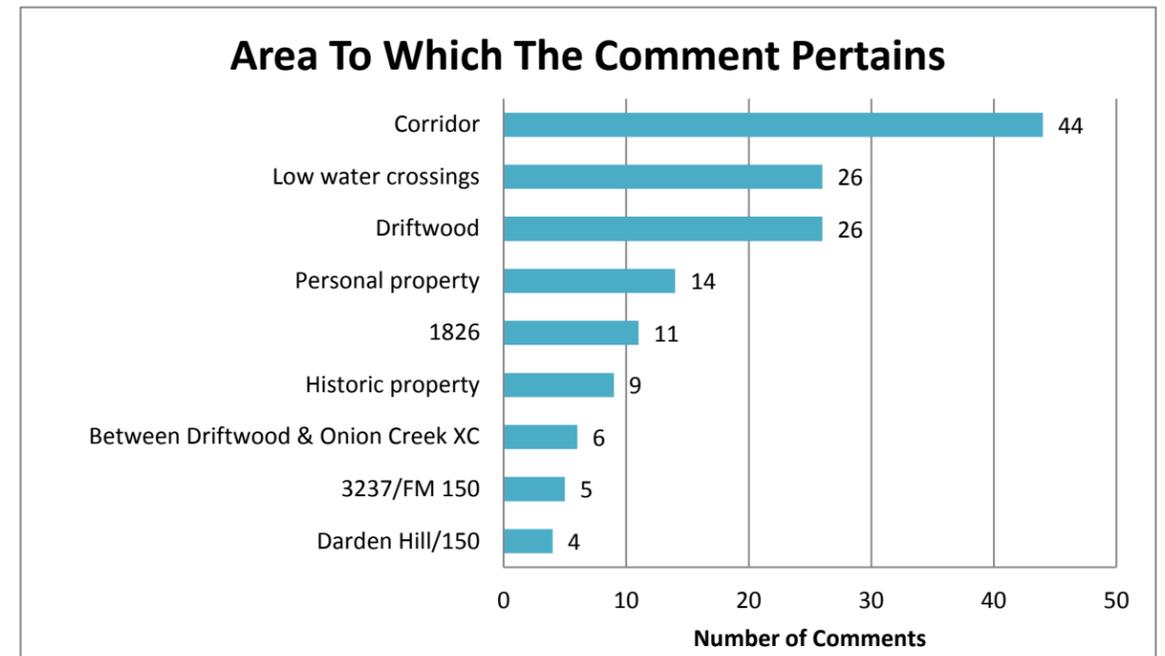


Exhibit 10: Public Meeting #2 Comments – Related Area

Note: graph only shows areas with four or more comments

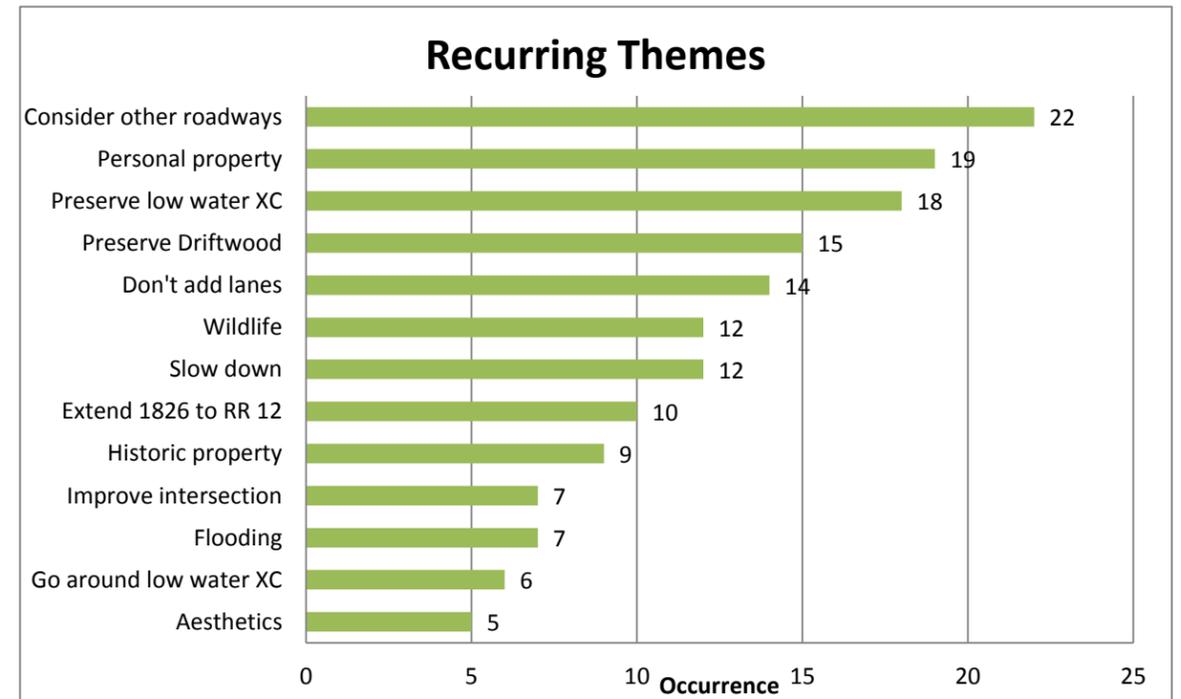


Exhibit 11: Public Meeting #2 Comments – Theme

Note: graph only shows themes with five or more comments

October 2015

The purpose of this meeting was to share study information and process, FM 150 corridor concepts, including concepts for other connecting roadways such as FM 1826 and Elder Hill Road, and to collect comments on the study.

Highlights:

- 228 attendees
- 185 comments received
- A petition was received titled “We will not sell our property for an unnecessary and unwanted road expansion” that generally opposed extending FM 1826 near Elder Hill Road. There were 322 signatures supporting the petition and 128 additional comments.

Key themes heard from the workshop:

- Opposition to the FM 1826 Extension/Elder Hill
- Desire to preserve Driftwood character
- Concern and opposition to expanding FM 150
- Concerns regarding the study process
- Concerns regarding of growth projections and where growth will occur
- Concerns for wildlife, environmental features, and low water crossings

3.3 ADDITIONAL MEETINGS

The study team met with property owners and citizens who requested individual meetings. The purpose of these meetings was to share study information and details while collecting input and addressing individual concerns. The study team and Hays County officials met with over 20 property owners and stakeholders in 19 separate meetings to discuss the study process, and provide updates. The meetings are summarized in Table 2.



Exhibit 12: Public Meeting #3 – October 2015

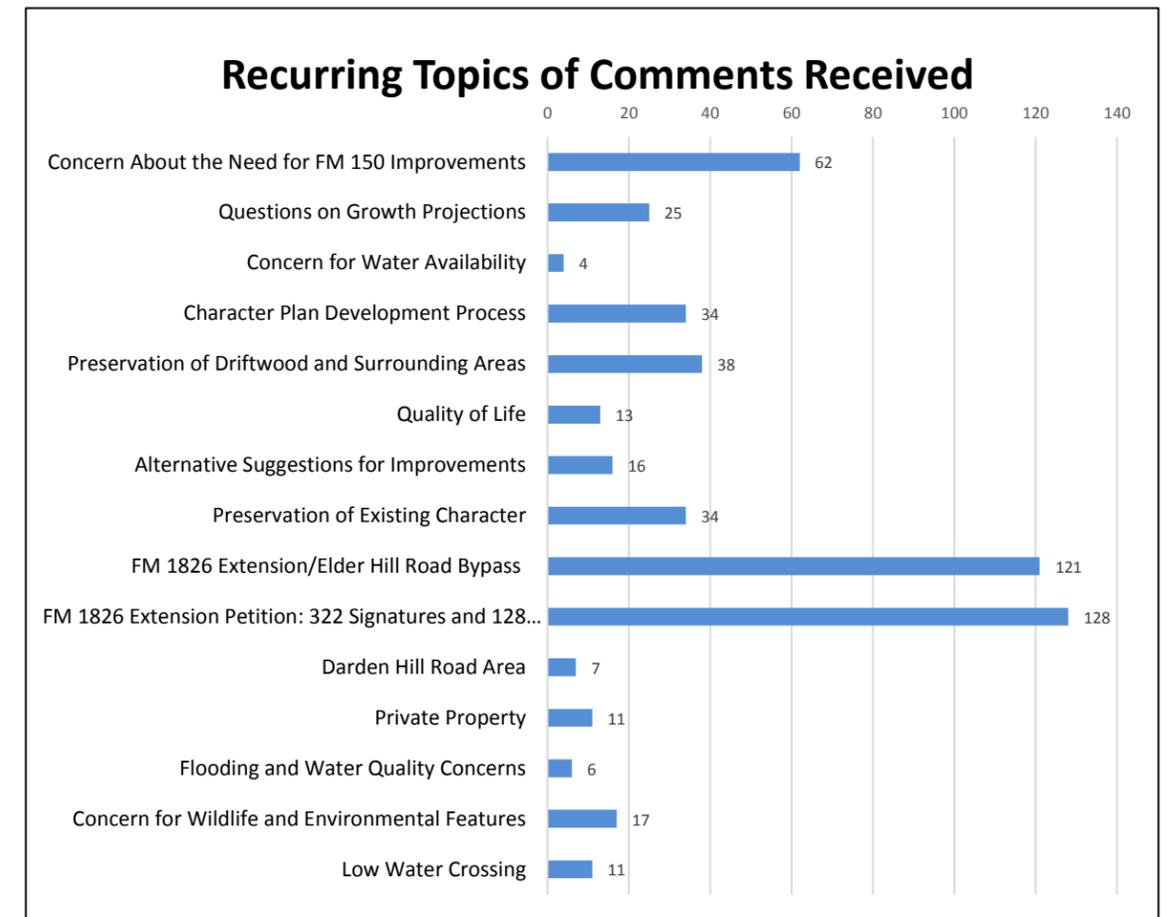


Exhibit 13: Comments - Reoccurring Topics

Table 2: FM 150 West Character Plan Stakeholder Meetings

Stakeholder – References	Meeting Details	Summary
Candy McWilliams– Property owner along FM 150	November 10, 2014	A member of the project team met with Candy McWilliams to discuss the status of the study and the overall process. They toured her family property to get a sense of how it relates to the FM 150 Corridor.
David Braun – CAP Member and representative of several property owners along and near the corridor	February 5, 2015	A member of the project team met with David Braun to discuss the desire of the CAP to meet separately from formal meetings. They discussed how the technical team could support preservation lands along and near the corridor and anticipated study process.
Shelby Eckols – Property owner along FM 150, CAP Member	March 11, 2015	A member of the project team met with Shelby Eckols to discuss the role and intent of the CAP, overall study process, and working with the CAP to promote meeting and attend and answer questions.
Jon Thompson – City of Dripping Springs Planning Director	March 13, 2015	A member of the project team met with Jon Thompson to discuss the status of the study and to coordinate with City on other transportation issues, particularly trail planning.
Susan and Casey Cutler – Property owners along FM 150, CAP Members	March 13, 2015	A member of the project team met with Susan and Casey Cutler to discuss the public meeting, including how to best work with the CAP to promote the meeting and answer questions during the meeting.
Jeff Eichelberger – Property Owner	May 15, 2015	Members of the project team met with Jeff Eichelberger to discuss the project and process. Shared historical details and environmental concerns and noted Driftwood is a strong community.
Casey and Sarah Cutler – Property owners along FM 150, CAP members	May 19, 2015	A member of the project team met with Casey and Sarah Cutler to discuss CAP activities.
Casey and Sarah Cutler, David Braun, and Sharon Michaelis – Property Owners, CAP Members	May 26, 2015	A member of the project team met with Casey and Sarah Cutler, David Braun, and Sharon Michaelis to discuss CAP activities.
Jon Thompson and Ginger Faight – City of Dripping Springs	June 25, 2015	A member of the project team met with Jon Thompson and Ginger Faight, with the City of Dripping Springs to discuss the status of the project.
Casey Cutler, CAP member	August 10, 2015	A member of the project team held a coordination meeting with Casey Cutler, CAP member
George Cofer and Frank Davis of the Hill Country Conservancy	August 11, 2015	Members of the project team held a briefing for George Cofer and Frank Davis of the Hill Country Conservancy.
Jon Thompson, City of Dripping Springs	September 1, 2015	A member of the project team met with Jon Thompson, City of Dripping Springs, to discuss the status of the project
Lisa and Mike Pruitt, Patty Pruitt, Casey Cutler, Nancy and Jim Marroquin – Property owners	September 15, 2015	A member of the project team met with Lisa and Mike Pruitt, Patty Pruitt, Casey Cutler, Nancy and Jim Marroquin to discuss the project history and how Elder Hill Road became part of the concept discussions. Discussed area and concerns that property owners want a process similar to this one for any Elder Hill Road improvements.
Valerie and Eric Anderson, Property Owners	September 16, 2015	Members of the project team met with Valeri and Eric Anderson to discuss the project and process. Discussed concerns of curve smoothing and other improvements along FM 150.
Jeff Eichelberger	October 9, 2015	Members of the project team met with Jeff Eichelberger on his property to view unique characteristics of the area and discuss project process and upcoming public meeting.
Viele Property, Dog Camp owners and Moreau family – Property owners	November 16, 2015	A member of the project team met with Viele Property, Dog Camp owners and Moreau family to discuss project, the process, and upcoming events. Discussed concerns for the area and personal property.
Rusty Haggard, Property Owner	December 16, 2015	A member of the project team and Commissioners Jones and Whisenant met with Rusty Haggard to discuss the status of the study and how it might affect his neighborhood and their pending decision to fund an upgrade of their Roadway to County standards.
Anne Ashmun, Property owner	January 28, 2016	Members of the project team met with Anne Ashmun, property owner adjacent to the Rutherford Ranch.
Anne Ashmun, Property owner	January 28, 2016	A member of the project team met with Anne Ashmun, property owner adjacent to the Rutherford Ranch, and Kevin Thuesen, Environmental Conservation Program Manager with the City of Austin, to discuss the project study and process. They also toured the property located next to Rutherford Ranch managed by the City of Austin.

Page left intentionally blank

SECTION 4 Corridor Opportunities
and Constraints

Page left intentionally blank

4 CORRIDOR OPPORTUNITIES AND CONSTRAINTS

This section provides information on the existing FM 150 west corridor; specifically land uses and cultural and environmental resources. In addition, it summarizes the context zones that were developed based on field observations and stakeholder input to identify areas with similar and unique characteristics.

4.1 EXISTING LAND USES

The FM 150 corridor traverses portions of Dripping Springs, Driftwood, and Kyle entirely within Hays County. Between these communities, land uses in the corridor are characterized primarily as rural residential, as well as some commercial in a matrix of agricultural (primarily ranching) uses. The predominant agricultural land use is changing as large lot residential subdivisions are platted and built along the corridor; however, there are also conversions to open space/conservation easements. Common agricultural land uses include grazing (cow-calf, sheep and goat), vineyard, and wildlife focused operations. Although deep soils are found, row crop agriculture is not currently represented in the corridor's agricultural landscape in this rocky hill country terrain. A summary description of existing land uses and key features at prominent locations along the corridor follows and the overall land use study area is illustrated on Exhibit 14 (more detailed exhibits are provided in Section 1 of Volume 2). In addition to this overview, more detail regarding corridor land uses, including a list and mapped locations of businesses, subdivisions, ranches, community resources and open spaces can be found in Section 2 of Volume 2.

4.2 KEY FEATURES AND POINTS OF INTEREST

- **RM 12 and FM 150 intersection:** This portion of the corridor has primarily commercial and residential land use. One cemetery (Phillips Cemetery), two named residential (Springwood and Howard Ranch Subdivision), and two businesses (Twisted X Brewing Company and Bella Nido B&B) are located at the FM 150/RM 12

intersection. Hays County and the Dripping Springs envision a connection of FM 150 and US 290 West in the future. This would likely carry FM 150 beyond RM 12; where it would connect to US 290 has not been determined. Ultimately connecting FM 150 and RM 12 to US 290 provides an opportunity for future transportation projects to help relieve congestion by diverting the alignment and associated traffic away from the existing RM 12/US 290 intersection. This intersection has numerous land uses that will make this challenging; including existing residential subdivisions, businesses and Phillips Cemetery.

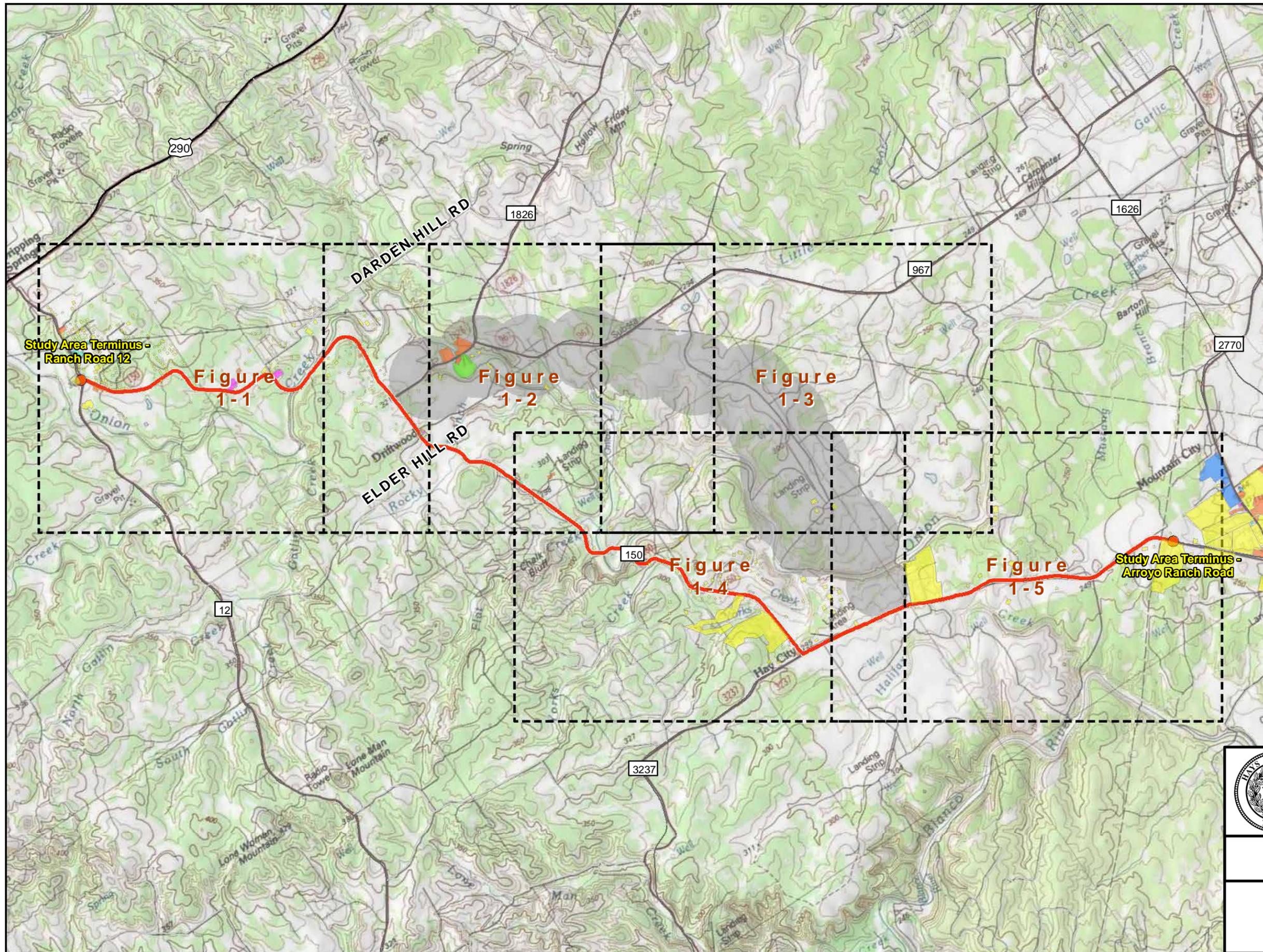
- **Community of Driftwood:** Located on either side of the crossroads of FM 150 and Elder Hill Road, this area is a small but important community. The US Post Office for Driftwood, the Driftwood Community Center, and the Driftwood United Methodist Church and Cemetery are key features in this area. These form the heart of this historical community and are the center of activity for everyday life there. As the traffic increases on FM 150, impacts to daily life and special events in the area, including the annual Driftwood Mayfest, raise questions about the best way to serve future FM 150 demands. Whether to bypass Driftwood or to develop a different concept is a question that will be addressed further through more detailed constraints analysis and extended conversations with the community.
- **Two adjacent low water crossings of Onion Creek:** These crossings signify a valued natural component of the FM 150 corridor to the citizens, many of whom wish for this portion of the roadway to remain untouched. To most that pass through these crossings, it is a place of striking beauty that has come to embody the very essence of iconic, natural Texas Hill Country. However, during and after heavy rain, these crossings flood and become impassable; therefore, a reliable and safe solution needs to be considered for this area. Solutions could include improvements to the existing crossing (e.g., raising the roadway elevation) or a new alignment around the existing crossing.

- **FM 150 and FM 3237 intersection:** This intersection provides a unique challenge for the future of the FM 150 corridor, as the traffic traveling southeast along FM 150 must come to a stop before proceeding east on FM 150. The intersection has several commercial businesses, Hays City Store and Precinct Line Beer & Wine Company, which rely on the FM 150 and FM 3237 traffic. Therefore, any modifications to this intersection must consider smooth and consistent traffic flow while providing the commercial businesses with the necessary infrastructure to flourish.
- **Michaelis Ranch, a National Register of Historic Places property:** Any changes to the FM 150 corridor in this area must consider the significance of the property and other historical properties along the corridor. While there are many known historical properties in the area that are not on the National Register of Historical Places, they are all immensely important to the citizens.
- **Transition to the FM 150 Alignment Study:** Hays County is currently involved in preliminary engineering and environmental documentation of a proposed connection from I-35 to FM 150 in a separate project from this FM 150 West Character Plan. It will be critical to mesh the east and west corridor elements as seamlessly as possible between suburban Kyle and the more rural attributes of the western portion of the corridor.

4.3 CULTURAL AND ENVIRONMENTAL RESOURCES

Natural and human environmental resources evaluated, at this preliminary level, include:

- surface water resources,
- groundwater resources,
- vegetation,
- wildlife,
- community resources, and
- cultural resources.



0 0.625 1.25
Miles
One inch equals 1.25 miles

Key to Features

-  FM 150
-  Bypasses
- Land Use Types**
-  Cemetery
-  Church
-  Commercial
-  Park
-  Public Facility
-  Residential
-  School
-  Utility



HAYS COUNTY

**EXHIBIT 14. LAND USE
FM 150 CORRIDOR**

A full biological (including all listed species) and cultural resources analysis, as well as socioeconomic and demographic analyses for Environmental Justice (EJ) and Limited English Proficiency (LEP) will be necessary during future environmental document preparation stages as projects are identified. Exhibit 15 illustrates the overall study area of potential environmental and cultural resource constraints. Detailed figures illustrating these potential constraints are provided as Section 3 of Volume 2.

Water Resources

Surface Water

The FM 150 corridor traverses the Onion Creek watershed in the Colorado River Basin and the Blanco River watershed within the Guadalupe River Basin. Multiple tributaries to Onion Creek and associated floodplains cross the study corridor and Onion Creek itself crosses FM 150 three times within the study corridor. Other named creeks within the corridor include Flat Creek, Rocky Branch and Yorks Creek. The stretch of Onion Creek within the corridor has been identified by Texas Parks and Wildlife Department (TPWD, Reference 2) as having unique ecological value due to high water quality, diverse aquatic life and high aesthetic value. Future projects would require further analysis to ensure compliance with local, State and Federal laws, such as Sections 404, 401, and 402 of the Clean Water Act, as well as coordination with the local floodplain administrator.

Groundwater

Portions of the FM 150 study corridor are underlain by the Edwards Aquifer; one of the most productive aquifers in the country. The Barton Springs Segment of the Edwards Aquifer lies beneath the FM 150 corridor and is the middle of three hydrogeologically distinct segments. This segment flows from an area north of Kyle to its major discharge at Barton Springs in Austin, Texas. This aquifer is composed of partially dissolved limestone making it highly permeable and therefore vulnerable to surface pollutants. Because of this permeability, water levels and spring flows respond quickly to rainfall, drought, and pumping (Reference 3). Recharge to the Edwards is primarily from

percolation of surface water through faults and fractures, direct infiltration of precipitation, and internal flow of groundwater from the adjacent Trinity Aquifer (Reference 4). The aquifer's primary use is for municipal, irrigation, and recreational purposes (Reference 3). A review of the Texas Commission on Environmental Quality and the Texas Water Development Board records was conducted to identify documented water well locations. Documented wells, springs, and known cave areas that occur within the FM 150 study corridor are illustrated in Figures 1-1 through 1-5 in Section 3 of Volume 2.

Title 30 Texas Administrative Code (TAC) Chapter 213 defines rules that address activities that could pose a threat to water quality in the Edwards Aquifer, including wells and springs fed by the aquifer and water sources to the aquifer, including upland areas draining directly to it and surface streams. These rules, often referred to as the Edwards Aquifer Rules, apply specifically to the Edwards Aquifer in eight counties including Medina, Bexar, Comal, Kinney, Uvalde, Hays, Travis and Williamson. The rules are not intended for any other aquifers in Texas. Portions of the study corridor are located within the Edwards Aquifer Recharge, Contributing and Transition Zones (Figures 1-1 through 1-5 in Section 3 of Volume 2); therefore, the Edwards Aquifer Rules, as described in 30 TAC 213, would apply to future projects within the FM 150 study corridor.

Vegetation

A description of FM 150 vegetation from both regional and site specific perspectives follows. Site specific vegetation descriptions are based upon observations made from FM 150 and work done on properties along the corridor. The FM 150 study corridor occurs within the Edwards Plateau ecoregion. This ecoregion is primarily a dissected limestone plateau that is hillier to the south and east where it is easily distinguished from bordering ecological regions by a sharp fault line. The region contains a sparse network of perennial streams. Covered by juniper-oak savanna and mesquite-oak savanna, most of the region is used for grazing beef cattle, sheep, goats, exotic game mammals, and wildlife (Reference 5). The Ecological Mapping Systems of Texas (EMST) GIS database was searched and categorizes vegetation within the FM 150 Corridor into 35 different communities (Reference 6). These

vegetation communities are listed in Section 4 of Volume 2. According to The Vegetation Types of Texas (Reference 7), the FM 150 corridor is situated within a transitional area between Live Oak-Ashe Juniper Parks and Live Oak-Mesquite-Ashe Juniper Parks. These areas vary from open savannah to nearly 100 percent closed canopy oak-juniper woodland with a diverse deciduous tree and understory component.

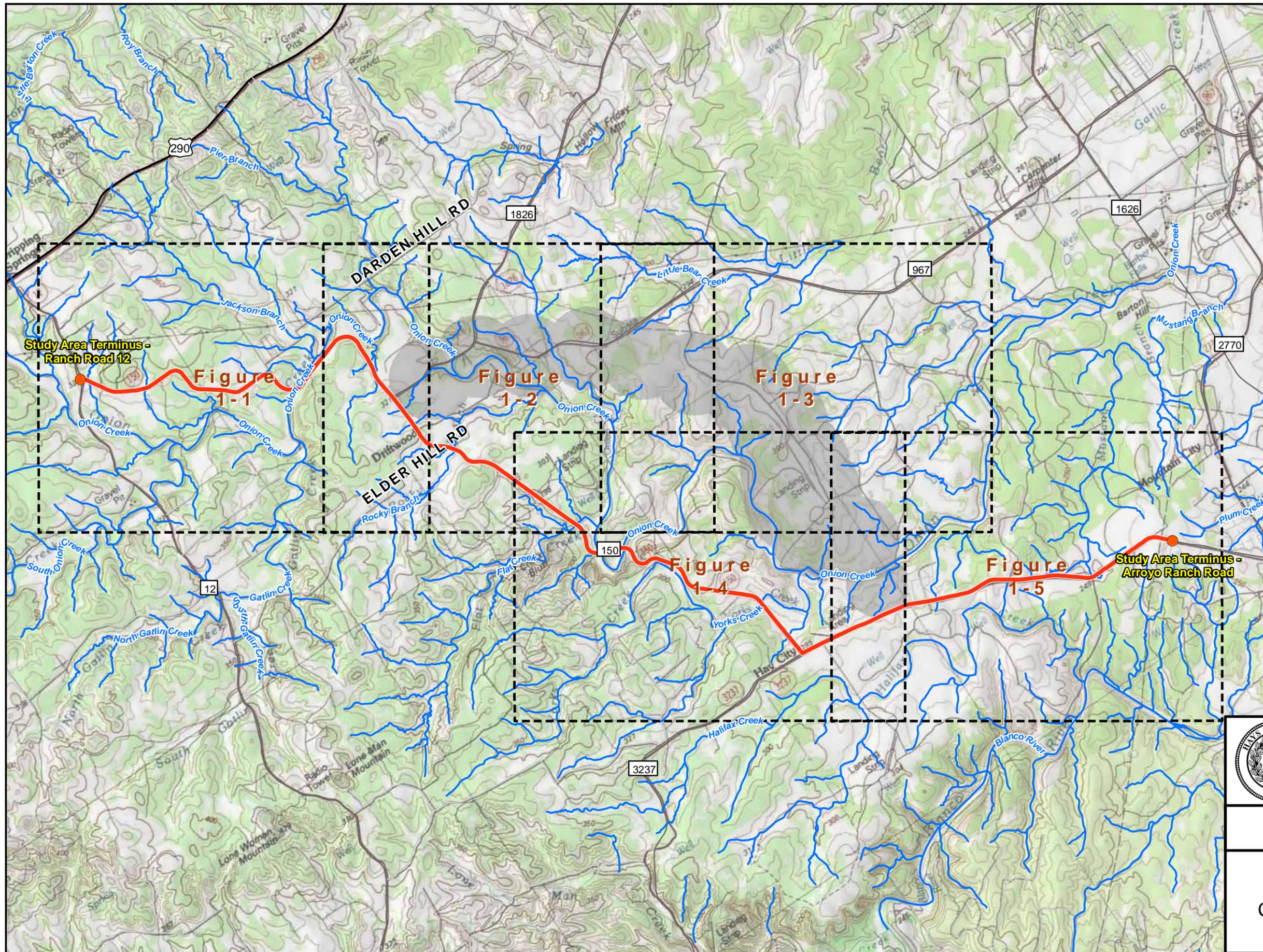
Dominant upland tree species include:

- Ashe juniper (*Juniperus ashei*)
- Plateau live oak (*Quercus fusiformis*)
- Texas oak (*Q. texana*)
- Shin oak (*Q. sinuata var. breviloba*)
- Post oak (*Q. stellata*)
- Cedar elm (*U. crassifolia*)
- Texas ash (*Fraxinus texensis*)
- Cat claw acacia (*Acacia roemeriana*)
- Honey mesquite (*Prosopis glandulosa*)

Typical understory species include saplings of the aforementioned trees, wafer ash (*Ptelea trifoliata*), yaupon (*Ilex vomitoria*), elbow bush (*Forestiera pubescens*), and Lindheimer's silk tassel (*Garrya ovata ssp. lindheimeri*). Giant ball moss (*Tillandsia baileyi*) is commonly found on both overstory and understory trees.

The same species occur in the riparian corridors and canyons along with more mesic adapted tree and shrub species such as:

- Bald cypress (*Taxodium distichum*)
- Pecan (*Carya illinoensis*)
- Black willow (*Salix nigra*)
- Bur oak (*Q. macrocarpa*)
- Escarpment cherry (*Prunus serotina*)
- Sycamore (*Platanus occidentalis*)
- Carolina buckthorn (*Frangula caroliniana*)
- Sugar hackberry (*Celtis laevigata*)
- Deciduous yaupon (*I. decida*)
- Buttonbush (*Cephalanthus occidentalis*)
- Wafer ash



0 0.625 1.25
Miles
One inch equals 1.25 miles

Key to Features

-  FM 150
-  Rivers and Streams
-  Bypasses



HAYS COUNTY

EXHIBIT 15. POTENTIAL ENVIRONMENTAL AND CULTURAL CONSTRAINTS FM 150 CORRIDOR

Typical understory species include saplings of the aforementioned trees, redbud (*Cercis canadensis var. texensis*), yaupon, and elbow bush. Woody vines are most commonly found along tributary and creek corridors and include grapevines (*Vitis sp.*), greenbriar (*Smilax bonanox*), and poison ivy.

Typical woody species along woodland edges and/or in open areas include:

- Agarita (*Mahonia trifoliolata*)
- Mountain laurel (*Sophora secundiflora*)
- Eve's necklace (*Sophora affinis*)
- Texas persimmon (*Diospyros texana*)
- Texas kidneywood (*Eysenhardtia texanum*)
- Twistleaf yucca (*Yucca rupicola*)
- Prickly pear (*Opuntia engelmannii*)
- Pencil cactus (*O. leptocaulis*)
- Horse creeper (*Echinocactus texensis*)
- Lace cactus (*Echinocereus reichenbachii*)

Typical woody species in disturbed and/or open areas include chinaberry (*Melia azedarach*), poverty weed (*Baccharis neglecta*), and fragrant mimosa (*Mimosa borealis*).

Common herbaceous species in shaded areas and/or along riparian corridors include:

- Cedar sedge (*Carex planostachys*)
- Cedar sage (*Salvia roemeriana*)
- Annual pennyroyal (*Hedeoma acinoides*)
- Scarlet leatherflower (*Clematis texensis*)
- Widow's tears (*Commelina erecta*)
- Frostweed (*Verbesina virginica*)
- Lanceleaf frogfruit (*Phyla lanceolata*)
- Canada wildrye (*Elymus canadensis*)
- Virginia wildrye (*E. virginicus*)
- Switchgrass (*Panicum virgatum*)
- Green milkweed vine (*Matelea reticulata*)

Switchgrass, frogfruit, and loose-flower water willow (*Justicia ovata*) are the dominant herbaceous species within creek banks.

Typical upland herbaceous species include:

- Little bluestem (*Schizachyrium scoparium*)
- Texas wintergrass (*Nassella leucotricha*)
- King Ranch bluestem (*Bothriochloa ischaemum*)
- Silver bluestem (*B. laguroides*)
- Side-oats grama (*Bouteloua curtipendula*)
- Texas grama (*B. rigidiseta*)
- Hairy grama (*B. hirsuta*)
- White milkwort (*Polygala alba*)
- Redseed plantain (*Plantago rhodospermum*)
- Common mullein (*Verbascum thapsus*)
- Texas bluebonnet (*Lupinus texensis*)
- Prairie verbena (*Verbena bipinnatifida*)
- Indian blanket (*Gaillardia pulchella*)
- Plains coreopsis (*Coreopsis tinctoria var. tinctoria*)
- Mexican hat (*Ratibida columnaris*)
- Beebalm (*Monarda sp.*)
- Slender-leaf bitterweed (*Tetaneuris linearis*)
- White heliotrope (*Heliotropium tenellum*)
- Butterfly milkweed (*Asclepias tuberosa*)
- Texas thistle (*Cirsium texanum*)
- White prickly poppy (*Argemone albiflora*)
- Orange zexmenia (*Wedelia texana*)
- Rabbit tobacco (*Evax prolifera*)
- Drummond's skullcap (*Scutellaria drummondii*)
- Lady bird's centaury (*Centaurium texensis*)
- Texas lantana (*Lantana texensis*)

Wildlife

A high diversity of wildlife species exist in Central Texas. Vertebrate species known to occur within Hays County includes 44 mammals, 32 snakes, 17 lizards, 11 turtles, 20 frogs and toads, seven salamanders and

the American alligator (Reference 8, Reference 9). Additionally, 431 species of birds have been documented to occur within the Edwards Plateau Ecoregion (Reference 10). Multiple federal and state-listed threatened, endangered or candidate species for federal listing, as well as species of greatest conservation need, have been documented by both the U.S. Fish and Wildlife Service and Texas Parks and Wildlife as potentially occurring in Hays County. One species in particular, the federally listed endangered Golden-cheeked Warbler (*Setophaga chrysoparia*), is known to occur within the study corridor. Figures 1-1 through 1-5 in Section 3 of Volume 2 illustrates the areas of potential low, medium, or high quality habitat for this species within the study corridor. Future projects would require further analyses of potential impacts to wildlife including all potentially occurring listed species. These analyses would be conducted under U.S. Fish and Wildlife and TPWD regulations along with any other required policies.

Open Space and Preserves

Due to the rural, undeveloped nature of the corridor and its propensity for recharge, it has been a conservation priority for the City of Austin (COA) and various other entities for nearly 20 years. In 1998, the COA proposed bond funding to acquire and manage land over the recharge and contributing zones to enhance water quality and quantity in the aquifer. This bond item passed and the Water Quality Protection Land program was formed within the Austin Water Utility. To date, the program manages over 26,000 acres (9,000 in fee simple and 17,000 in conservation easements) (Reference 11). Similarly, the Hill Country Conservancy (HCC) was formed in 1999 to preserve large tracts of land to conserve critical water features, preserve outdoor recreation opportunities, and help maintain the Hill Country's unique quality of life. Multiple public and private preserves and conservation easements occur within or adjacent to the study corridor. Mapped data acquired from the COA and the HCC illustrating the location of preserves and conservation easements within the study corridor are presented in Figures 1-1 through 1-5 in Section 3 of Volume 2.

Cultural Resources

The FM 150 corridor has many documented prehistoric and historic sites. A brief overview of these two types of sites is followed by an overview of known sites along the corridor. This is not an intensive survey or a complete listing of potential sites in the corridor as much of it has not been surveyed as part of this study.

Prehistoric archeological sites in central Texas are primarily open campsites situated on alluvial terraces adjacent to rivers and streams and, on occasion, on upland areas such as bluffs and hill tops. Typically, such sites are characterized by chert chipping debris, stone tools, burned rock, fragmented animal bone and, less frequently, charred plant remains. Burned rock middens are a common phenomenon to the central Texas area as well as in the northern extent of the South Texas Plains. Usually, burned rock middens are found in terrace or upland settings and can range in size from a few meters to a hectare. Often, these sites represent multiple occupations dating to different temporal periods. Quarry and lithic reduction sites are also fairly common in central Texas. These sites may represent specialized knapping events of limited duration (lithic scatters), such as retooling, or raw material procurement and stone tool manufacture. In addition to these site types, small, temporary camps, generally comprised of a few hearths, flakes, and the occasional projectile point, are found within the region. Rarely, burial sites and rockshelter sites have also been documented in central Texas (Reference 12).

Historic archeological sites are common to central Texas; homestead and tenant farm settlements dating to the late nineteenth century are the most common. These sites are typically located on hilltops or hillsides overlooking springs or creeks and contain a combination of foundation remnants, cisterns, wells, barns, and artifact scatters. Historic period cemeteries and family burial plots are also common. These locales do not always contain grave markers and mapped boundaries are often inaccurate; therefore, verification of historic cemetery boundaries is typically necessary prior to ground disturbance within the vicinity. Less common to the area are sites pertaining to the Spanish Colonial Period or the Mexican Period as well as military sites.

Two recorded archeological sites occur adjacent to FM 150 and ten recorded sites occur within the potential bypass study corridor. While

the locations of these archeological sites are known by the study team, they are not presented in maps available to the public to protect their integrity. Two National Register Districts, Camp Ben McCullough and Michaelis Ranch, are identified in the Atlas within the study corridor. Camp Ben McCullough is located within the potential bypass study corridor along Onion Creek and just west of FM 967 and south of FM 1826. Michaelis Ranch is located just east of the southern terminus of the study corridor along FM 150. Five additional resources identified in the Atlas, all bearing historical marker designations, are also located along the FM 150 study corridor: The Driftwood Church, the Driftwood Cemetery, and the Phillips Cemetery, Camp Ben McCullough, and the home of Joseph B. Rogers. Driftwood Church was originally established as a Methodist Episcopal Church in 1884, moving services from the Reaves School located approximately one mile to the north. Following a fire that destroyed the local Baptist church building in 1911, this structure was shared by the two denominations with both continuing to hold services here today. The Driftwood Cemetery, in use since 1884, is located behind the present day location of the Driftwood Church and contains reinternments from the Old Community Cemetery, located approximately one mile north, near the Reaves School (Reference 13). However, according to Rogers (Reference 14) not all the burials from Old Community were moved with one double grave marker remaining behind with evidence of unmarked graves remaining as well.

The Phillips Cemetery is located just south of Dripping Springs and west of RM 12. This cemetery was established in 1880 on land deeded by John and Nancy Phillips to the Methodist Episcopal Church (Reference 15). The Methodist Church later donated the cemetery to the local community in 1940. Initially, a small church was built on this property though in 1901 land for a new church building was acquired and the original building was sold and moved. The internment of B. G. Sorrell, who died on March 13, 1880, is the earliest documented burial and many of the graves here are those of the early settlers to the area.

As mentioned above, Camp Ben McCullough is located within the potential bypass study corridor along Onion Creek and just east of the intersection of FM 1826 and FM 967. In the summer of 1896, Confederate veterans and their families gathered near Martin Spring and campsite on Onion Creek and formally organized the Camp Ben McCulloch Chapter of the United Confederate Veterans. These grounds

were purchased by the organization in 1904 and have continued as the site of the annual reunion with the exception of one year during World War I (Reference 13).

Joseph B. Rogers was born in 1833 and served with Terry's Texas Rangers during the Civil War. In the early 1870's he hired local workmen to build his native limestone home. The family has preserved the structure and it became a recorded Texas historic landmark in 1975 (Reference 13). Approximately 100 yards in front of the house a ring of large rocks encircles a small plot of land marking a private burial site. Here within two graves, three children of the Peter Klein family are buried. Though the graves are unmarked, Rogers (1970) notes that they likely passed during the Civil War.

Rogers (Reference 14) also notes the presence of two small, historic-period cemeteries in the FM 150 study area vicinity. The Perry Cemetery is located on property owned by the Collins family. Just east of the main residence members of the Perry family are buried. Three grave markers date this cemetery to the late nineteenth century. The Reaves graveyard is located on property that, as of 2009, was owned by Scott Marshall (Reference 16). Dates from ten headstones at this graveyard date the interments from 1870-1885.

During the public involvement process for this study, the local community including members of the CAP and the Driftwood Historical Conservation Society also identified several additional resources within the study corridor. These include a historic rock wall, the Bella Nido B & B, and the Butler Cemetery. The historic rock wall is located adjacent to FM 150 on a portion of William B Travis' original league of land acquired in 1835. According to the Bella Nido B&B website (Reference 17), the house was built in 1905 and has since been restored. An old rock barn also sits on the same property as the Bella Nido house. The Butler Cemetery is an approximately two acre cemetery of historic age located just south of the double low water crossings of Onion Creek and east of FM 150. The land this cemetery is on was originally obtained by J.C. Johnson in 1855 from Charles Travis, the son of William B. Travis (Reference 15). As previously stated, a full cultural resources analysis would be necessary during the environmental document preparation stage once a future project or projects is/are identified.

4.4 CORRIDOR CONTEXT ZONES

The FM 150 corridor is complex with the rural highway passing through a variety of unique environments and contexts. While FM 150 serves a regional purpose connecting Dripping Springs to Kyle, it is composed of distinct qualities and characteristics along its length. A one-size-fits-all approach to potential solutions would not acknowledge and recognize the unique areas and features that make this part of Hays County an especially special place. The study team and community recognized the need to minimize impacts to existing development, history, heritage, natural features, and rural culture, while being compatible with RM 12 forecasted growth. Based on technical work, field observations, and invaluable input and information from the CAP and community, the study team established a series of context zones along the existing FM 150 alignment. These zones help define significant land use or physical features that allow corridor study solutions to be tailored to each context zone while serving long range FM 150 corridor needs. Generally speaking, the context zones are common and unique zones along the corridor that include natural, historical, and man-made features noted as valued by the community. Developing context zones to describe the corridor provides the following benefits:

- Allows consistent themes to be applied for corridor continuity
- Allows FM 150 tailored solutions to fit the unique needs along the corridor length
- Is a cost effective approach to considering the range of solutions

The study team developed context zones for the FM 150 corridor through discussion with the CAP and comments received in Public Workshop #2. As shown in Exhibit 16, the context zones are color-coded to indicate areas that share the same context zones. Each of the context zones is described in the following sub-sections.

Community Zones (Existing and Future)

Three community zones were identified on the FM 150 corridor:

1. A re-emerging existing community zone is located at the FM 150/Old Kyle Road (FM 3237) intersection. This area is currently undergoing redevelopment with several existing businesses in the vicinity of the

intersection. The Hays City Store started out over 30 years ago as the Hill Country gas station, and corner store with a café was added later. Eventually the store was sold and the business reopened in 2015 as a full service restaurant and bar. The Precinct Line Beer & Wine Company opened in 2005 about 600 feet west of the Hays City Store. There is a desire to preserve these businesses while also providing opportunities for development in this area.

2. The existing (Driftwood) community zone exists in the vicinity of Elder Hill Road and FM 1826, with the dominant historical development located along FM 150 at Elder Hill Road. Driftwood includes a historical church, cemetery, and community buildings. The importance of Driftwood’s heritage and overwhelming desire for preserving this historical location has been established consistently throughout the study’s CAP meetings and via many public comments and testimonies received during the various outreach events.
3. There is an existing and emerging community zone at the FM 150/RM 12 intersection in Dripping Springs. Commercial development has begun in this area, which includes the Twisted X

Brewing Company southeast of RM 12 and a proposed development adjacent to the FM 150/RM 12 Intersection. The Twisted X, a microbrewery located on FM 150 about a quarter mile from RM 12, opened in November 2013 and includes a 10,000 square foot brewery and tasting room. The Twisted X serves as a destination development supporting a growing tourism industry.

Other destination locations include the Duchman Family Winery, which was founded in 2004 and is located off FM 150 about 1.8 miles south of Driftwood. The Twisted X and Duchman Family wineries located on FM 150 complement the long established Salt Lick BBQ and the Fall Creek Vineyards, both located on FM 1826. The Twisted X and the proposed development at RM 12 also support the growing residential population in Dripping Springs, including the Caliterra housing development on RM 12 north of FM 150.

Community zones are locations where the activities along the FM 150 corridor change. Community zones concentrate users at the various facilities, which often mean more vehicles turning onto and off of the

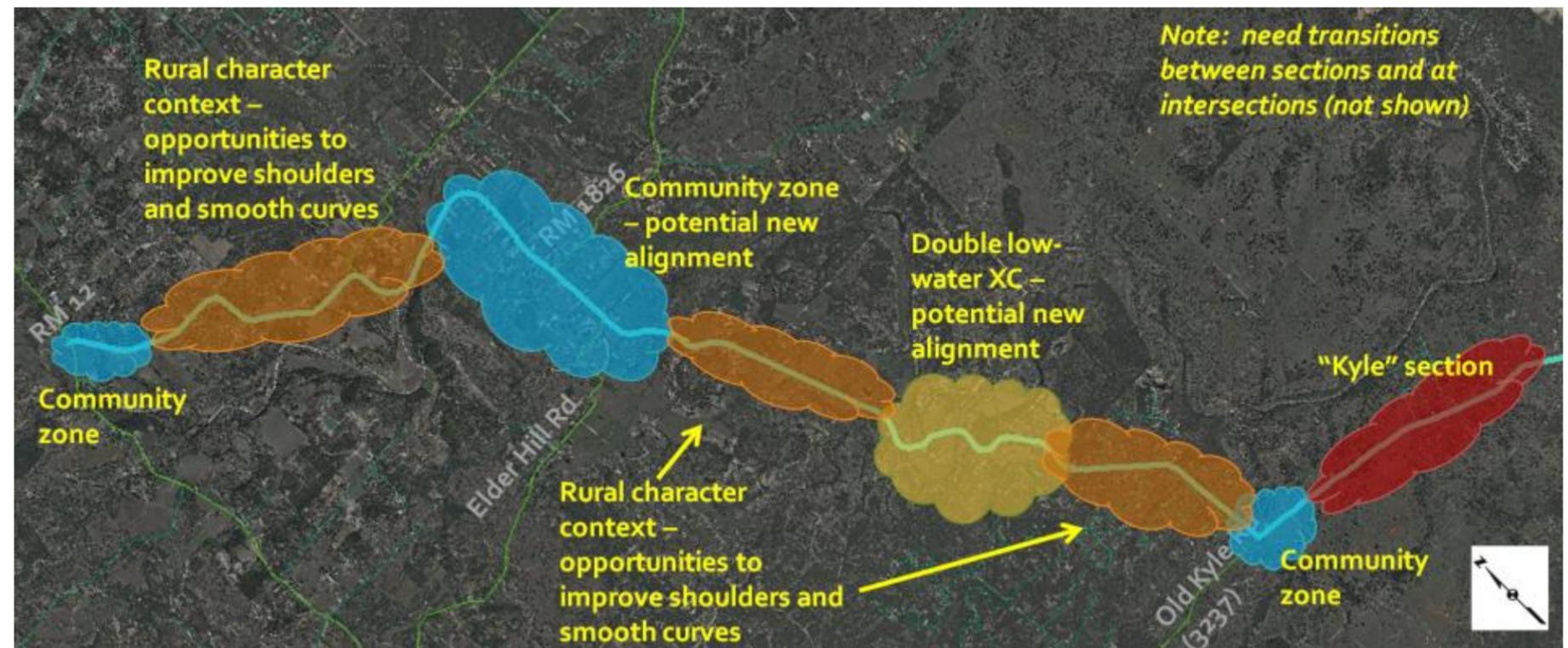


Exhibit 16. Corridor Context Zones

FM 150 roadway. The land uses result in drivers entering and exiting the highway creating vehicular conflicts and variable operating speeds as drivers enter and exit the highway compared to other relatively long stretches of undeveloped, rural stretches of roadway. Drivers using FM 150 must be aware of the increased risks of turning vehicles and variable speeds associated with the land uses. This means FM 150 concepts should include transition zones approaching the community zones to help drivers understand changing character. Because relatively high operating speeds can negatively affect the overall feel or user experience of an area, community zones could potentially have lower posted speeds compared to other FM 150 roadway segments.

Rural Character Context

Community input has been consistent in noting the overall beauty of the rural, undeveloped nature along the corridor. Many who live in the area noted they have chosen to remain in or come to this part of Hays County because of the overall look and feel of the natural beauty. Community input has noted tourism is increasing as those who visit often choose to do so to observe the natural beauty and rural qualities of the area. Aside from the noted community zones, most of the FM 150 corridor is undeveloped with few public roads. Large parcels of ranch land result in relatively few driveway access points and an abundance of natural vegetation up to the FM 150 right-of-way. These relatively long segments create a very pleasant driving experience and contribute greatly to the overall look and feel of the FM 150 corridor. FM 150 corridor concepts for these zones must include roadway and intersection features that preserve the nature and character of these rural highway segments.

Double Low Water Crossings

The double low water crossings create a distinct and unique segment of FM 150. The crossings, a little over three miles north of Hays City, has similar features and characteristics to the rural character context zone in terms of the overall visual experience provided along FM 150. However, the FM 150 alignment crosses a bend in Onion Creek creating two low water stream crossings unique to the FM 150 corridor. The two creek crossings are approximately a third of a mile apart and the approximately one mile zone generally begins and ends in the locations where the FM 150 alignment begins its downgrade from the adjacent flat lands to the low water crossings. The low water crossings are locations where Onion Creek passes under the FM 150 roadway during normal flows, while overtopping and closing FM 150 during higher flows. Study stakeholders have indicated high water flows have closed FM 150 for various durations a few times per year. The low water creek crossings provide stunning views of native trees, limestone, and the pools and flows of Onion Creek. The community has been consistent and clear that the double low water crossing locations and historic Driftwood are the most highly valued specific areas along the entire FM 150 corridor. FM 150 corridor concepts must bypass and or otherwise preserve these highly valued and special corridor features.



Exhibit 17. Driftwood



Exhibit 18. FM 150 Traveling Westbound

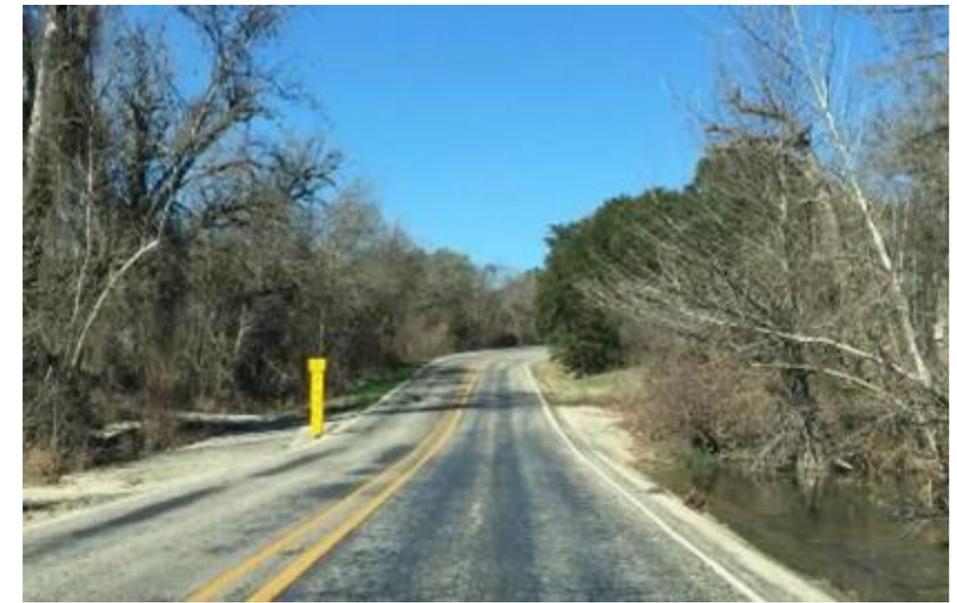


Exhibit 19. Low Water Crossing

South Section

The south section of FM 150 stretches from outside the community zone at the FM 150/Old Kyle Road (FM 3237) intersection to the study limits near Arroyo Ranch Road. This zone is unique for two specific reasons: 1) its physical alignment and appearance, and 2) its transitional qualities from a traffic volume and land use perspective.



Exhibit 20. Michaelis Ranch

Heading towards Dripping Springs from Kyle, the FM 150 route makes a 90 degree right turn at Old Kyle Road. In 1952, the curve was completed to make the designated and signed FM 150 movement free flow but the obvious centerline alignment remains on Old Kyle Road. Compared to the overall FM 150 alignment from Old Kyle Road to RM 12, the FM 150 roadway from Old Kyle Road to Arroyo Ranch Road is generally flatter and straighter with fewer curves. The adjacent lands have fewer trees, grasses and shrubs and the fenced fields generally create a different environment compared to FM 150 north of the FM 150/Old Kyle Road intersection. In summary, this zone has a different character and general feel than most of FM 150. This zone also represents a transition of sorts between the relatively rural and sparse development north and west of the Hays City community zone to the more suburbanized and

relatively dense residential land uses approaching Kyle. Traffic from Old Kyle Road and FM 150 combines with increased traffic from adjacent land uses approaching Kyle. As such, the volume on FM 150 increases, compared to the other FM 150 sections, as FM 150 collects and serves the area as a primary connection to Kyle and I-35. Because the traffic volumes are higher and the adjacent land use character changes, FM 150 concepts in this location will likely include features and elements unique to this context zone. Ultimately, this zone is where the FM 150 West Character Plan and Alignment Study corridors will match smoothly and seamlessly.

Transitions between Zones

The corridor context zones allow overall FM 150 concepts to adapt along the corridor and be customized and tailored to the match the unique corridor segment needs. Transition zones create the opportunity to connect and blend smoothly between each context zone. This allows the FM 150 users to have a consistent and smooth overall corridor experience while using an FM 150 facility that is sensitive to and adapts to the individual zones at the various locations. The overall effect is a facility that preserves and protects community-identified and valued corridor features and themes while serving long-term travel needs on and through the corridor. The most pronounced transitions will likely be approaching community zones to alert drivers of the changing conditions, increased conflicts, and different driving needs in the community zones. However, since public intersections concentrate turning movements and result in speed differentials between through and turning vehicles, FM 150 corridor concepts could include localized transition zones at key intersecting public roadways to alert FM 150 drivers of the changing conditions and driving risks.



Exhibit 21. Approach to Driftwood from the East



Exhibit 22 Approach to Darden Hill Road from the East

Page left intentionally blank

SECTION 5 Existing Conditions

Page left intentionally blank

5 EXISTING CONDITIONS

The FM 150 corridor has evolved over time, likely beginning as an unpaved path designed to provide efficient and accessible connections. Most likely, the corridor was never formally designed to meet certain standard lane widths, shoulder widths, curve radii, or other geometric requirements. There is evidence of spot improvements on the corridor over the last century, such as widening of tight curves and widening of lanes and shoulders in some locations. To help inform the study of FM 150 and identification of future improvements, a comprehensive existing conditions assessment addressed:

- Intersection volumes and operations
- Roadway volumes
- Crash history
- Speeds
- Cross section

The following sub-sections describe the results of this assessment.

5.1 INTERSECTION VOLUMES AND OPERATIONS

The study team collected data at key intersections on the roadway to assess intersection capacity and identify key movements at each intersection during the peak hours. The five stop-controlled intersections on the corridor were assessed based on delay, volume-to-capacity ratio, and level of service (LOS). Based on this analysis, all intersections are currently operating below capacity and can handle additional traffic without negatively impacting operation. Specifically, all intersections operate at a LOS B or better, which means that the average delay experienced by vehicles on the minor street approach to the intersection is 15 seconds or less.

Exhibit 23 illustrates the travel patterns and heavy movements during the AM and PM peak hour. As seen in the exhibit, the intersection volumes at FM 150 and FM 1826, and FM 150 and Elder Hill Road reflect a “Z” pattern with vehicles using the small section of FM 150 between the two intersections. The intersection turning movement counts,

output sheets from the intersection assessment, and more detailed results are provided in Section 5 of Volume 2.

5.2 ROADWAY VOLUMES

Roadway volume data was collected with tube counters at four locations for one day in mid-December 2014 to assess travel patterns at the different locations for different times of day. The counts collected are provided in Section 6 of Volume 2. The data is presented on Exhibit 24, which illustrates the number of vehicles traveling in each direction for each hour throughout the day. As depicted in the exhibit, there is similar peaking during the morning and evening peak hours at the two count locations on the southeast portion of the corridor. At the two sites on the northwest portion of the corridor, there are a higher number of vehicles traveling southbound during the evening and northbound during the morning. This morning and evening traffic reflects how the segment of FM 150 between Elder Hill Road and FM 1826 is north-south movements versus east-west movements on FM 150.

Table 3 lists the roadway volumes at each tube count location (numbered on Exhibit 23). In general, roadways with one-lane in each direction can operate with up to 20,000-25,000 average daily traffic (ADT). Therefore, the existing FM 150 is operating within capacity from a roadway segment perspective.

Exhibit 24 shows the daily profile at each of the locations where tube counts were collected.

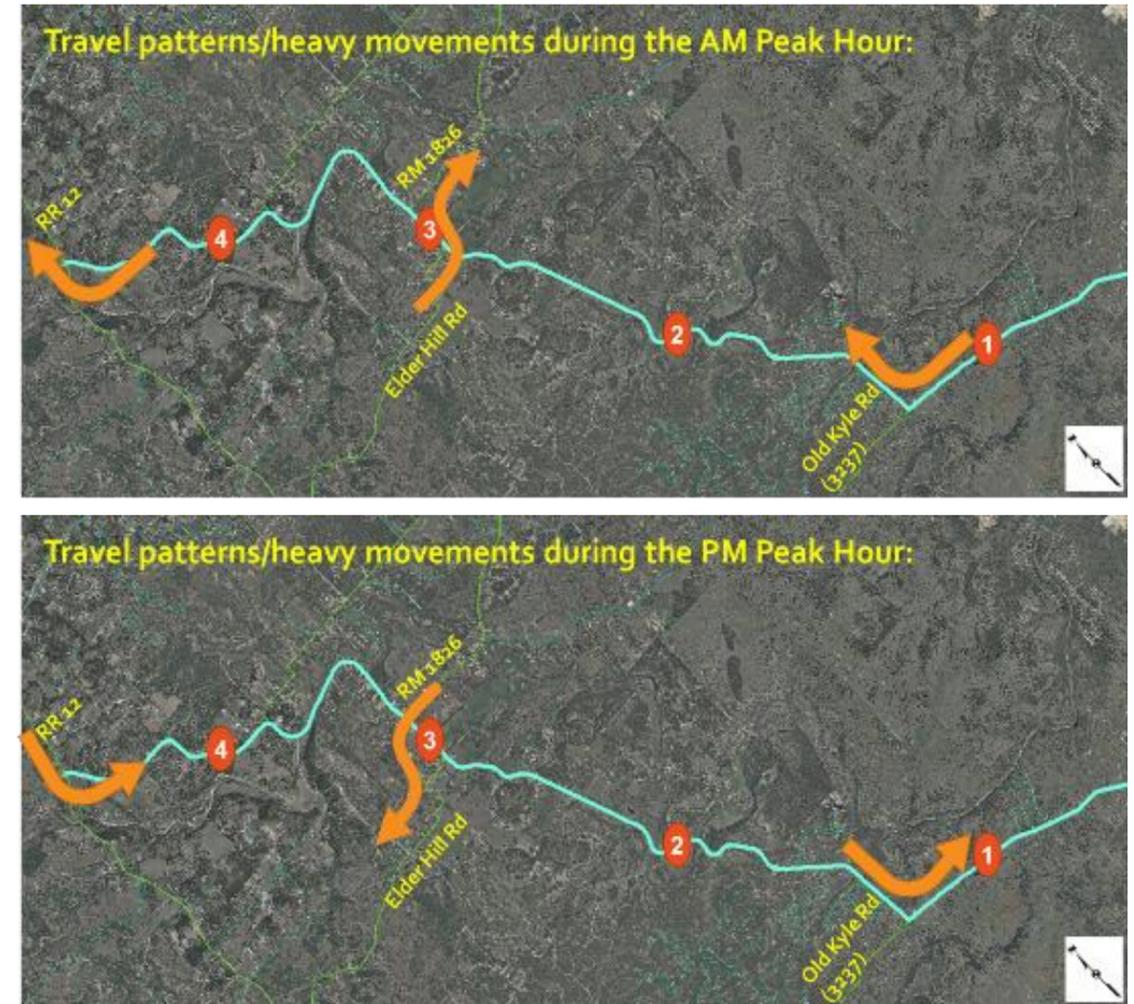
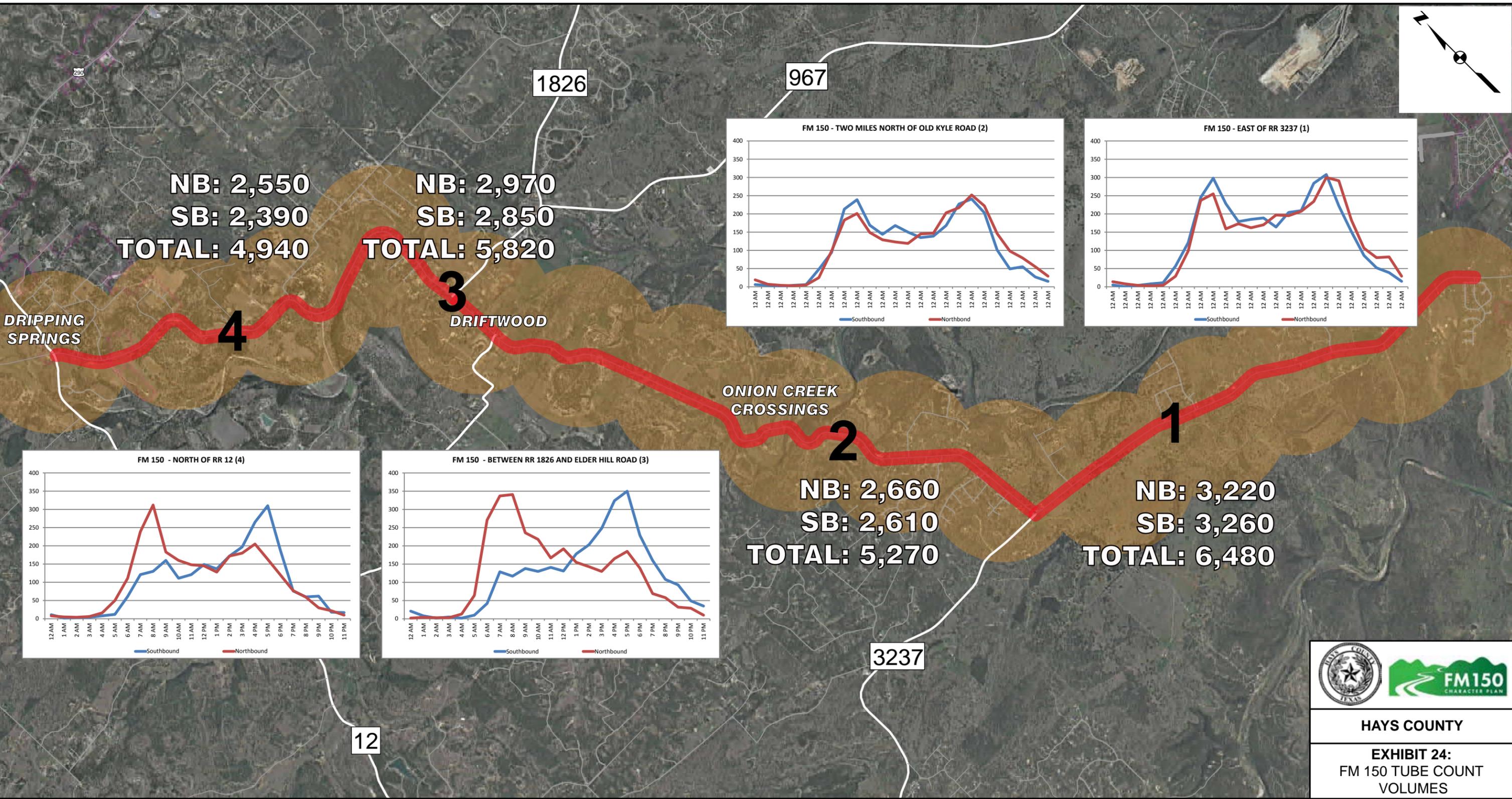
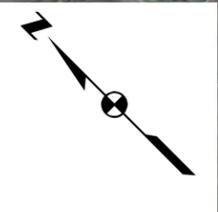


Exhibit 23. Corridor Peak Hour Volume Patterns

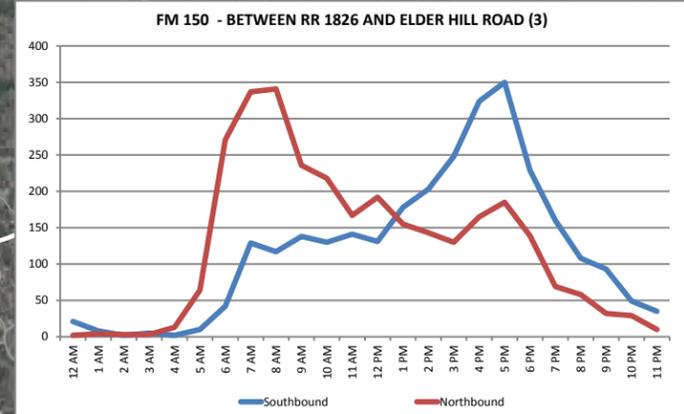
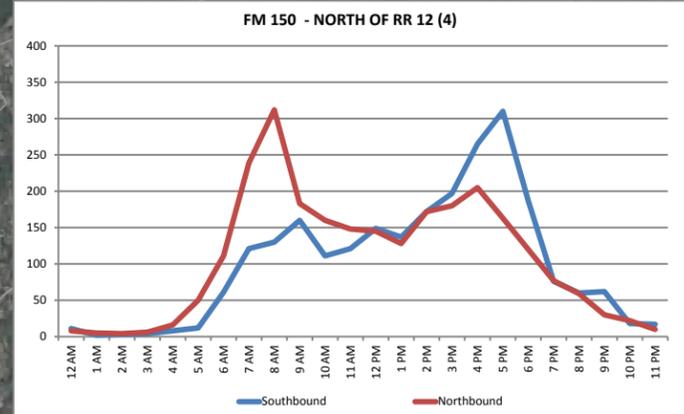
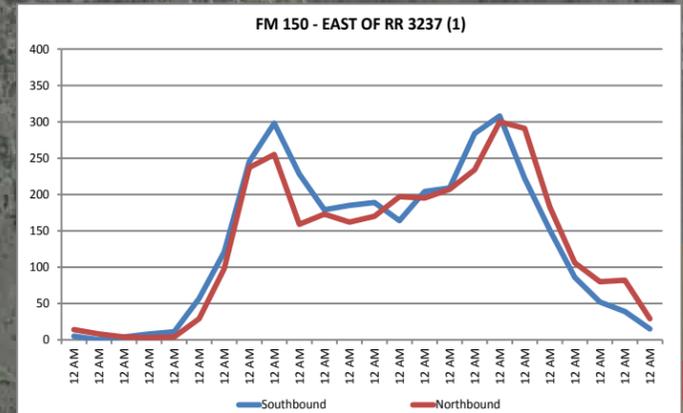
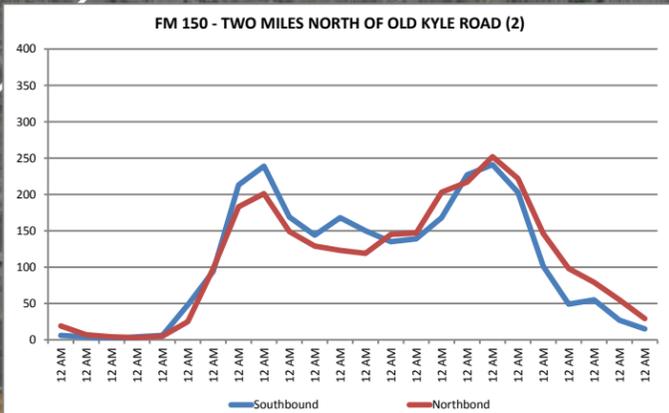
Table 3. Average Weekday Daily Volumes by Direction

Location	Northbound	Southbound	Total
1	3,220	3,260	6,480
2	2,600	2,610	5,270
3	2,970	2,850	5,820
4	2,550	2,390	4,940



NB: 2,550
SB: 2,390
TOTAL: 4,940

NB: 2,970
SB: 2,850
TOTAL: 5,820



NB: 2,660
SB: 2,610
TOTAL: 5,270

NB: 3,220
SB: 3,260
TOTAL: 6,480

HAYS COUNTY

EXHIBIT 24:
FM 150 TUBE COUNT
VOLUMES

5.3 CRASH HISTORY

Crash data from January 2010 through June 2014 was collected and assessed for the FM 150 corridor. The key purposes of assessing the crash data are to identify:

- Crash trends (i.e., crash severity, type, location, time of day)
- Crash trends potentially attributed to the roadway geometry
- Focus areas with higher crash frequencies/severity

In total, 98 crashes were reported on the corridor between January 2010 and June 2014. The majority of the reported crashes had no injuries or possible injuries. Three fatal crashes were reported, all of which were fixed object crashes, during dry, clear, daylight conditions. None of the fatal crashes occurred at intersections. The locations of the three fatal crashes are shown in Exhibit 25.

The graphs in Exhibit 26 and Exhibit 27 show the crashes by type versus severity and by location versus severity, respectively. As seen in the graph, the majority of crashes were classified as fixed object crashes. In addition, the majority of crashes were non-intersection related and occurred when the weather was clear. This data suggests a potential influence of the roadway's narrow shoulders, isolated or tight curves, and non-recoverable sections of roadway.

Exhibit 28 maps all the crashes by type and Exhibit 29 maps all crashes by severity. A copy of the crash data is provided in Section 7 of Volume 2.



Exhibit 25. Fatal Crash Locations (January 2010 – June 2014)

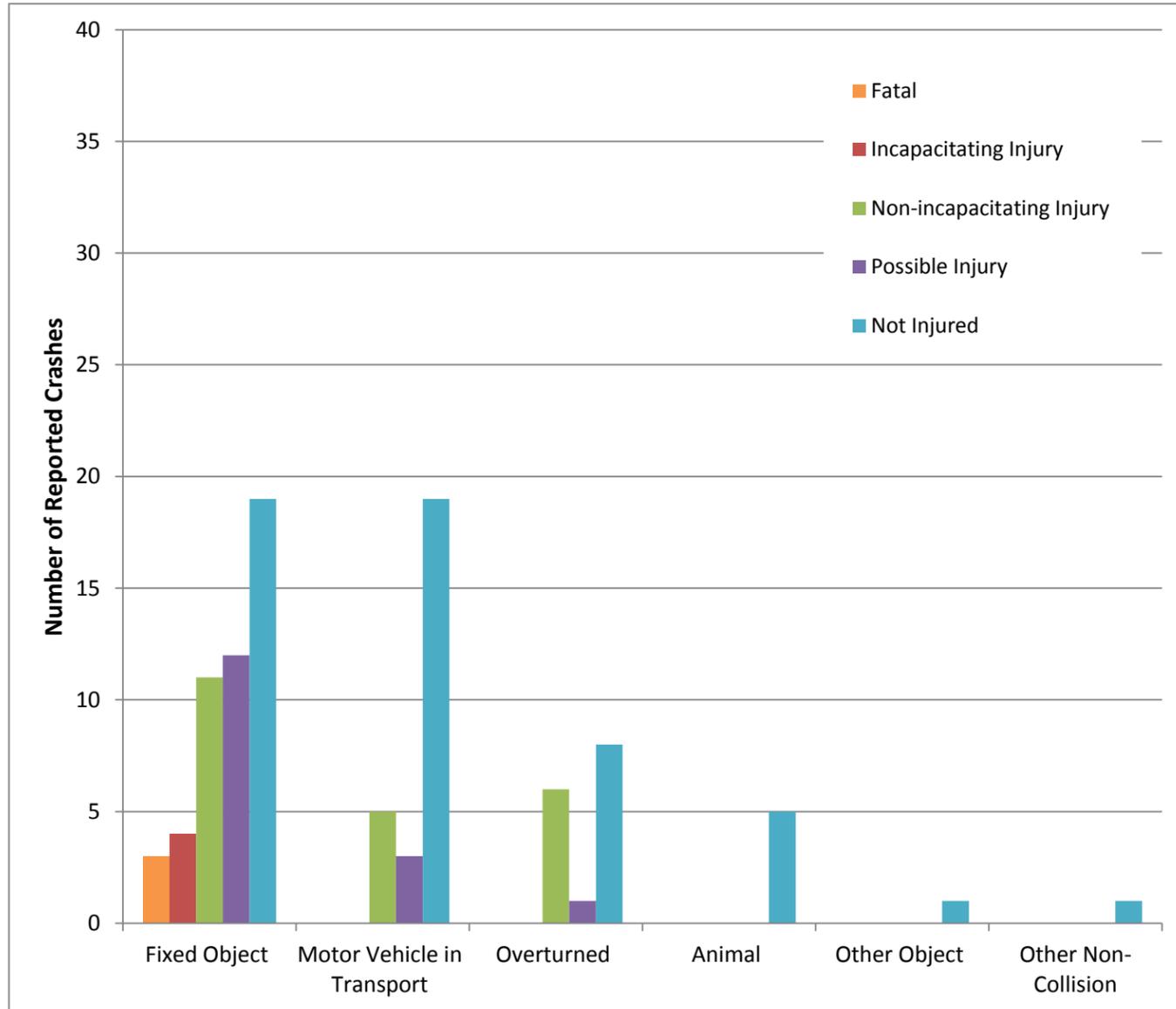


Exhibit 26. Crashes by Type versus Severity

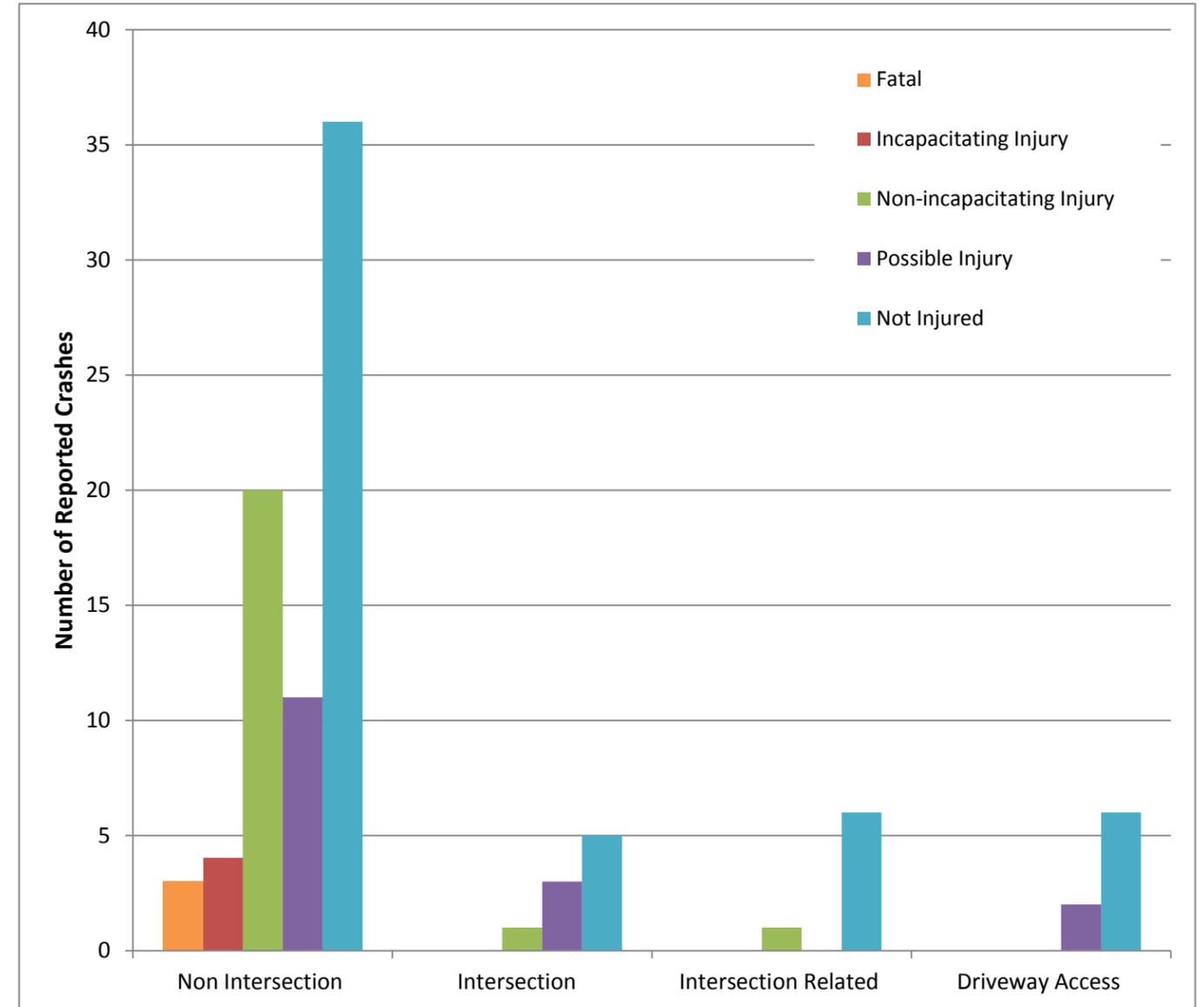
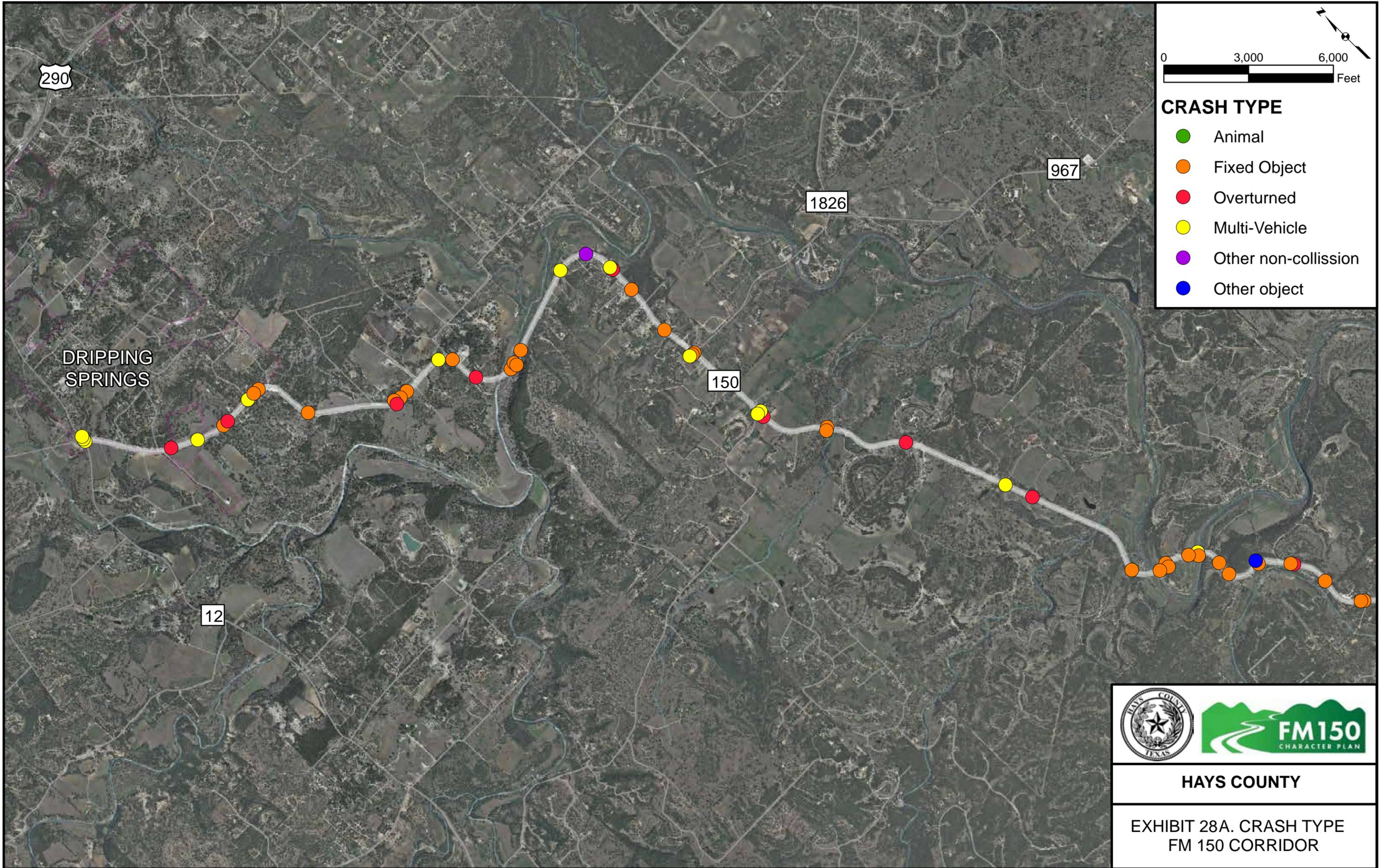


Exhibit 27. Crashes by Location versus Severity



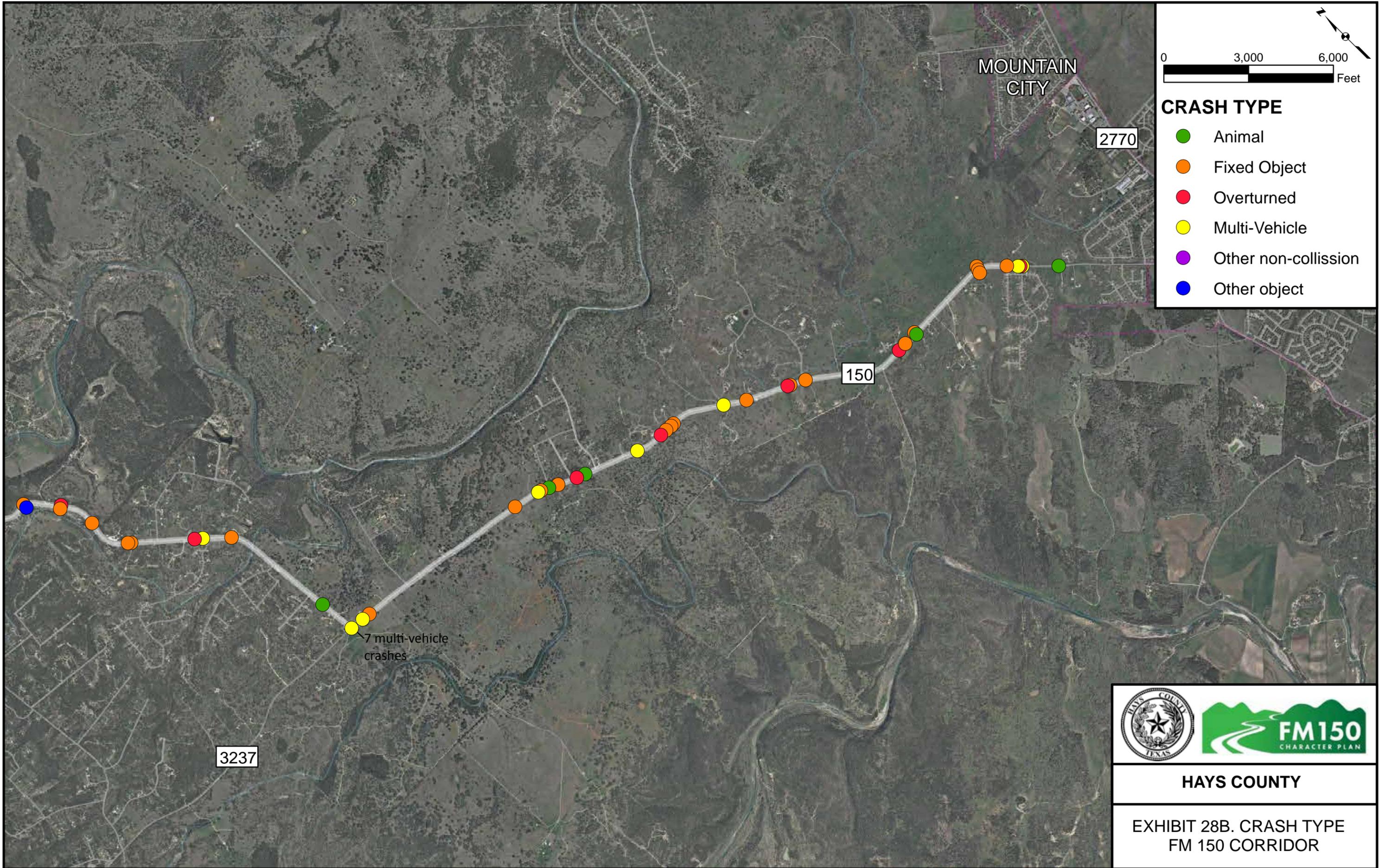
CRASH TYPE

- Animal
- Fixed Object
- Overturned
- Multi-Vehicle
- Other non-collision
- Other object

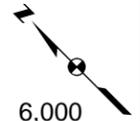


HAYS COUNTY

**EXHIBIT 28A. CRASH TYPE
FM 150 CORRIDOR**



290



Crash Severity

- Fatal
- Incapacitating Injury
- Non-incapacitating Injury
- Possible Injury
- Not Injured

DRIPPING
SPRINGS

150

1826

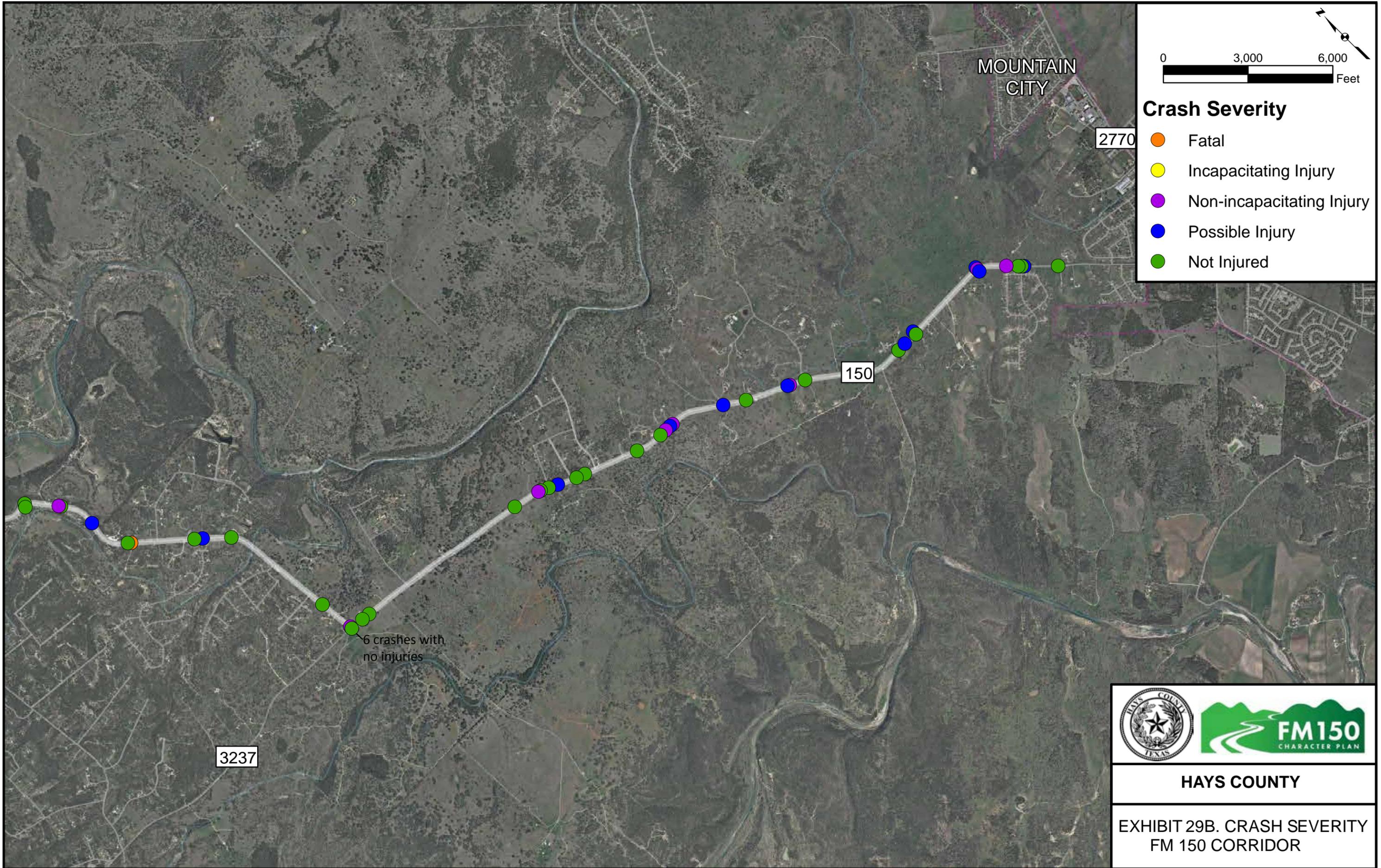
967

12



HAYS COUNTY

EXHIBIT 29A. CRASH SEVERITY
FM 150 CORRIDOR



5.4 CORRIDOR SPEEDS

Travel speeds are commonly used as an indicator of mobility (how quickly motorists can travel on a corridor and what travel times results) and safety. The relationship between speed and safety is challenging to fully understand, with a number of complicating factors. However, as stated in the Federal Highway Administration (FHWA) informational guide on speed concepts (Exhibit 30), “there is general agreement that the risk of injuries and fatalities increases with speed.” Research supports the desire for low differences in speed along a corridor and smooth transitions between areas of different speeds, as opposed to abrupt increases or decreases in speed.

Road geometry impacts vehicle speeds and how fast drivers can comfortably operate on a roadway. The FHWA Speed Concepts guide distinguishes between the following types of speed:

- **Speed Limit** – maximum lawful vehicle speed
- **Operating Speed** – observed vehicle speeds
- **Design Speed** – speed established as part of the geometric design process
- **Inferred Speed** – maximum speed a vehicle can travel based on the roadway design

As described in the FHWA Speed Concepts information guide, the inferred speed is commonly above the design speed, and even farther above the speed limit. If a traditional design speed approach were used to address inconsistent speeds on FM 150, it would suggest that a single design speed be selected and used to adjust roadway curvature on FM 150 to a consistent radius and speed. However, this type of approach leaves little flexibility to adapt to location conditions or restrictions (e.g. existing land uses). In contrast, using speed consistency as a guide, abrupt changes in inferred speeds should be addressed by adjusting horizontal and vertical curvature, but flexibility is provided to accommodate constraints along the corridor. This approach can be described as laying a ribbon on the land, meaning the roadway is placed to consider the character and context of the area, with smooth curves and transitions. Exhibit 31 conceptually illustrates potential resulting roadway geometry using both design speed and speed consistency to address speeds on the corridor. Of note is how traditional “design speed” generally results in larger curve radii to address subject curves. Considering inferred speed and integrating speed consistency concepts allows corridor alignments to be placed comparatively gently.

To identify areas with a high differential between inferred speeds, a speed assessment was conducted for the corridor. This assessment used roadway horizontal curvature to determine the inferred speed along the corridor. The radii of the horizontal curves along the roadway dictate the speed that a vehicle can travel, with smaller radii curves resulting in lower inferred speeds. On straight sections of the roadway where curvature does not limit speeds, it was theoretically assumed that drivers could travel 100 miles per hour. Although vertical curvature also impacts roadway speeds, it was not included in this assessment due to limited data on the vertical alignment of FM 150. Exhibit 32 illustrates the inferred speeds on the corridor, starting from the southeast portion of the corridor and traveling along the corridor to the northwest. Sharp changes in the graph indicate areas where the roadways changes from straight into a sharp curve without transition. The posted speeds on FM 150 are typically significant below the inferred speed, as evidenced in Exhibit 33.

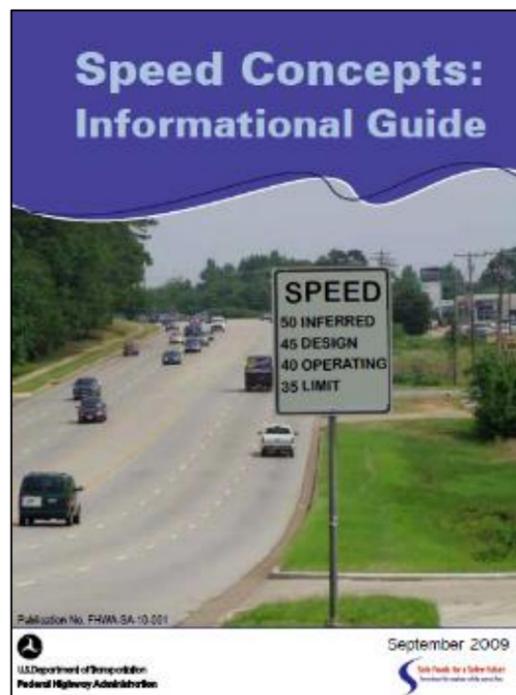


Exhibit 30. Informational Guide

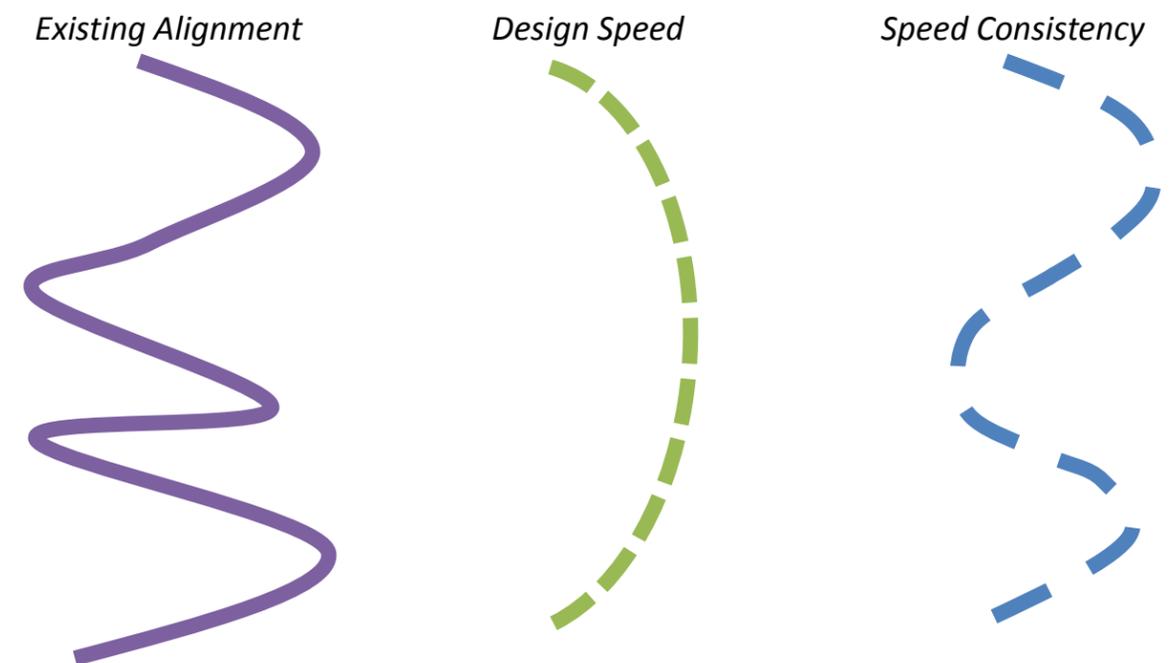


Exhibit 31. Application Design Speed versus Speed Consistency Methodologies

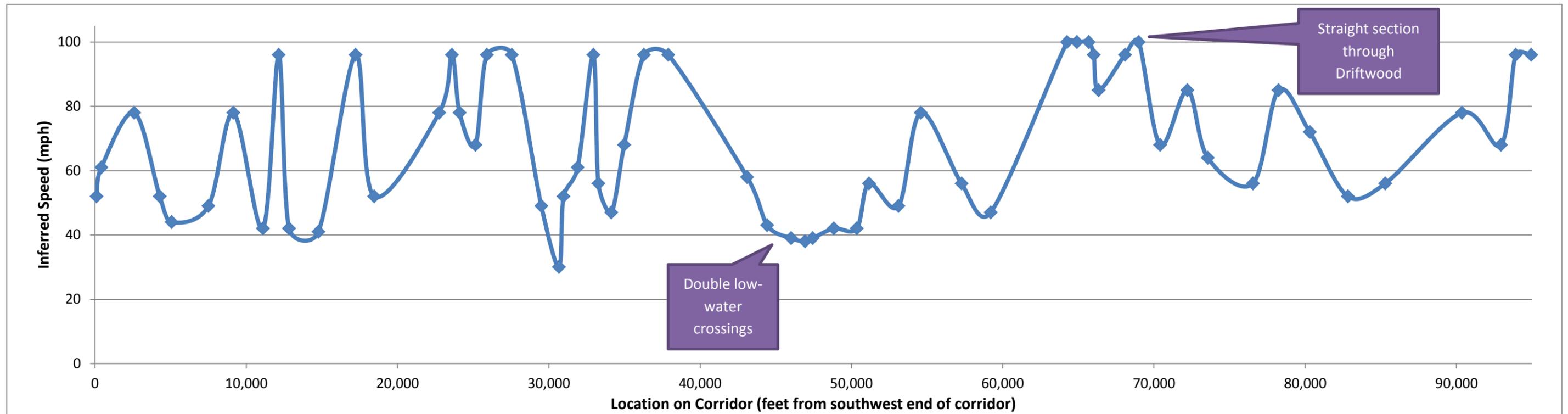


Exhibit 32. Horizontal Curve Inferred Speed on Corridor

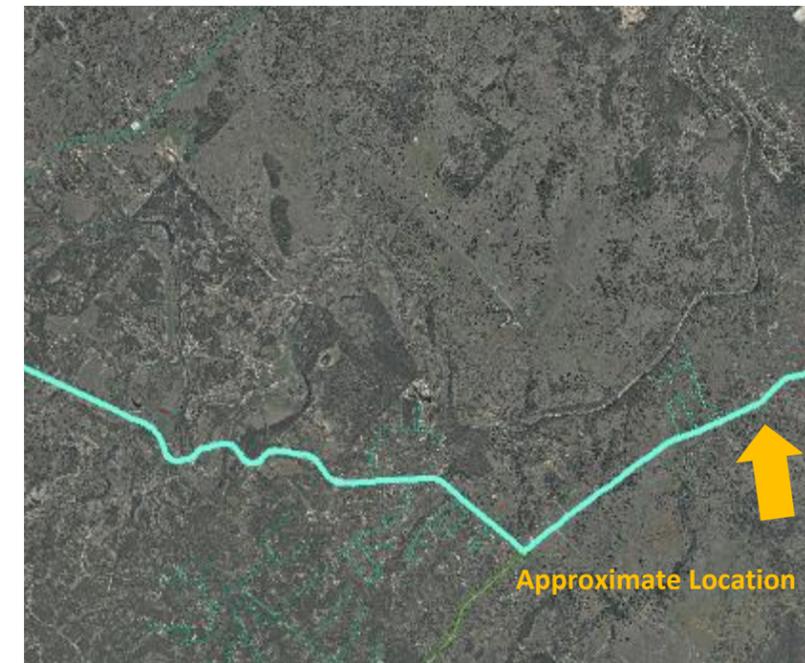
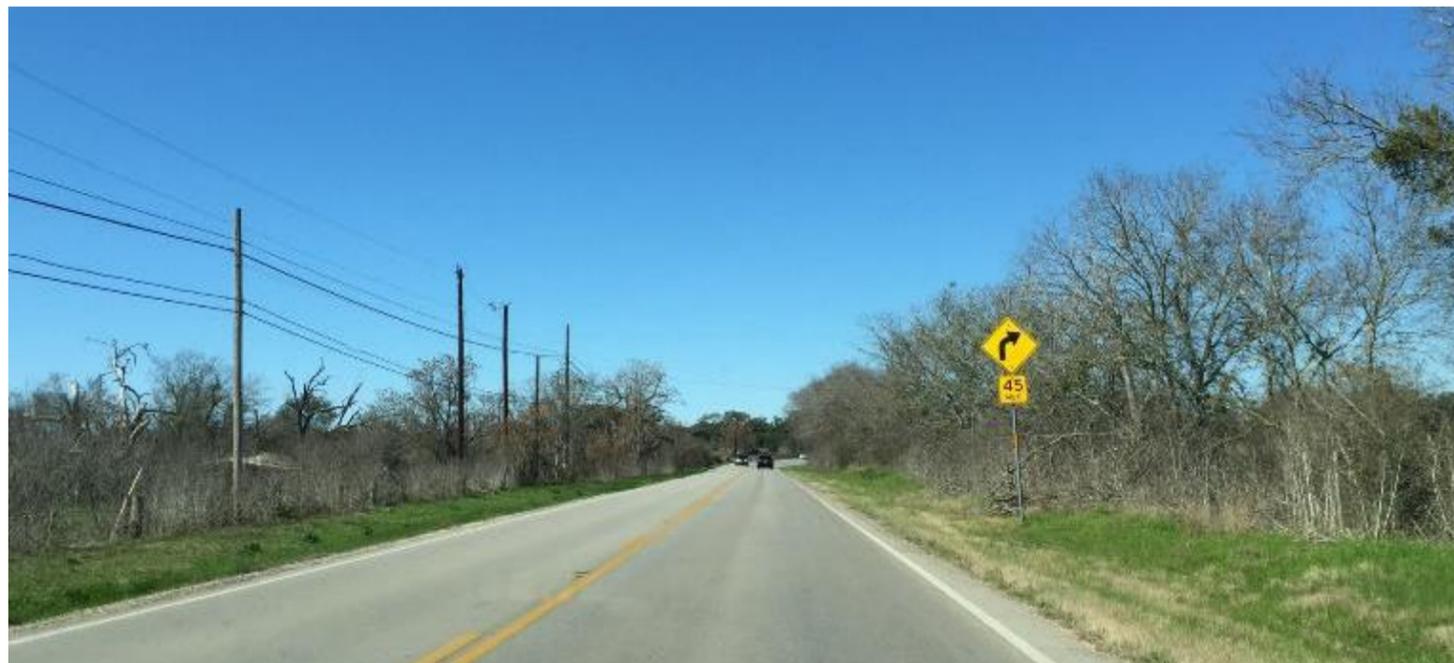


Exhibit 33. Horizontal curve with a posted (advisory) speed of 45 miles per hour and inferred speed 52 miles per hour

5.5 EXISTING CROSS SECTION

FM 150 is a two-lane roadway with minimal shoulder width throughout the corridor. In general, lane widths are range between 11 and 12 feet, and the shoulders are about one to two feet in width, with relatively steep drop-offs in some areas. In general, the roadway does not provide sufficient space for drivers to recover if they drift to the outer edge of the roadway. Practically speaking, the roadway is relatively unforgiving with regard to its ability to support drivers trying to recover from an unexpected occurrence (e.g., animal crossing, another vehicle crossing over). Exhibit 35 shows examples of the cross section along the corridor. As shown in the exhibit, there is guardrail adjacent to the roadway at some locations along the corridor.



Exhibit 34. Diagram of Existing Cross Section



Exhibit 35. Examples of Cross Section along FM 150 corridor

Page left intentionally blank

SECTION 6 Future Planning
Framework

Page left intentionally blank

6 FUTURE PLANNING FRAMEWORK

6.1 CONTEXT SENSITIVE SOLUTIONS APPROACH

Overview

CSS is a collaborative, interdisciplinary approach to developing study solutions. A hallmark of CSS is actively involving stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources. The CSS approach values community-based and supported solutions to address a facility’s safety and mobility needs. A key component of CSS is open and continuous communications between all parties beginning in the earliest stages of concept development. This sets a foundation for continuous and meaningful interaction at each step of the study development staff from planning through construction of the completed project. The FHWA, the American Association of State Highway and Transportation Officials (AASHTO), the Transportation Research Board (TRB), and TxDOT actively support and routinely promote CSS.

The FM 150 corridor is a critical component of the Hays County roadway network. For many years, travel demands on this key linkage have been relatively low, perhaps masking the extreme importance of the corridor supporting regional and local travel needs. The significant growth in the greater Travis County and Hays County region has not yet significantly impacted travel along FM 150; however, projected growth in northern and western Hays County will result in increasing travel demands. The FM 150 corridor and surrounding area is a special place with unique aesthetics, heritage, and historical elements. The rural character and natural habitat features must be thoughtfully protected and preserved while recognizing corridor growth and demand is imminent, even if it is not readily apparent today.

Hays County has initiated a unique study process to understand community values, document and prioritize features and themes that make the corridor special, and consider long-range concepts that reflect the special nature and character of the FM 150 corridor and

surrounding area. This challenging and significant effort requires a correspondingly unique community, agency, and stakeholder involvement process to assure the completed FM 150 corridor plans adequately incorporate community-based values, features, and themes. The FM 150 study approach applies CSS principles in integrating community input for corridor solutions that balance mobility and safety objectives while enhancing the natural environment and preserve community values.

Qualities and Characteristics of CSS

Thinking Beyond the Pavement: A National Workshop on Integrating Highway Development With Communities and the Environment, held in Maryland in 1998, established qualities and characteristics of the CSS process. These characteristics emphasized that the process and approach to developing community-based solutions was an important as the range of solutions and products coming from planning efforts. In considering the process and products of a successful project, the workshop participants outlined the following “Qualities of Excellence” in

the project design elements (products):

- The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended, as warranted, as the project develops.
- The project is a safe facility for both the user and the community.
- The project is in harmony with the community and preserves environmental, scenic, aesthetic, historic, and natural resource values of the area (i.e., exhibits context sensitive solutions).
- The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people's minds.
- The project involves efficient and effective use of the resources (time, budget, community) of all involved parties.
- The project is designed and built with minimal disruption to the community.
- The project is seen as having added lasting value to the community.

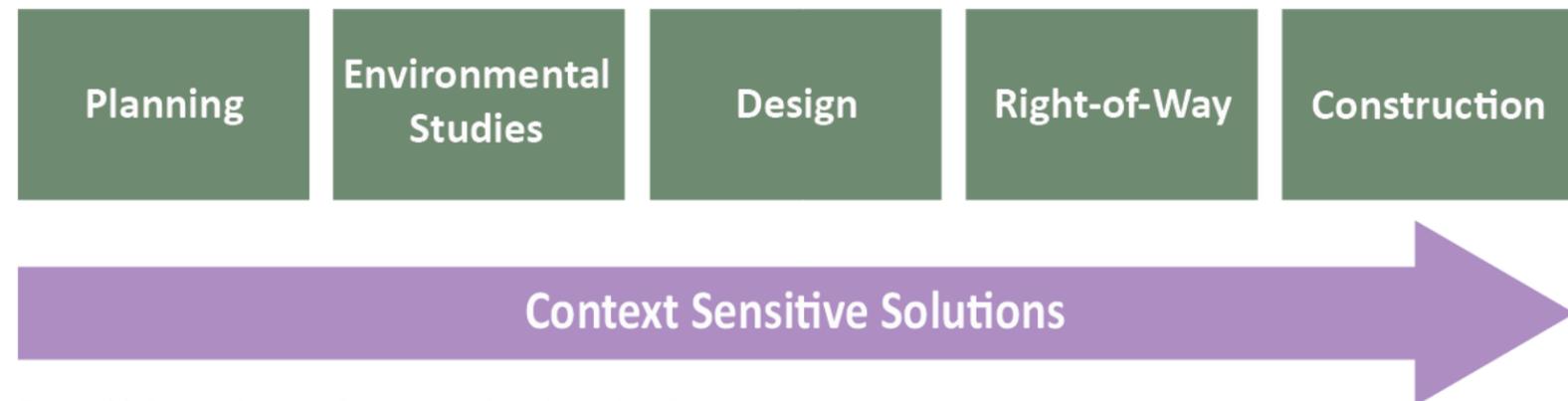


Exhibit 36. Project Develop Process and Associated Activities

As noted, the process in which solutions are developed are as valued as the solutions themselves. At the onset it includes establishing a multidisciplinary team to plan projects. This provides the means to include the appropriate range of professionals to address the unique needs of each project context. A successful project process is founded upon maintaining open and continuous communication with all stakeholders throughout the each stage of the project development process (planning to construction) while establishing and maintaining meaningful and continuous communications in each project stage. At the earliest stages this means taking time and undertaking steps to understand the “landscape” involved, the neighboring community and the area’s valued resources, and document and prioritize these findings before starting the engineering design. In considering the process and products a successful project, the workshop participants outlined the following process characteristics contributing to project excellence (process):

- Communication with all stakeholders is open, honest, early, and continuous.



Exhibit 37. Example Application of Context Sensitive Solutions (Reference 18)

- A multidisciplinary team is established early, with disciplines based on the needs of the specific project, and with the inclusion of the public.
- A full range of stakeholders are involved with transportation officials in the scoping phase. The purposes of the project are clearly defined, and consensus on the scope is forged before proceeding.
- The highway development process is tailored to meet the circumstances. This process should examine multiple alternatives that will result in a consensus of approach methods.
- A commitment to the process from top agency officials and local leaders is secured.
- The public involvement process, which includes informal meetings, is tailored to the project.
- The landscape, the community, and valued resources are understood before engineering design is started.
- A full range of tools for communication about project alternatives is used (e.g., visualization).

Applying CSS to FM 150 Corridor Solutions

In summary, the FM 150 corridor has identified highly valued qualities and characteristics that make it especially important to apply a context-sensitive approach to consider appropriate long-range solutions. This means understanding the role FM 150 plays in the Hays County highway network and the unique value and importance FM 150 and its character contribute to the community and study stakeholders. CSS is an approach to documenting the features and themes that should be preserved and protected in considering potential corridor solutions. Understanding and documenting those elements now, ahead of the forecast growth and associated demands and ahead of more specifically identifying projects and moving them toward construction, allows Hays County to better consider ways to protect and preserve the unique features when considering solutions.

The roadway elements should be sensitive to topography and natural areas to lay the road like a “ribbon” on the land. The future projects should integrate and focus on quality and the long-term value FM 150 brings in terms of preserving the history and heritage of Hays County. This means considering value of investment beyond mere construction costs. The solutions should be sensitive to and based on choices to provide a range of solutions tailored to the corridor as a whole and the context zones along the corridor. Developing adaptive and context sensitive FM 150 solutions will require applying the flexibilities that are available within published design criteria, establishing design controls that are applicable to FM 150 needs, and integrating performance-based analysis approaches to appropriately select the geometric design elements that preserve and protect the corridor features and themes while meeting highway safety and operational performance objectives.

6.2 FEATURES AND THEMES

Preserving and protecting the unique qualities and characteristics of the FM 150 corridor is a key portion of the future planning framework. Traditional highway corridor studies often emphasize traffic capacity, meeting roadway standards for a given design speed, and promoting fast and efficient construction techniques. As shared throughout this document, Hays County seeks to meet its responsibilities of anticipating regional growth and protecting and preserving FM 150’s ability to serve long range travel demand, even if that demand is not yet readily apparent. However, in transportation projects, by the time the congestion has developed, solutions are often limited and the costs and impacts to address demands become significant. Hays County wishes to have the most flexibility possible in meeting future needs and the County’s highest priority is maintaining and incorporating the elements that make the area on and around the FM 150 corridor so special.

The following sections summarize key corridor features and themes that become foundational in considering roadway corridor and intersection facilities. Preserving and integrating these features and themes in the planning and design processes will result in roadway solutions with the nature and character to meet forecasted needs while honoring the surrounding area and unique zones along FM 150. The categories, or groupings, are a functional accounting of the elements identified as

important to the community. The community has been clear that the special nature of FM 150 should be passed on to future generations and users, and the County agrees. The following topics are listed individually however; the study team recognizes that the special nature of this part of Hays County and FM 150 comes from the mix and interrelation of unique and discrete elements that, in total, far exceed the value of any one element.

History and Heritage

History and heritage comes in two forms: 1) officially designated historical elements as recognized in environmental law and, 2) cultural resources reflecting the history and evolution of an area over time. While the latter may not have standing in environmental law, it reflects stories and elements that help define a place or area and make that place or area special none the less. Documenting and passing on the history and heritage of a place has intrinsic value that might not be captured by the strict definitions of environmental law. This portion of Hays County includes historical land settlements of key members of Texas history. Ranch land has passed from one family member to another. The community of Driftwood is a physical example of a different time; while remaining an active and current place as a community center. The FM 150 corridor includes two recorded archeological sites, two historical marker designations, and two historical period cemeteries. The history and heritage of the area along and surrounding FM 150 should be integrated into the future planning framework.

Community Context

The areas of Kyle, Driftwood, and Dripping Springs define the formal communities along the FM 150 corridor. However, re-emerging development in Hays City and the residential enclaves along Elder Hill and Darden Hill Roads reflect unique communities and a populace who have chosen to live or remain in this part of Hays County. There is a sense of pride and ownership in the area. New development is occurring along RM 12 near the FM 150 intersection. Wineries, breweries, retail, and restaurants make this part of Hays County a tourist destination. In total, the community context reflects the rural

character symbolized by larger parcels, ranches, and a desire to maintain the look and feel of the area. There is significant pride in the history and heritage and natural qualities surrounding FM 150. The qualities so valued by the community will help guide the nature and character of eventual roadway solutions.

Land Uses

One would expect continued growth in Kyle resulting in growing travel demand in the south section of the FM 150 study area. The developments will likely include more public and private access points on FM 150 along with generally increased turning volumes at access points. This means the transition from the rural character of northern and western sections of FM 150 will require special detail to serve the adjacent land uses. This could influence intersection and median configurations along with turn lanes and intersection traffic control choices. The types of roadway and intersection needs in the South Section may vary from other parts of the corridor.

Hays City is experiencing a re-emergence as a meeting place. Private investment in retail and commercial (restaurant) businesses has made this location a place of activity once again. As noted throughout the study during the CAP process and general public meetings, establishing route continuity would be an objective in Hays City so those traveling along FM 150 remain on their route versus “exiting” to the right to go northwest or making the left turn at Old Kyle Road (FM 3237) to travel southeast. There are a variety of potential alignment and intersection treatments for the intersection. Preserving access and circulation to support existing businesses and potential new land uses will be a focus in future roadway and intersection evaluations.

Much has been written about the community pride and valuation of the historical elements of Driftwood. This study has documented a “Z” movement of north-south travel demand in the morning and evening peak periods between Elder Hill Road and RR 1826. This demand means north-south traffic is overlaid upon FM 150 and puts pressure on the FM 150/Elder Hill Road intersection. That intersection is in the heart of downtown Driftwood with close proximity to the beloved former gas station/general store and across from the community center complex.

The “Z” movement increases the southbound left turning traffic from FM 1826 to FM 150 and the overall effect of the north-south demand is to add pressure on FM 150 in Driftwood. Future evaluations in this study area will require special attention on how to serve existing and forecast demand while protecting the qualities and characteristics that make Driftwood so highly valued by the community. More broadly and considering Driftwood, FM 150 solutions may include reduced speeds through downtown and roadway transition features that clearly depict the arrival to and departure from Driftwood’s core. A slower travel speed for this short section of FM 150 would result in a marginally longer overall travel time between Dripping Springs and Kyle while contributing to preserving this special place.

Residential development on RM 12 north of the FM 150 intersection is symbolic of the continued growth in and around Kyle. The brewery on FM 150 near the RM 12 intersection may be the leading indicator of more development near the FM 150/RM 12 intersection. There have been early discussions about localized land development adjacent to the intersection, across from the Phillips Cemetery. Hays County has expressed interest in not precluding a possible roadway connection from FM 150 at RM 12 to US 290. This potential connection is not part of this FM 150 evaluation. Increased traffic demand is forecast for the RM 12 intersection. Future FM 150 roadway and intersection concepts must consider and avoid affecting the cemetery, not preclude a potential roadway extension to US 290, and be sensitive to future development near and around the FM 150/RM 12 intersection.

In addition to these community areas, there are other land uses such as commercial businesses, a church, and a winery. These land uses result in various levels of traffic demand that will influence how access to and from FM 150 will be provided. The land uses could influence median and turn lane designs and other roadway features needed to promote safe access and circulation. These and other individual locations will be considered and integrated in future study efforts.

Environments/Needs

The rural qualities around FM 150 create open lands that have remained virtually untouched in some locations but generally natural in

most areas. The natural character is prized by the community and to the extent FM 150 has any effect on private lands along the corridor, future project activities will attempt to avoid and minimize physical impacts to surrounding areas. From an environmental planning point of view, there are a number of regulatory areas that will need to be assessed and documented to attain appropriate State and National environmental approvals. These generally relate to surface and groundwater topics such as the Onion and Rocky Branch creek crossings and the Edwards Aquifer contributing zone. Other habitat investigations will consider rare and listed species.

Other environmental topics include assessing historical properties. For example, Michaelis Ranch is listed on the National Register of Historic Places and future study efforts will focus on avoiding impacts to this historical treasure. In addition, there are historical properties or elements along the corridor or in the area that are not on the National Register of Historical Places. The community has been clear in the important value of these features. Future study efforts will consider listed and non-listed historical features while developing FM 150 corridor solutions.

6.3 FORECAST TRAFFIC

Since the 2013 HCTP was adopted, Capital Area Metropolitan Planning Organization (CAMPO) population and employment projections have increased beyond original projections. Hays County is currently the third fastest growing county in the United States and Kyle is the fifth fastest growing city in Texas. The 2013 HCTP considered a 2035 scenario. The following describes how updates to the regional forecasts for 2040 differ from the 2035 forecast of the 2013 HCTP.

Exhibit 38 shows the projections from the 2040 forecast compared to the previous 2035 forecast. The 2040 forecast projects population will more than double by 2030, 5 years earlier than previously projected, and by 2040, just 24 years from now, the population of Hays County is projected to be more than triple what it is now. Projections have also increased for employment since the 2035 forecast, as the 2040 scenario projects employment will more than double by 2030. As expected with the increased residential and employment populations, the County must begin to prepare for infrastructure improvements necessary to handle the increased traffic demands. Exhibit 39 shows areas of anticipated growth in terms of changes in population and employment densities. Changes are not expected to be evenly dispersed across the County, but rather concentrated in urban centers along I-35 and further west, such as Dripping Springs. Rural areas are anticipated to remain rural; however, roads through these rural areas will need to accommodate efficient travel between population and employment centers. Changes in population are concentrated in San Marcos, Kyle, and Buda and the roads serving these areas are expected to become more congested if no improvements are made ahead of time.

The HCTP documents and memorializes the County’s philosophy of focused improvements and embraces a tiered approach to growth:

- Improve the safety and efficiency of all roadways when opportunities arise;
- add capacity to certain, key roadways; and,
- add new roadways only when needed.

This Corridor Features and Themes Report documents a corridor planning approach that seeks to protect and preserve heritage and character and add new roadways only when needed. Hays County values environmental features and seeks to proactively plan for the future growth. This study effort is an example of these values at work and the County’s desire to find creative approaches for community solutions. The county recognizes the existing infrastructure cannot safely and efficiently accommodate the projected growth; therefore, changes to FM 150 will be necessary to meet forecast demand. While these changes can be accommodated, care must be taken to find corridor solutions that preserve the character of the FM 150 corridor, while also accepting that changes must be made to address impending travel demand. The HCTP identifies a future network of major thoroughfares to serve anticipated future capacity needs. As seen in Exhibit 1, FM 150 is included along with several other roads in the area as a corridor where lanes could be added.

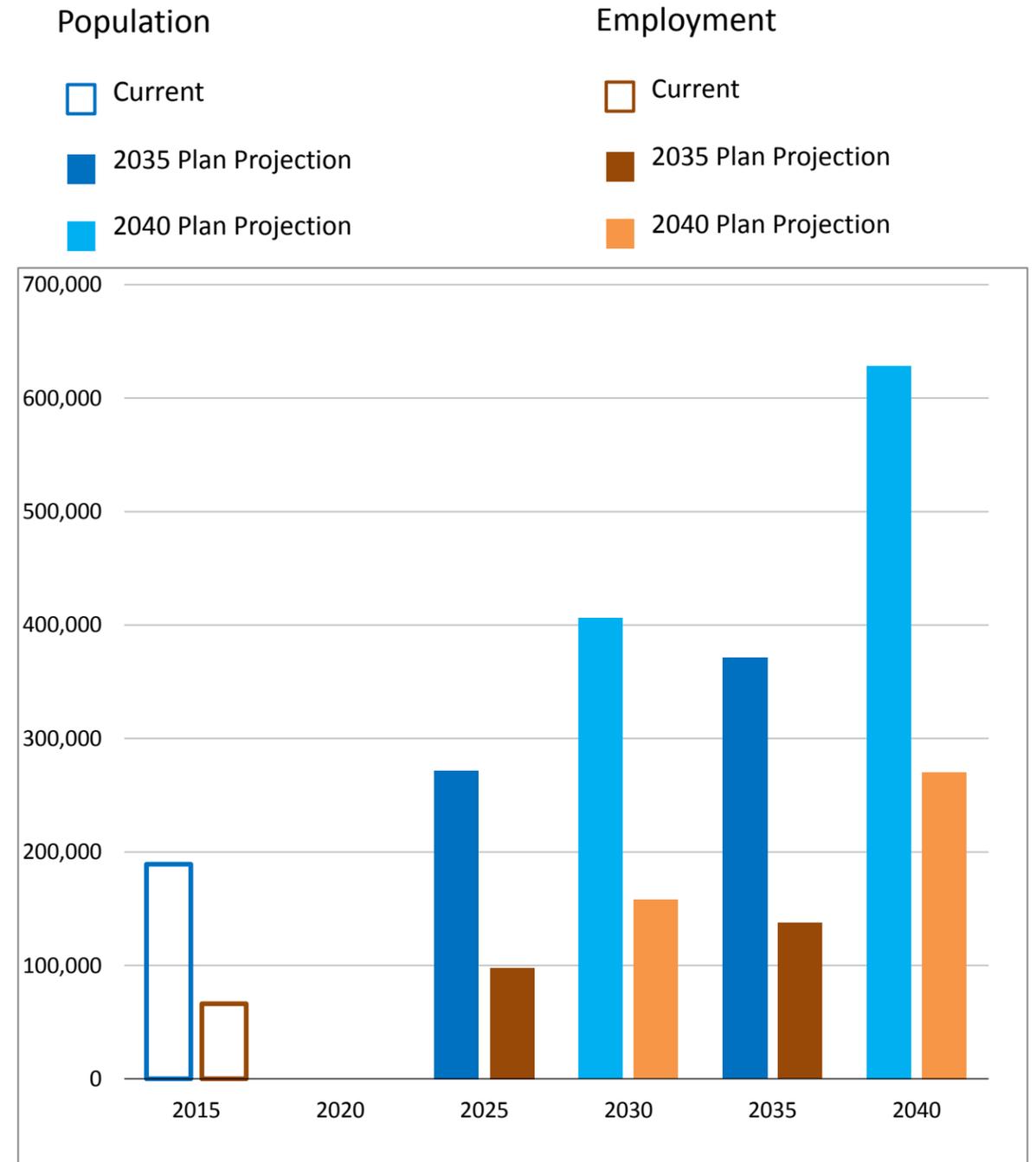
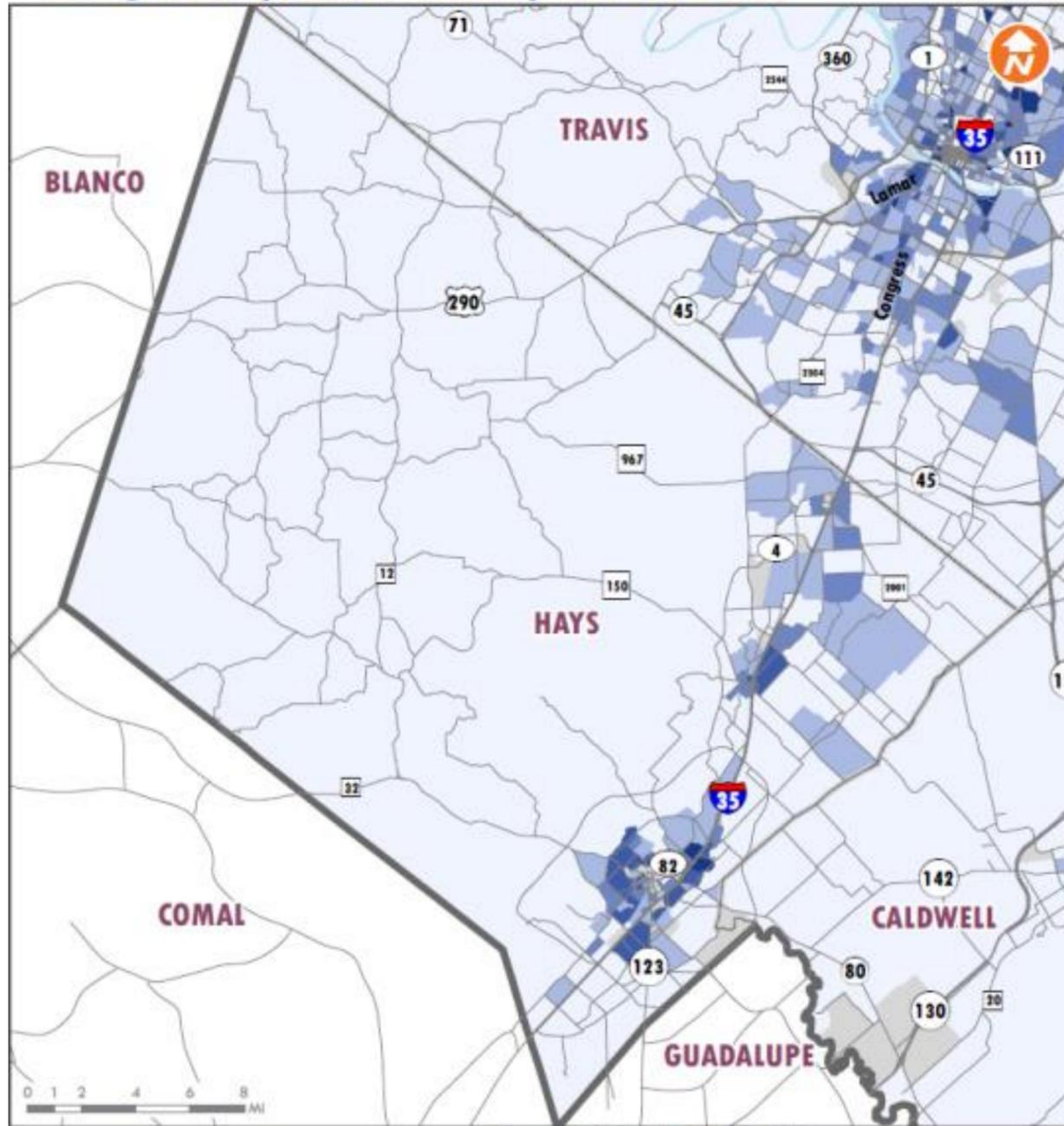


Exhibit 38. Population and Employment Projections (Source: HCTP)

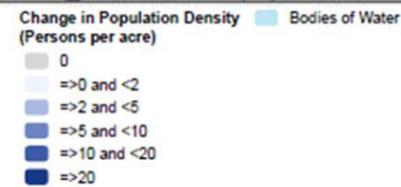
Change in Population Density 2010 to 2040

Hays County
Date: 3/2/2015



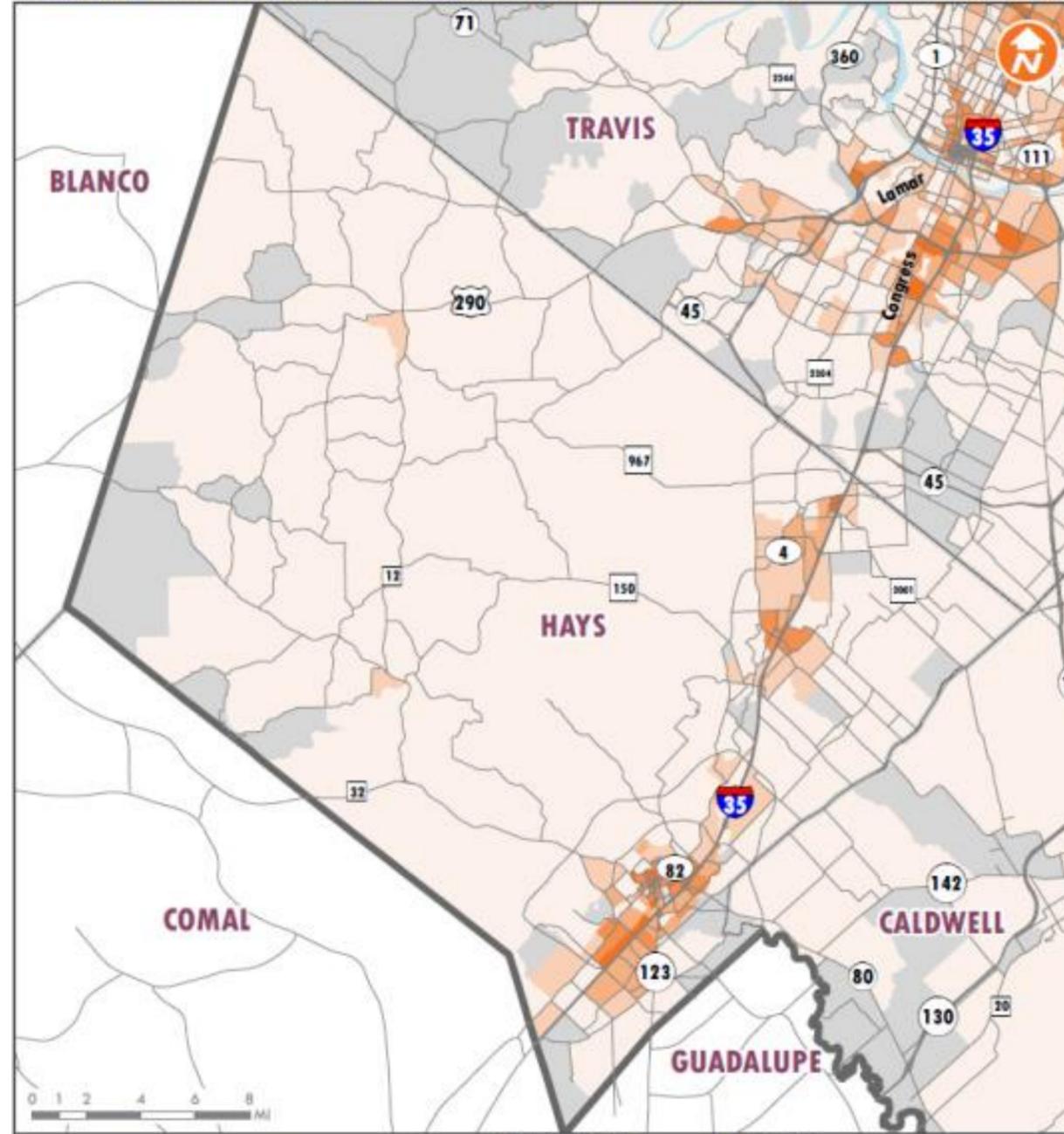
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@compotexas.org.
Data Source: CAMPO

Aurben GIS
Document Path: \\jlapr\2040 Plan Report\Public Review Maps\Change in Population Density 2010 to 2040.mxd



Change in Population Density 2010 to 2040

Hays County
Date: 3/2/2015



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@compotexas.org.
Data Source: CAMPO

Aurben GIS
Document Path: \\jlapr\2040 Plan Report\Public Review Maps\Change in Employment Density 2010 to 2040.mxd

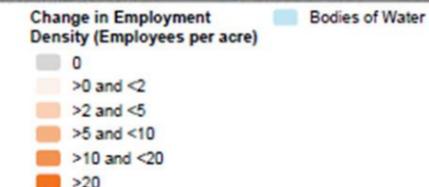


Exhibit 39. Change in Population (left) and Employment (right) Density 2010 to 2040 (Source: HCTP)

SECTION 7 Continuum of
Improvements

Page left intentionally blank

7 CONTINUUM OF IMPROVEMENTS

The intent of this Corridor Features and Themes Report is to develop a continuum of improvements. This means considering a range of near-, mid-, and long-term improvements. As illustrated in Exhibit 40, the County is early in the process and these early planning activities pre-date the development of projects. Concepts that move forward from this step will enter another planning process with multiple opportunities for public involvement, alternative considerations, and refinement.

The following steps were taken throughout the study to develop potential future improvements:

- Established study “context zones”
- Confirmed the Driftwood community and double-low water crossings had special value
- Considered existing corridors per the Hays County Transportation Plan (HCTP)
- Considered new routes per the HCTP
- Identified a range of potential FM 150 corridor concepts

Developing a continuum of improvements allows the County to make necessary near-term improvements to FM 150 focused on enhancing the corridor’s safety performance, while planning for future growth. During this first step, opportunities to enhance the safety performance of the existing FM 150 roadway have been identified, such as widening shoulders and increasing sight-distance around curves and near intersections. These improvements would likely be completed within

the existing right-of-way with very little, but beneficial, changes to the roadway.

In addition, mid-term improvements have been identified to also enhance safety performance while transitioning to the long-term layout for the corridor. These improvements include curve widening or curve smoothing to address speed inconsistencies, which would result in smoother transitions along the corridor.

As the long-term improvements are identified, the mid-term improvements would be designed to ensure that the long-term improvements are easily implementable and would limit disruption as much as possible by creating transitions to potential new alignments. By laying out the long-term improvements at this point in the process, the County will be able to plan for phasing projects to meet the increased population and traffic volumes along the FM 150 corridor, rather than waiting until the capacity of the existing roadway is inadequate and opportunities are more limited. This approach provides flexibility and allows the community to proactively plan for the future. Exhibit 41 illustrates the continuum of potential improvements for the corridor, which are further explored in the following sections.

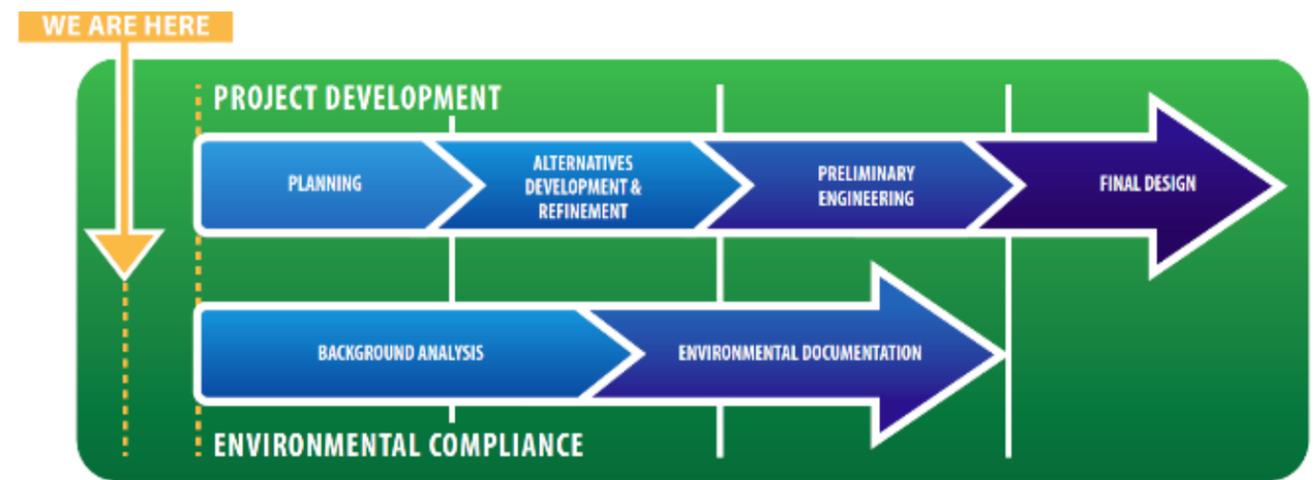


Exhibit 40. Project Timeline

7.1 FUTURE ALIGNMENT AND CONCEPTS

The following sub-sections introduce potential future alignments and concepts for the corridor, broken up into segments based on the context zones. For each segment, a description of the roadway and key characteristics is provided, as well as a range of near-, mid-, and long-term improvements. The intention is to provide a range of options that provide enhanced safety performance and capacity for projected future volumes. For some portions of the corridor, study of a potential future bypass route is proposed to provide capacity off the existing alignment. The concept for this study was developed based on feedback from the CAP and the community about the importance of preserving the existing



Exhibit 41. Near-, Mid-, and Long-Term Improvements

alignment through the double water crossings and Driftwood, where it is infeasible to expand the roadway to four-lanes. The potential for a future bypass route(s) will be studied in a process independent from this work and will be subject to future planning and public review.

The range of improvements is described more generally in the following section describing potential improvements for each section of the corridor.

Range of Improvements

Based on the review of the corridor and input from the public, several potential improvements were developed that are applicable to significant sections of the corridor, as opposed to site-specific. These improvements present a range of options from lower cost, smaller impact improvements that could be conducted in the near-term to larger cost, more significant improvements that would be conducted in the long-term.

Safety Section (near-term)

As described in the “Existing Conditions” section, the shoulders on FM 150 are minimal in width and typically one to two feet along the corridor. There are several locations where the side of the roadway drops off quickly and steeply, providing little opportunity for drivers to recover if they drift toward the roadway edge. To enhance the safety performance of the roadway and provide more space for vehicles to recover, the shoulders could be widened. We anticipate this improvement would also reduce run off the road crashes. Exhibit 42 shows an example of the potential corridor cross section, with the paved shoulders widened to four feet followed by a four foot reinforced grass or gravel shoulder. Exhibit 43 shows an image from RM 12, which provides an example of the near term section that could be implemented on FM 150.

Intersection Enhancements (near- to mid-term)

Potential near- to mid-term improvements to enhance intersections along the corridor include:

- **Improving delineation:** enhance the visibility of the intersection and provide visual cues to inform drivers of the presence of the

intersection and what maneuvers are allowed. Opportunities to improve delineation include installing street lighting, enhancing pavement marking and signing, and adjusting intersection approaches to improve sight distance to and from FM 150.

- **Considering alternative traffic control:** a roundabout can provide increased capacity, act as a traffic calming measure, and serve as a gateway treatment to signal to drivers that they are entering a portion of the corridor that is unique. A traffic signal can also provide increased capacity.
- **Enhancing sight-distance:** look for opportunities to approach intersection sight-distance, such as addressing vertical curvature, realigning the intersection approaches, or modifying landscaping or other features that limit sight.
- **Intersection Improvements:** look for opportunities to add left or right turn lanes to provide refuge for turning vehicles.

The public intersections along the corridor were assessed from an operational and safety perspective to identify potential improvements, with the intent of enhancing the operational and safety performance while considering the character and context of the area. Specific improvements are discussed for each section of the corridor.

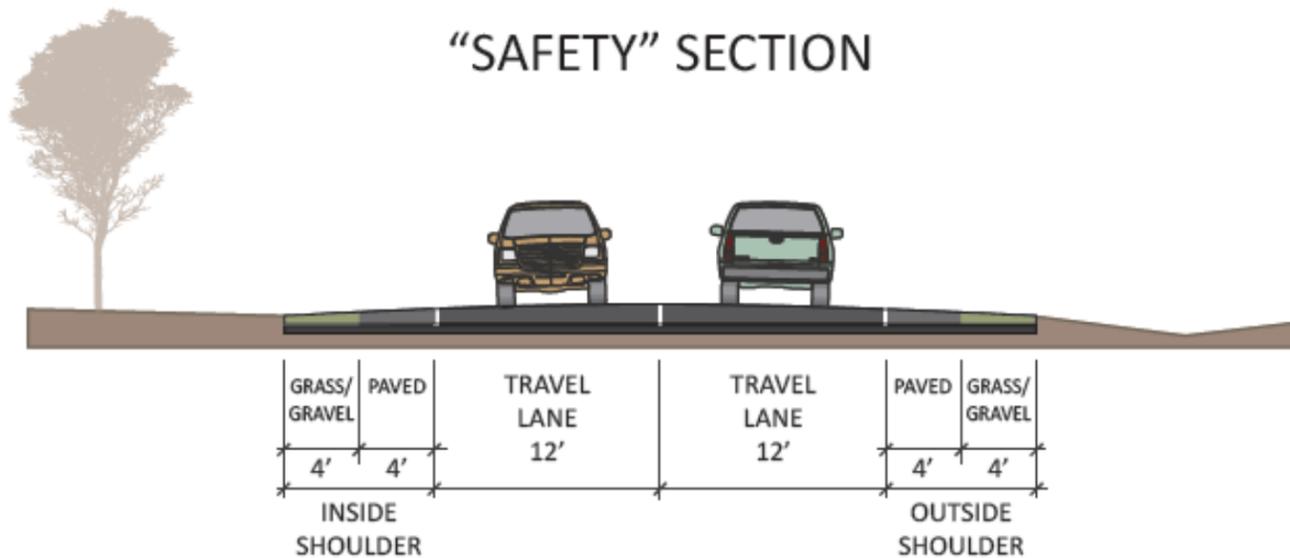


Exhibit 42. Safety Section Cross-Section

Exhibit 43. Safety Section Example from RM 12

Curve Treatments (mid-term)

As described in the “Existing Conditions” section, there are several areas along the corridor where speeds change abruptly due to quick changes from straight sections of roadway to sharp horizontal curves. To enhance safety performance and provide consistent operating speeds, the radii of select horizontal curves could be increased. An approach based on speed consistency versus design speed is recommended for reviewing and treating the horizontal curves on the corridor. This approach considers the context and character of the area and embraces design flexibility to minimize the impact of changes on the corridor. Instead of using one blanket design speed to modify curvature on the corridor, areas of abrupt change in inferred speed should be focused on with the goal to minimize sudden speed changes. Exhibit 44 illustrates a potential application of this approach on the corridor.

Future Cross Section (long-term)

In the long-term, it is anticipated that the corridor will need to be widened to provide four-lanes of capacity northwest of FM 1826 and southeast of FM 3237 (each end of the study corridor). To proactively provide for this possibility and minimize impact to uses along the corridor in the future, right-of-way should be preserved for a potential four-lane cross section. A context sensitive approach to adding capacity at appropriate locations along the corridor considers the flexibility that different cross sections provide to minimize impacts and preserve the character of the corridor. For example, using a split plan and profile allows the roadway to bypass special uses on the corridor and can create the feeling of a narrower roadway. While on first blush preserving a wider right-of-way may suggest a wider, more impactful roadway, the opposite is actually true. A wider right-of-way provides flexibility and greater choice in the future.

Potential Improvements by Section

The following sub-sections describe potential near-, mid-, and long-term improvements for each section of the corridor. The corridor is broken up based on the context zones previously described. Exhibit 45 provides an overview of the corridor sections and anticipated future capacity for the area.

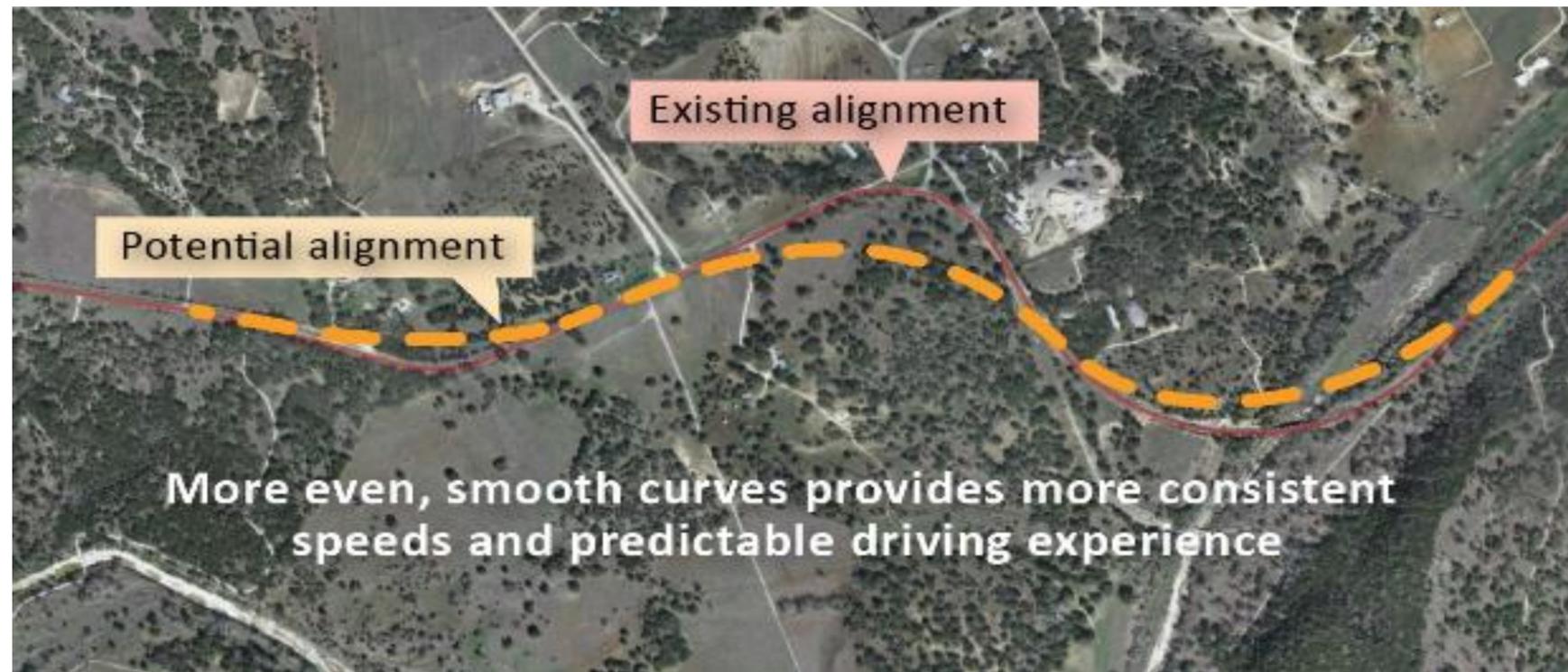
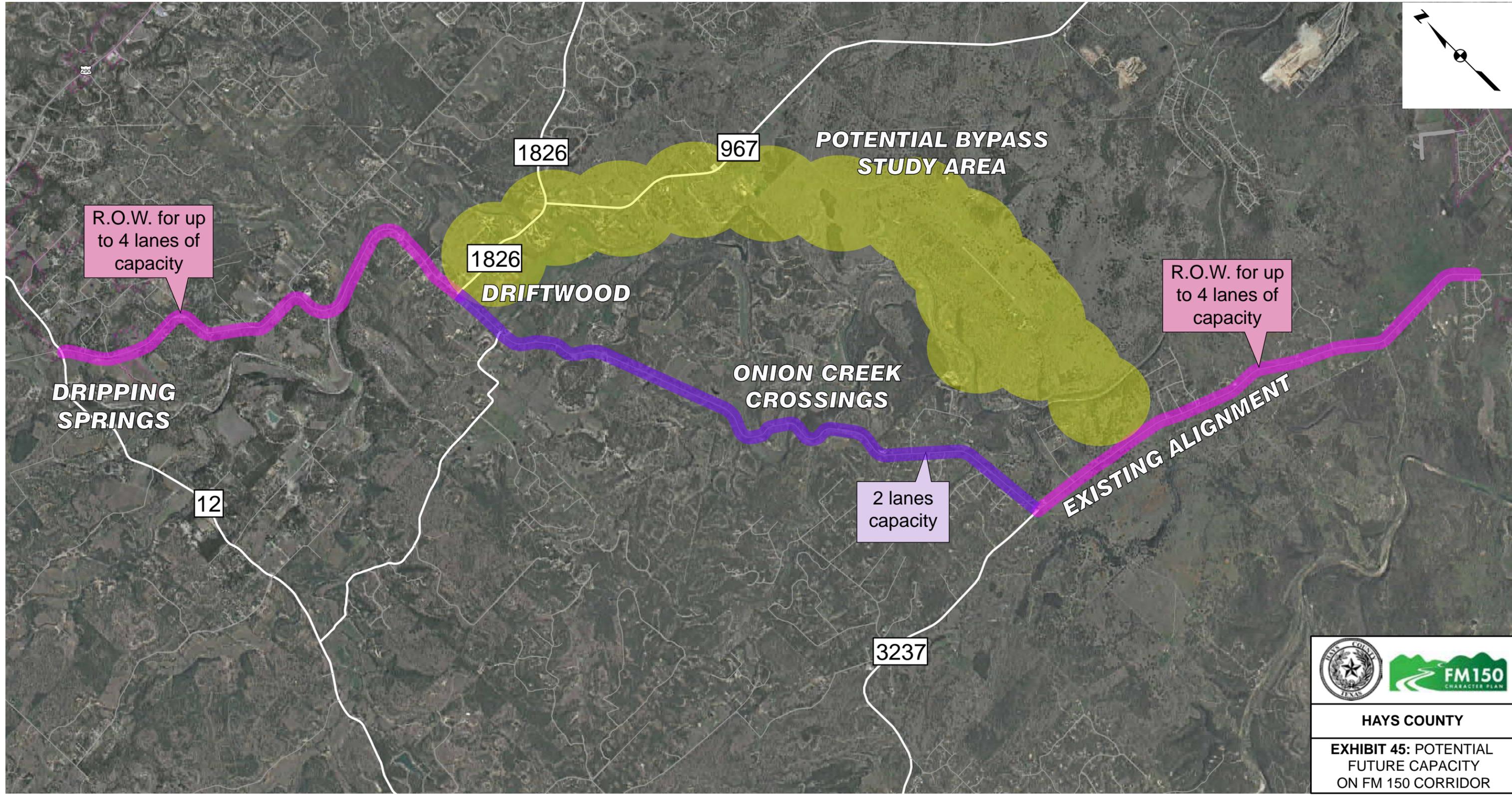
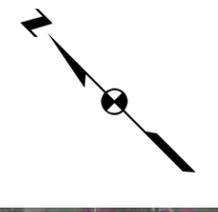


Exhibit 44. Example Curve Treatment Applications



R.O.W. for up to 4 lanes of capacity

1826

DRIFTWOOD

967

POTENTIAL BYPASS STUDY AREA

R.O.W. for up to 4 lanes of capacity

ONION CREEK CROSSINGS

2 lanes capacity

EXISTING ALIGNMENT

DRIPPING SPRINGS

12

3237



HAYS COUNTY
EXHIBIT 45: POTENTIAL FUTURE CAPACITY ON FM 150 CORRIDOR

South Section (from Arroyo Ranch to FM 3237)

The south section of the study corridor provides a transition from Kyle to the rest of the FM 150 corridor, which is more rural in character. There are a variety of larger housing developments and single-family homes along the corridor, including the Michaelis Ranch, a National Register of Historic Places property. This section of the corridor is generally straighter than the rest of the corridor, with a few larger horizontal curves. Potential improvements include:

- Shoulder widening (near-term): widen the existing shoulders to 4-8 feet, including paved or reinforced grass/gravel.
- Curve smoothing (mid-term): modify the three horizontal curves in this section of roadway to provide smoother transitions.
- Four-lane cross section (long-term): as needed, widen the roadway to two-lanes in each direction, considering the flexibility to split the corridor plan and profile.

Exhibit 47 shows an image of the existing roadway cross section while Exhibit 48 illustrates conceptual future improvements.

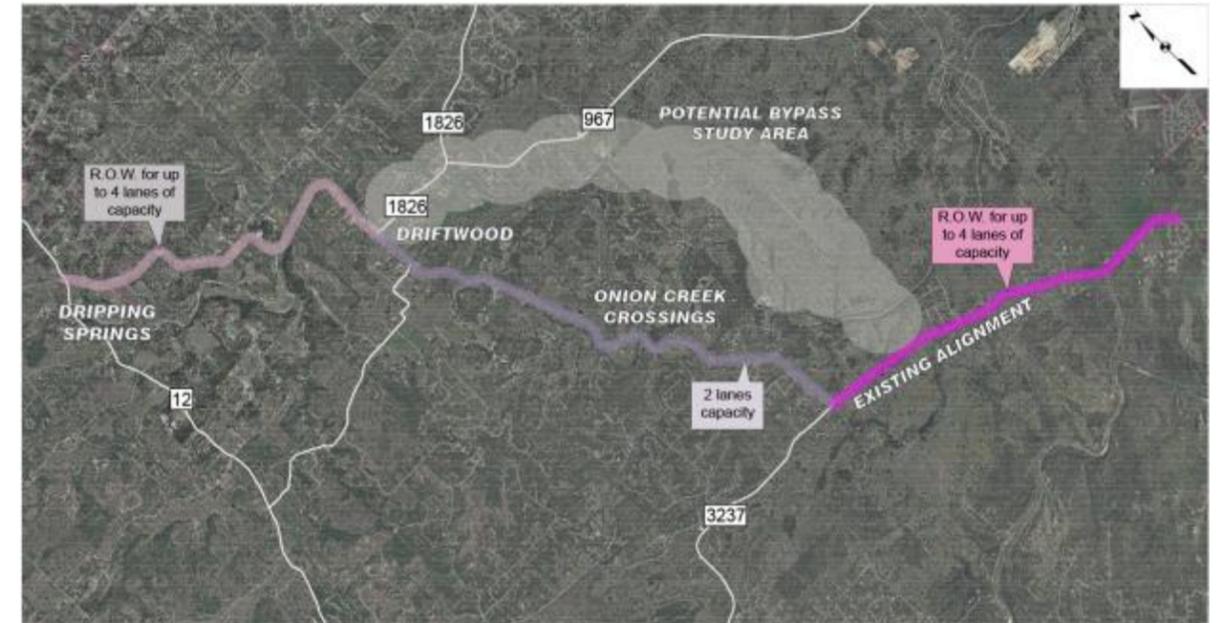


Exhibit 46. South Section (from Arroyo Ranch to RM 3237)

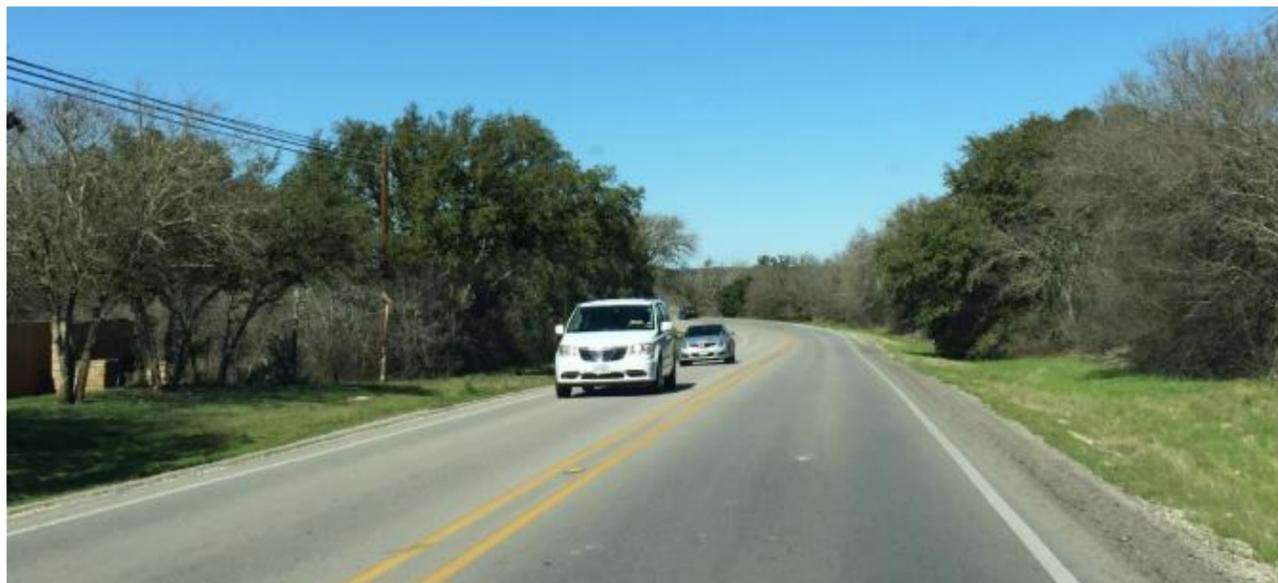


Exhibit 47. Existing Roadway (traveling westbound on FM 150)

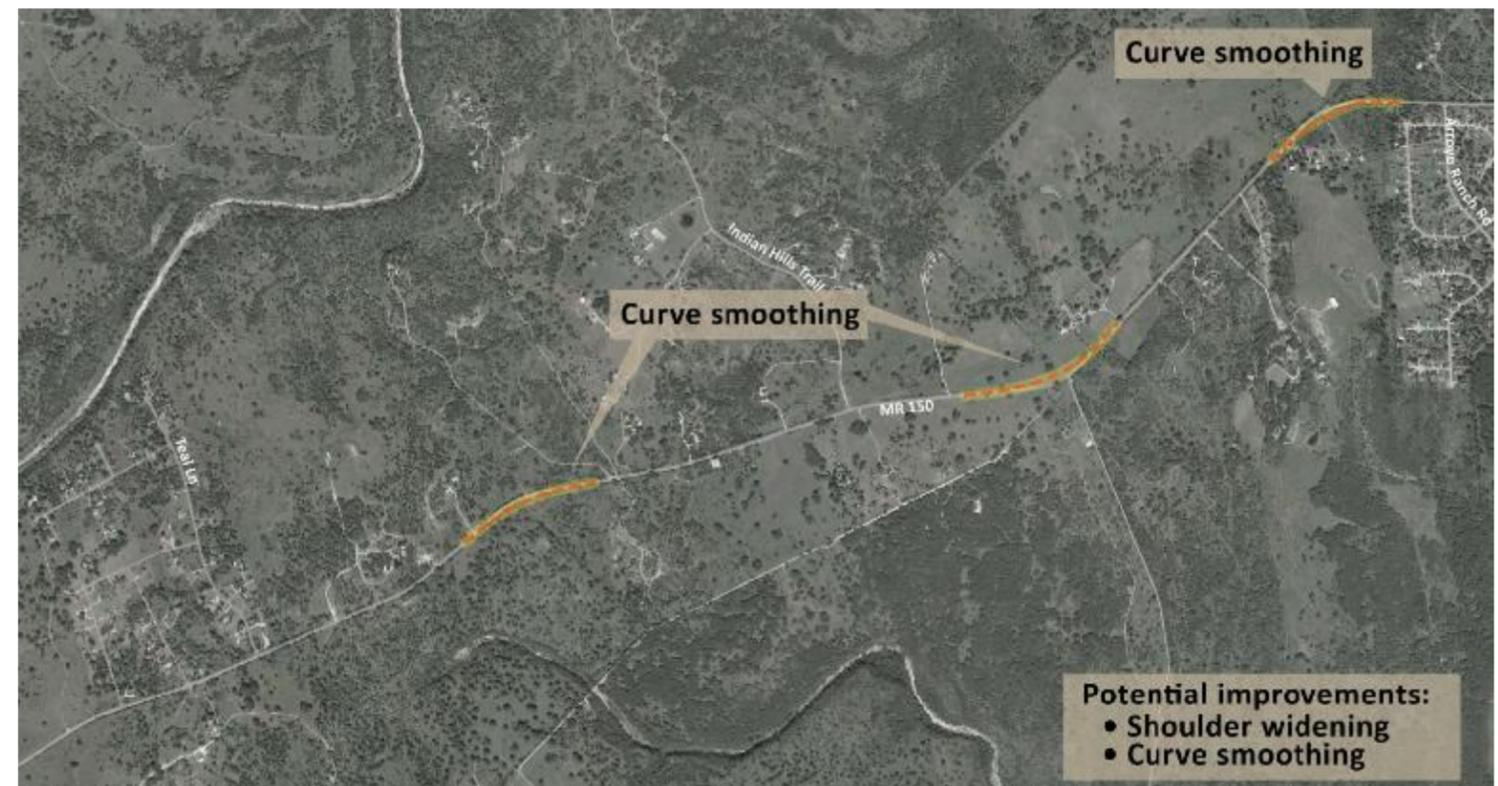


Exhibit 48. Conceptual Improvements for South Section

FM 150 at FM 3237

The FM 150/FM 3237 intersection provides a transition from the south section of the corridor to the rural highway zone. The intersection is currently a community zone, with several commercial uses adjacent to the intersection, and this area is expected to grow in the future. FM 150 makes a ninety degree turn at this intersection so users must turn to stay on FM 150 (vehicles coming from the southeast continuing straight are led to FM 3237). This violates driver expectation, which assumes if you make no changes to your travel path you remain on the designated roadway. Potential improvements include:

- Re-aligning the intersection (mid-term): to provide route continuity on FM 150, so vehicles do not have to turn to stay on FM 150.
- Changing the intersection form (long-term): converting the intersection to a signal or roundabout to provide additional capacity. A roundabout would also act as a gateway treatment to alert drivers they are entering the section of FM 150 with a rural highway character.

- Adding multimodal facilities: adding bike lanes, sidewalks, or paths as the community center around the intersection develops.

Exhibit 50 provides an image of the existing intersection while Exhibit 51 illustrates a concept for potential future improvements.

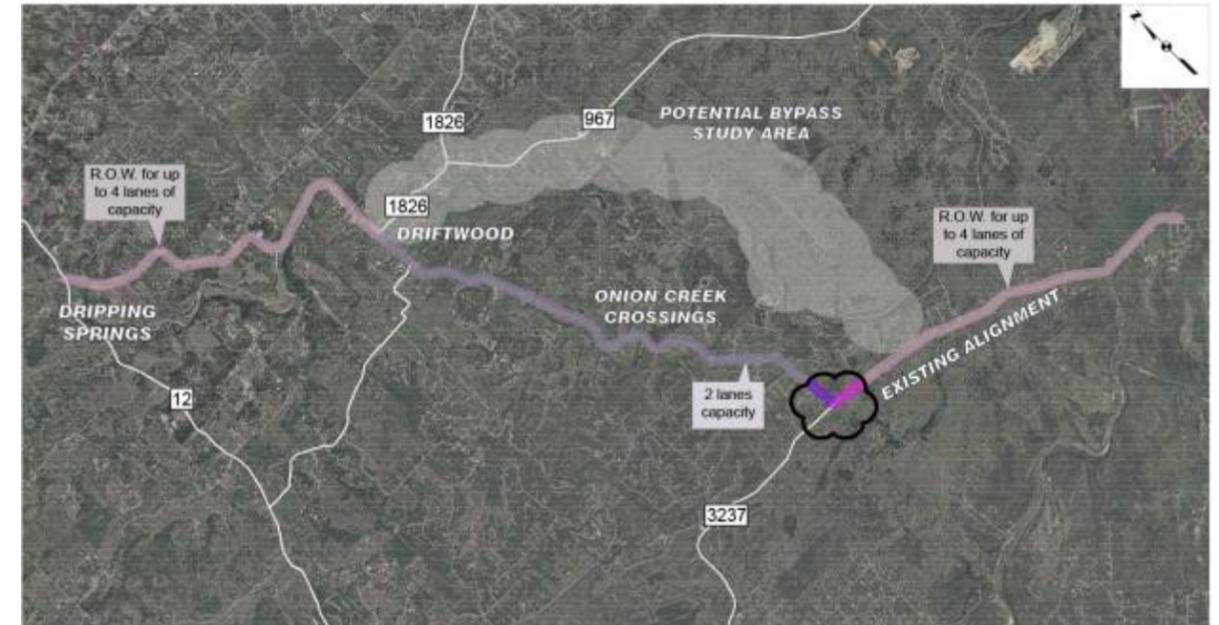


Exhibit 49. FM 150 at RM 3237



Exhibit 50. Existing Roadway (westbound approach on FM 150)

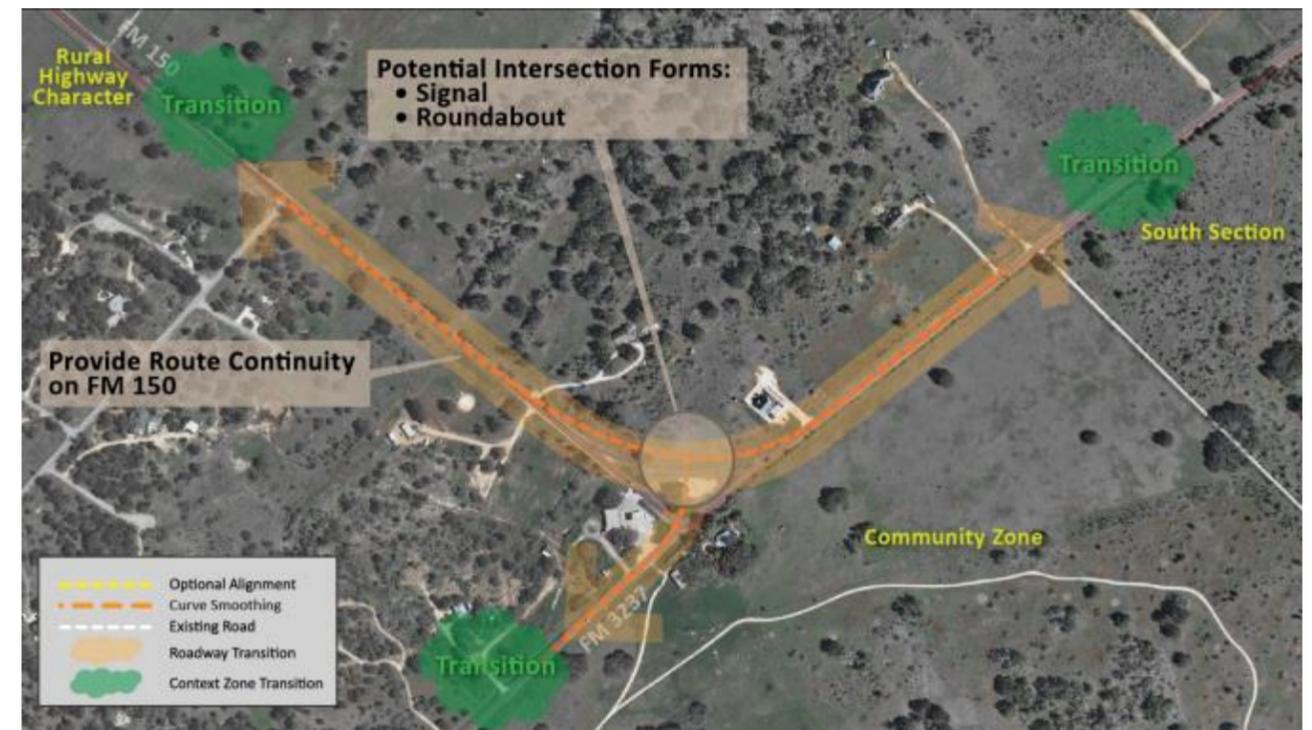


Exhibit 51. Conceptual Future Improvements

FM 150: FM 3237 to Double Low Water Crossings

FM 150 between FM 3237 and the double low water crossings is a two-lane section with a few horizontal and vertical curves. The public envisions this area as remaining unchanged in the future, with potential future capacity provided off-corridor. The area serves as a transition between the community zone at FM 150 and FM 3237 and the double low water crossings. Potential improvements include:

- Shoulder widening (near-term): widen the existing shoulders to 4-8 feet, including paved or reinforced grass/gravel.
- Curve smoothing (mid-term): modify the three horizontal curves in this section of roadway to provide smoother transitions.

Exhibit 53 provides an image of the existing roadway while Exhibit 54 provides an example of what the future cross section could look like.

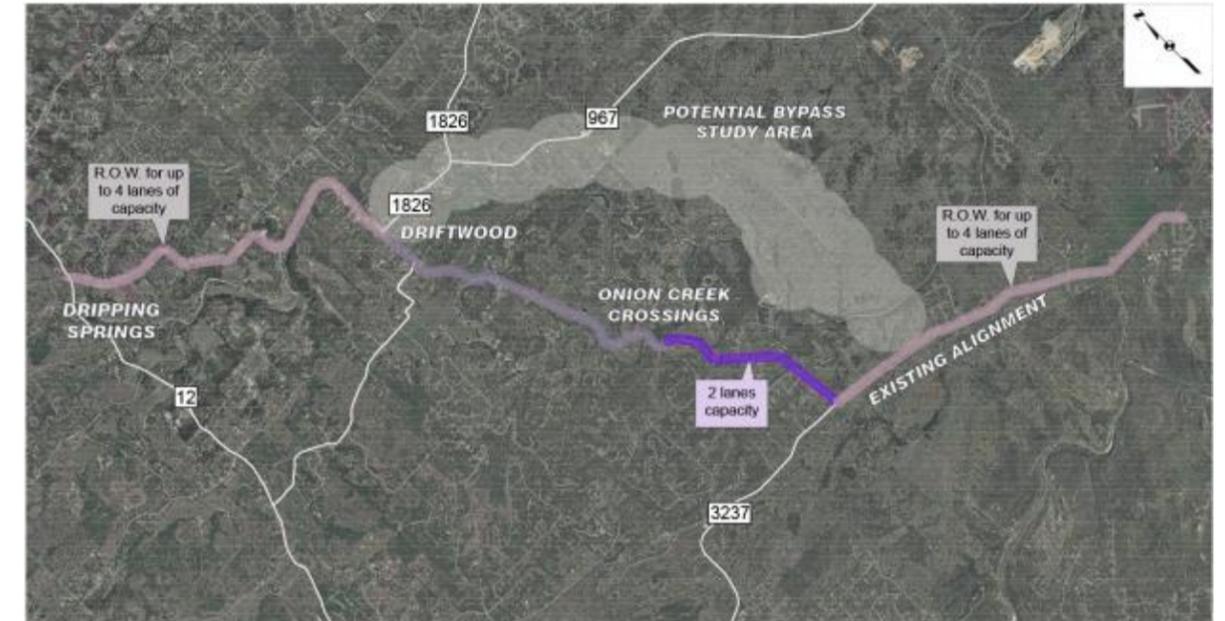


Exhibit 52. RM 3237 to Double Low Water Crossings



Exhibit 53. Existing Roadway (traveling westbound on FM 150)



Exhibit 54. Example of potential future cross section (Winter Mills Parkway)

Double Low Water Crossings

The double low water crossings on FM 150 are an area of special significance due to the natural beauty of the area and historical significance it holds for the community. The vertical curvature of the roadway dips through this section at each low water crossing, creating a significant change in the inferred speed from the roadway sections on either side of the crossings. The low water crossings flood during heavy rain events, presenting an opportunity to improve the reliability of the corridor. Potential improvements include:

- Shoulder widening (near-term): widen the existing shoulders to 4-8 feet, including paved or reinforced grass/gravel.
- Curve smoothing (mid-term): modify the horizontal and vertical curves in this section of roadway to provide smoother transitions and less drastic changes in inferred speed.

- Upgrading the crossing (long-term): modify the crossing to provide a more elevated crossing that minimizes the potential of flooding while considering the character of the area and importance of the crossings.

Exhibit 56 provides an image of the existing corridor through one of the low water crossings while Exhibit 57 provides a concept that raises the existing roadway surface to reduce the number of closures caused by flooding.

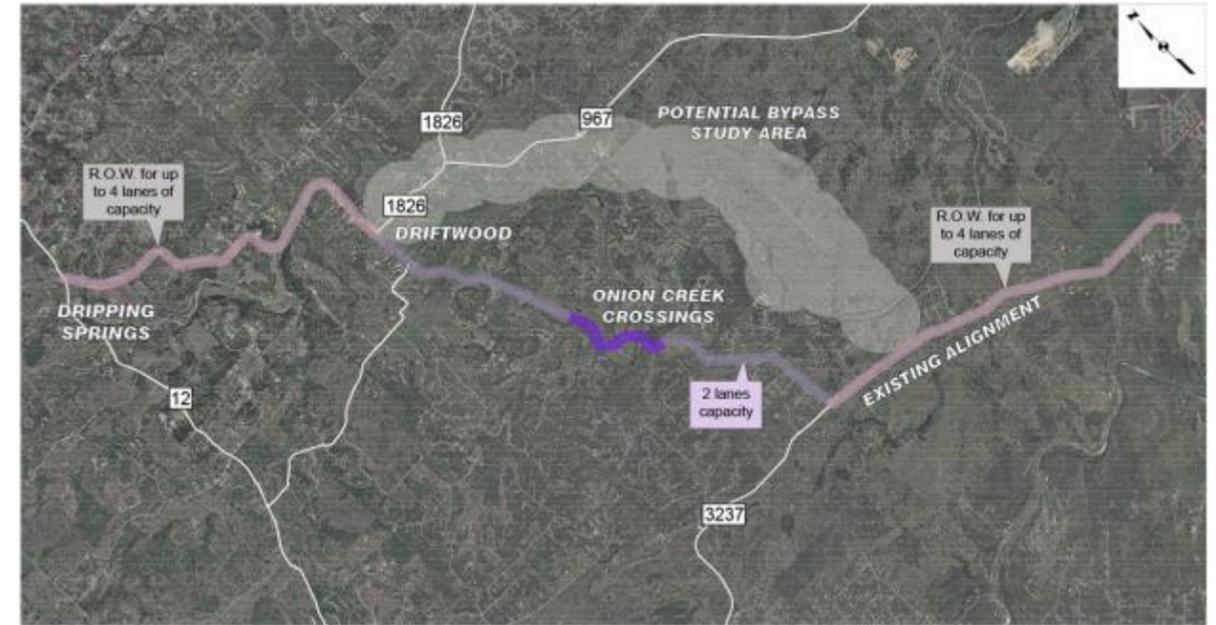


Exhibit 55. FM 150 at the Double Low Water Crossings

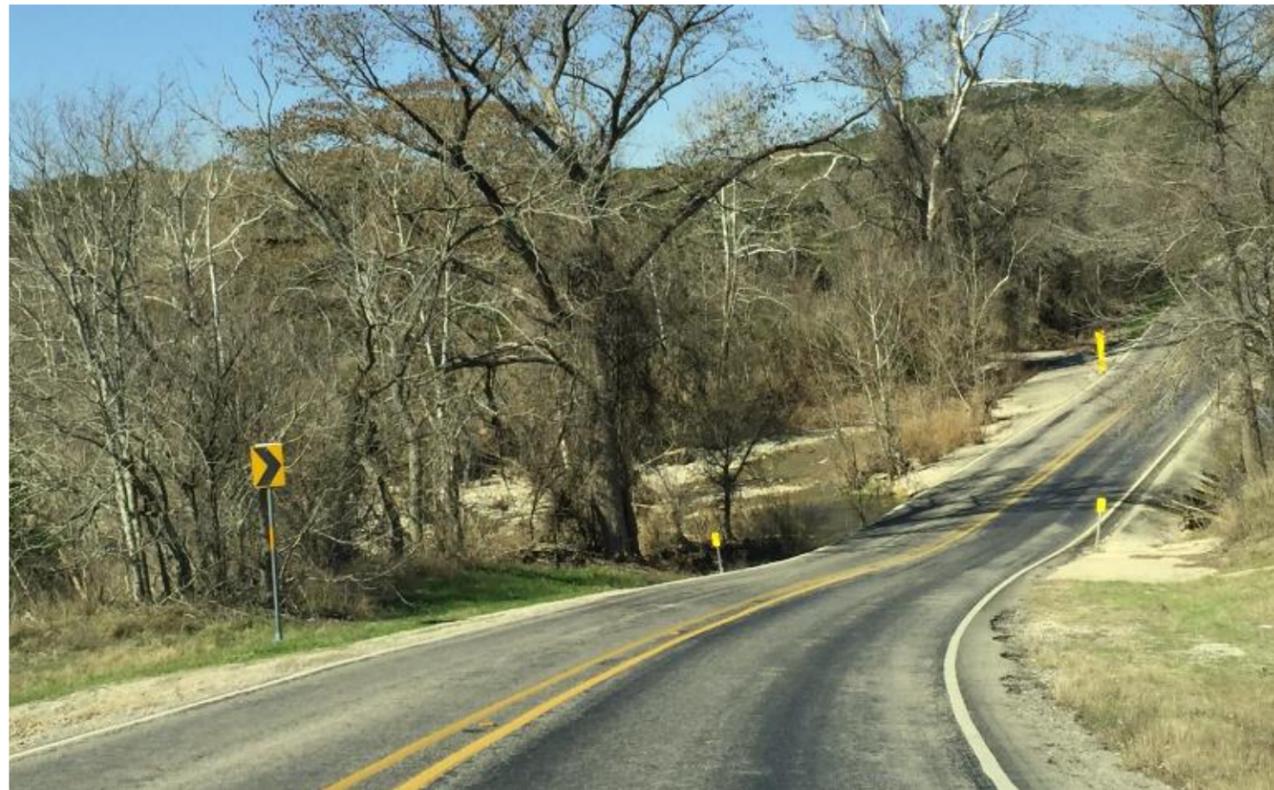


Exhibit 56. Existing Roadway (traveling westbound on FM 150)

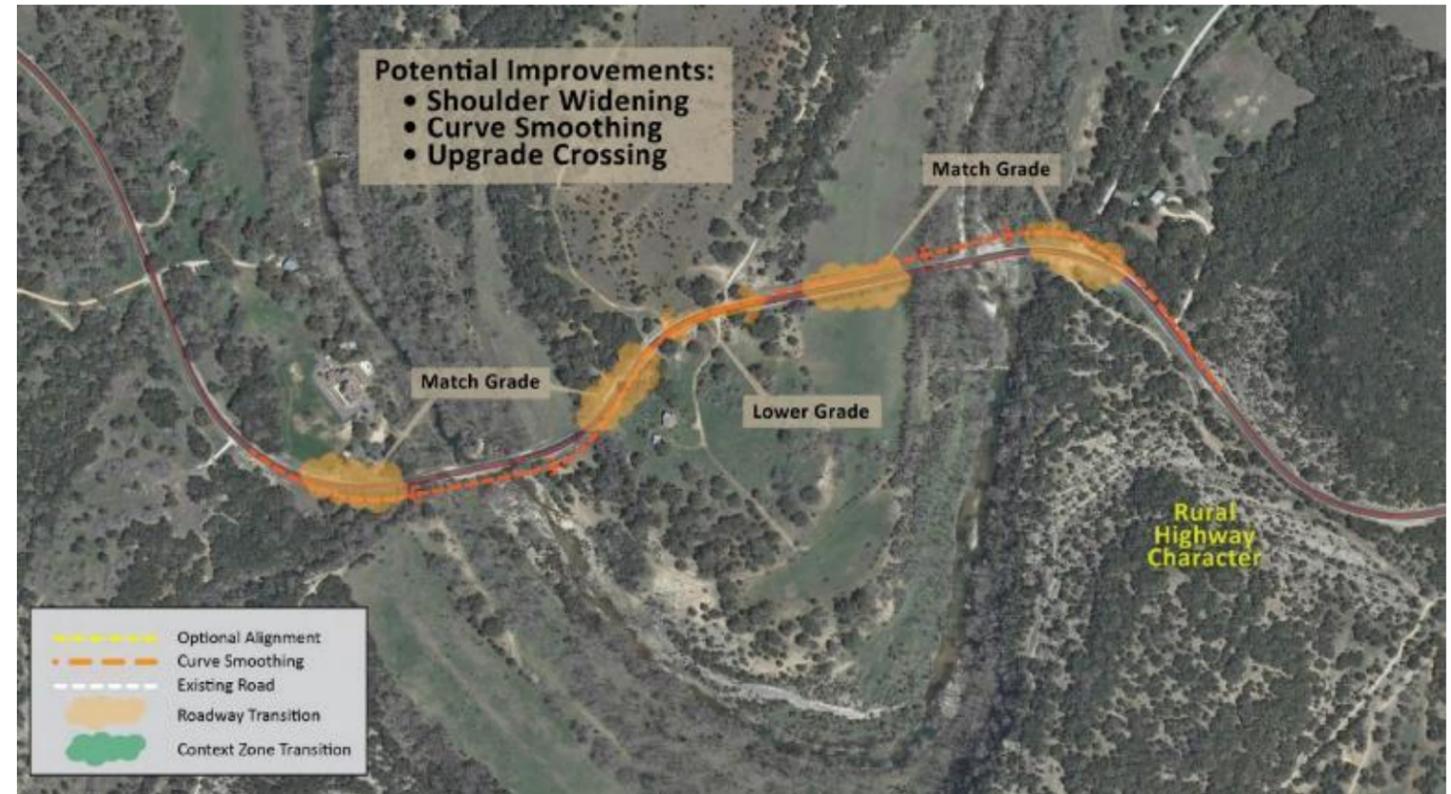


Exhibit 57. Conceptual Future Improvements

FM 150: Driftwood and FM 1826

The portion of FM 150 around Driftwood is a special area due to the historical significance of the area and the existing community use. The roadway is constrained in this area because of the close proximity of land uses to the roadway. This section of the roadway is intended to remain as two through lanes, with additional capacity (if needed) provided off the existing corridor. Traffic data collected on the corridor revealed a “Z” movement of traffic, where vehicles traveling north-south between Elder Hill Road and FM 1826 use a small portion of FM 150 during morning and evening commutes. Potential improvements include:

- Shoulder widening (near-term): widen the existing shoulders to 4-8 feet, including paved or reinforced grass/gravel.
- Curve smoothing (mid-term): modify the horizontal curves in this section of roadway to provide smoother transitions.
- Adding multimodal facilities (mid-term): adding bike lanes, sidewalks, or paths to serve the Driftwood community center.

- Re-aligning FM 1826 (mid-term): to provide a direct connection across FM 150 and eliminate the “Z” movement of vehicles on FM 150.
- Changing the intersection form (long-term): converting the FM 150/FM 1826 and FM 150/Elder Hill Road intersections to a signal or roundabout to provide additional capacity. A roundabout would also act as a gateway treatment to alert drivers they are entering the Driftwood community area.

Exhibit 59 provides an image of the existing roadway through Driftwood while Exhibit 60 illustrates potential future improvements.

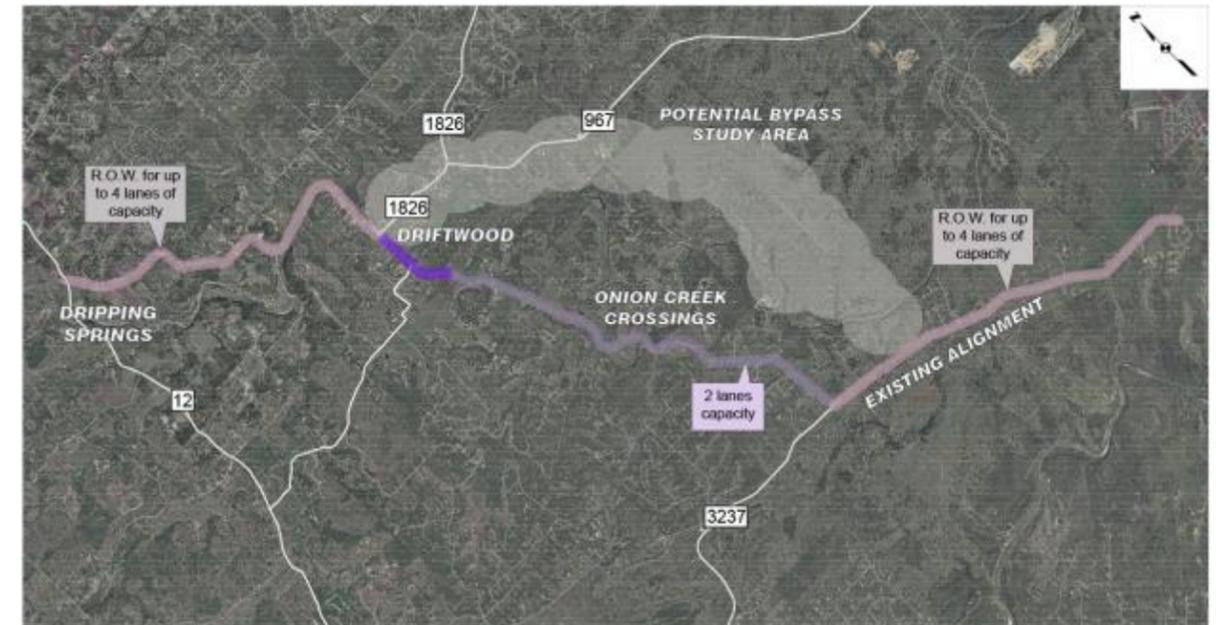


Exhibit 58. Driftwood Community Zone



Exhibit 59. Existing Roadway (traveling westbound on FM 150)

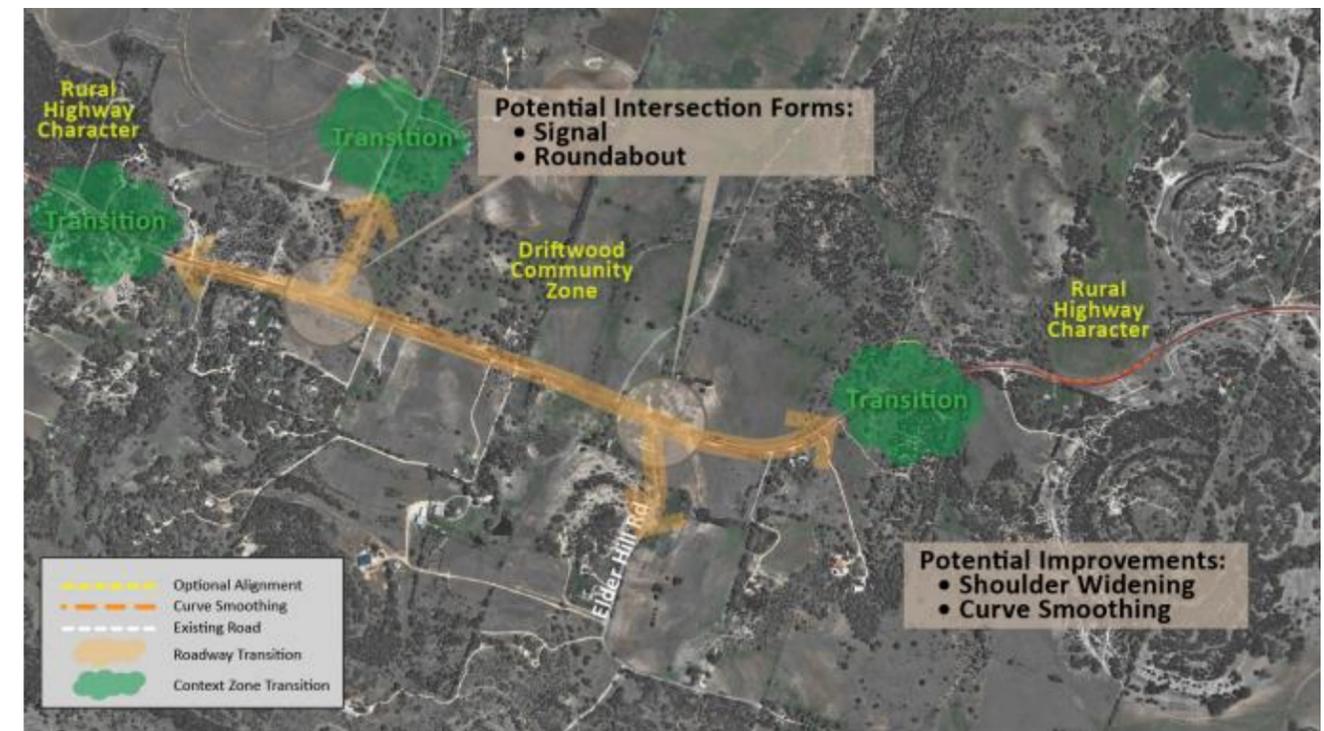


Exhibit 60. Conceptual Future Improvements

North Section (includes FM 150 and RM 12 Intersection)

The portion of FM 150 between Driftwood and RM 12 is arguably the least constrained portion of the corridor in terms of historical or environmental features of significant importance but perhaps has key considerations with regard to residential and commercial development. Several sharp curves have been identified as locations to increase the curve radii to provide more consistent and uniform speeds than the existing alignment. This roadway is ultimately planned to have four-lanes of capacity. Potential improvements include:

- Shoulder widening (near-term): widen the existing shoulders to 4-8 feet, including paved or reinforced grass/gravel.
- Curve smoothing (mid-term): modify the horizontal curves in this section of roadway to provide smoother transitions.
- Changing the intersection form (long-term): converting the FM 150/Darden Hill Road and FM 150/RM 12 intersections to a signal or roundabout to provide additional capacity. A roundabout would also act as a gateway treatment to alert drivers they are entering the community zone at FM 150/RM 12.

- Potentially relocating the FM 150/Darden Hill Road (long-term) from the existing or flattened curve to improve visibility to and from FM 150.

Exhibit 62 provides an image of the existing roadway on the approach to Darden Hill while Exhibit 63 illustrates a concept for future improvements. Exhibit 64 provides an image of the existing roadway on the approach to RM 12 while Exhibit 65 illustrates a concept for future improvements at the intersection of FM 150 and RR12.

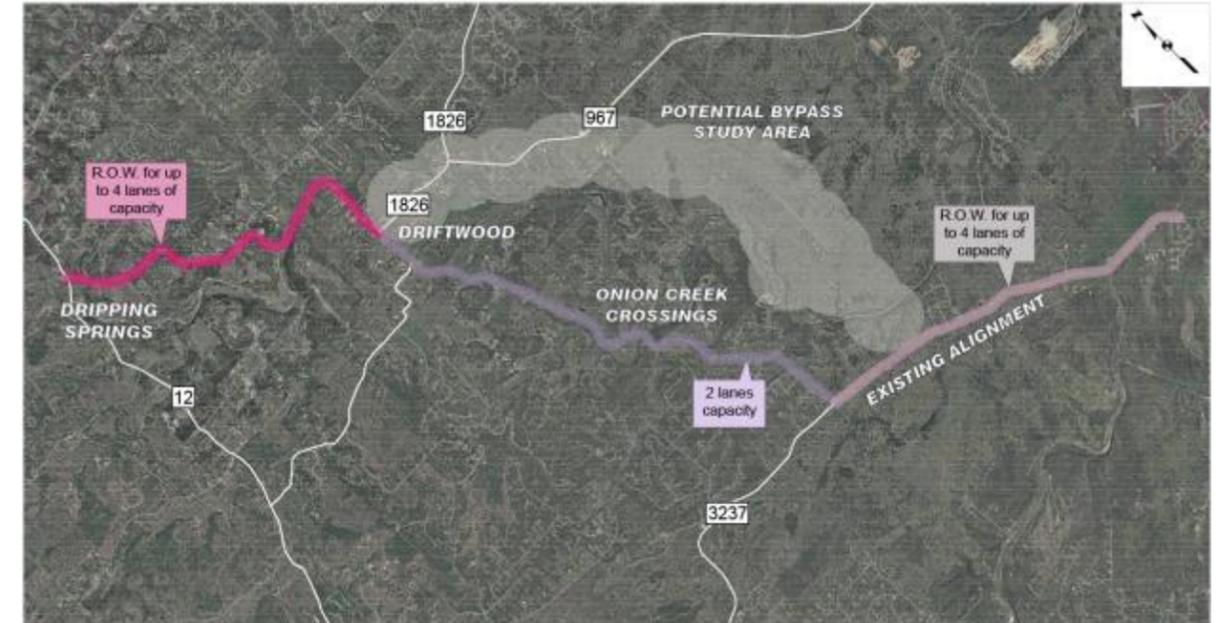


Exhibit 61. North Section



Exhibit 62. Existing Roadway (traveling westbound on FM 150 at Darden Hill)

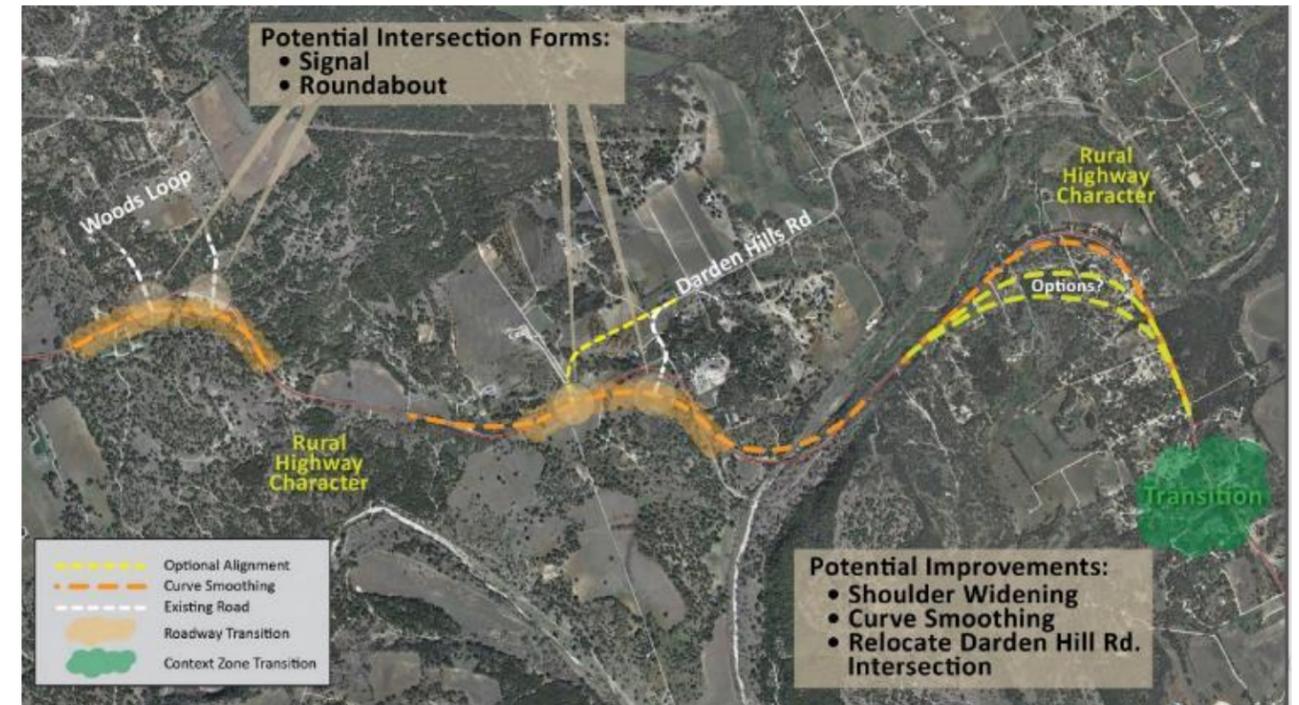


Exhibit 63. Conceptual Future Improvements



Exhibit 64. Existing Roadway (traveling westbound on FM 150 at RM 12)

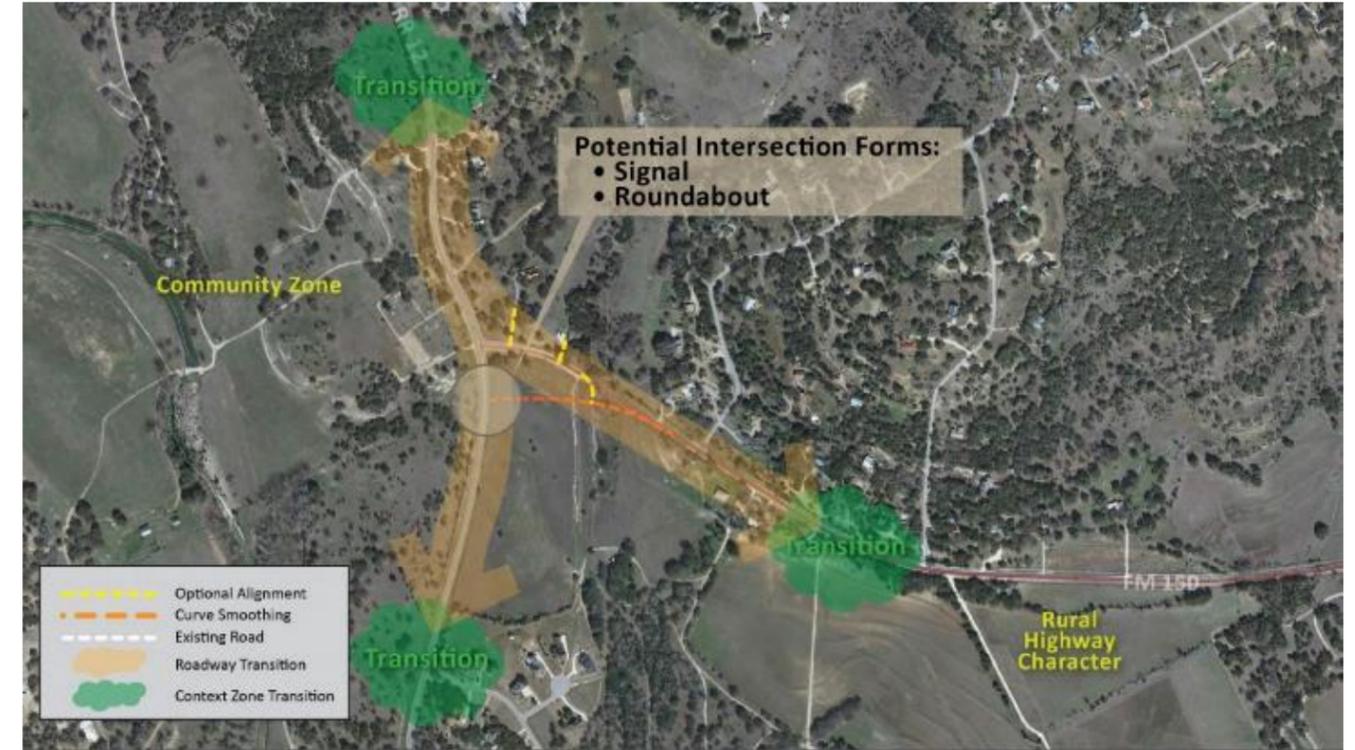


Exhibit 65. Conceptual Future Improvements

Future Study

Throughout this stage of the process, the special importance of the Onion Creek double low water crossings and Driftwood community center has been confirmed through meetings with the CAP and public. The ability to widen the roadway through these areas is constrained by the topography of the low water crossings and proximity of development in Driftwood to the corridor. Therefore, other opportunities to provide capacity between FM 150/FM 3237 and FM 150/FM 1826 were explored at a high-level.

As the study progresses, the County and the study team will continue to consider potential bypasses and alternative alignments. This preliminary assessment would be followed-up by conducting specific project studies and/or planning processes that include customized community outreach and coordination for each location or study area. This effort would verify bypass options are feasible and are the right solutions for the County's projected growth, while integrating into the unique contexts of each project or study area. Given the possibility of a bypass, there is an opportunity to further develop the partnership between the County and TxDOT and consider whether this portion the existing roadway should stay in TxDOT control or be delegated to the County for local control and management.

Exhibit 66 shows the potential bypass study area on the north side of the corridor. This concept and other options will continue to be developed and discussed in future project studies. The potential bypass, as seen in Exhibit 66, is a new roadway that connects FM 150 south of the intersection with FM 3237 to RM 967. This bypass would route traffic around Driftwood, the double low water crossings, and the other context zones in the Driftwood Heritage Corridor. While this is the only potential bypass identified at this stage in the process, other bypasses will continue to be evaluated to provide the most options for the County and community.

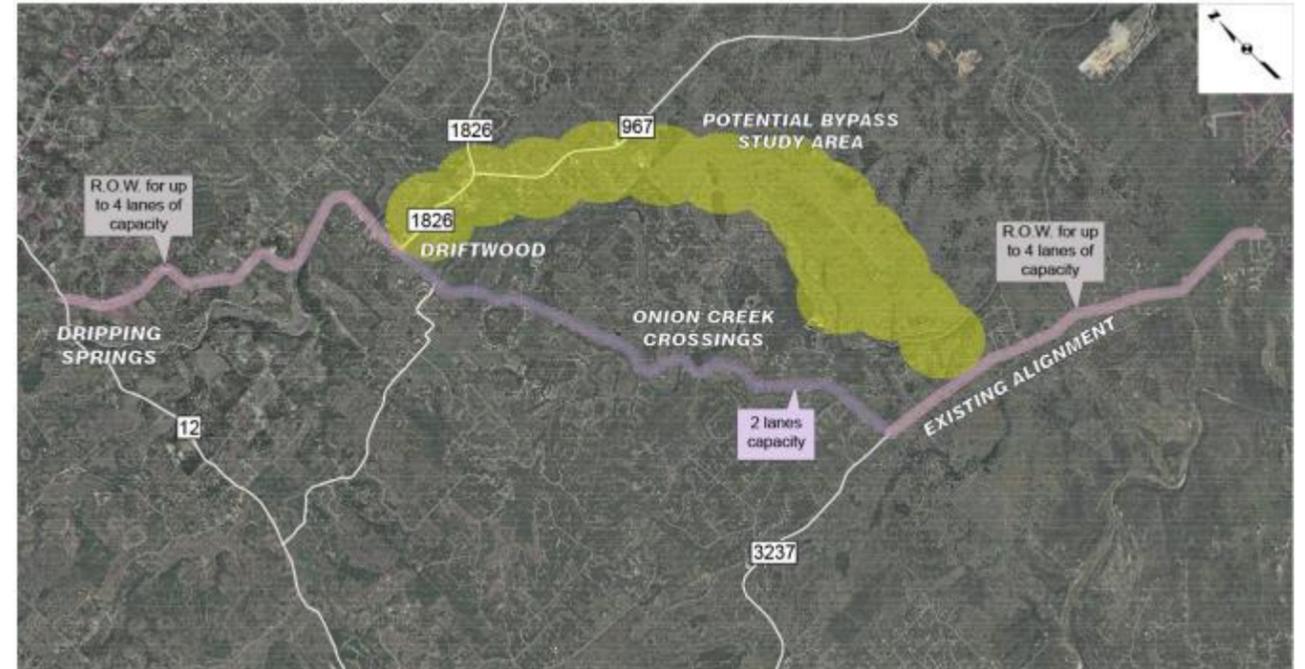


Exhibit 66. Future Study Area

SECTION 8 Next Steps

Page left intentionally blank

8 NEXT STEPS

This Corridor Features and Themes Report is the first work product from the FM 150 West Character Plan study. Future stages will include delving in deeper to further assess specific corridor needs commensurate with the study context. While the schedule for these next activities have not yet been identified, these efforts will integrate project stakeholders and the community as more refined solutions are developed and prioritized. The refined solutions will integrate the nature and character of corridor physical form into the surrounding landscape. As needs are better defined and prioritized, they will be documented in a master plan that defines the corridor improvement plan over time. This plan will assess environmental considerations, constraints and opportunities associated with potential future projects. In addition, as a future bypass between is explored, the County will consider whether the portion of FM 150 between FM 3237 and FM 1826 should stay in TxDOT control or be delegated to the County for local control and management.

Initial study elements could be safety focused, such as widening shoulders and improving or creating clear areas next to the roadway. Isolated intersection designs could include elements that make the intersection presence more pronounced and clear so drivers can react and adapt to the increased conflicts at public roads or driveways. Increasing the radii of discrete curves can eliminate or reduce locations of significant speed differentials to smooth the flow of traffic without increasing the overall speeds. Roadway projects could be completed programmatically as part of routine maintenance or be specifically targeted because of increased but localized traffic demands.

In future steps for FM 150-specific needs and for other non-FM 150 projects that may be outcomes of the FM 150 work, Hays County is committed to a transparent process that continuously and meaningfully engages and integrates community ownership, commitment, and passion. It understands the increased value that quality community engagement can provide. This Corridor Features and Themes Report sets the tone for future work on FM 150 and the County is committed to continuing the precedent set here for public engagement.



Exhibit 67. Existing Roadway (traveling westbound towards Elder Hill Road)

Page left intentionally blank

SECTION 9 References

Page left intentionally blank

9 REFERENCES

1. Parsons Brinckerhoff. Hays County Transportation Plan. Prepared for Hays County. April 2013.
2. Texas Parks and Wildlife Department (TPWD). 2016. Ecologically significant stream segments. Planning Data by Region K. http://tpwd.texas.gov/landwater/water/conservation/water_re_sources/water_quantity/sigsegs/regionk.phtml, accessed February 4, 2016.
3. Texas Water Development Board (TWDB). 2015. Groundwater Database. <http://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>, accessed January 20, 2016
4. Ryder, Paul D. 1996. Ground Water Atlas of the United States; Oklahoma, Texas. HA 730-E.
5. http://pubs.usgs.gov/ha/ha730/ch_e/E-text8.html. Griffith, Glenn., Sandy Bryce, James Omernik, and Anne Rogers. 2007. Ecoregions of Texas. Edwards Plateau.
6. Texas Parks and Wildlife Department (TPWD). 2014. Ecological Mapping Systems of Texas. <https://tpwd.texas.gov/gis/data/downloads#EMS-T>.
7. McMahan, C.A., R.G. Frye, and K.L. Brown. 1984. The Vegetation Types of Texas Including Cropland. Texas Parks and Wildlife Department PWD Bulletin 7000-120, September 1984.
8. Davis, W.B., and D.J. Schmidly. 1997. The Mammals of Texas On-line Edition. Texas Tech University. <http://www.nsrl.ttu.edu/tmot1/distribu.htm>, accessed January 20, 2016.
9. Dixon, James R. 2013. Amphibians & Reptiles of Texas. Texas A&M University at College Station, Texas.
10. Birds of the Edwards Plateau: a field checklist. 2008. TPWD Natural Resources Program, Austin, Texas.
11. City of Austin. Water Quality Protection Land. <http://www.austintexas.gov/department/water-quality-protection-land>, accessed February 2, 2016.
12. Collins, M.B. 1995 Forty Years of Archeology in Central Texas. Bulletin of the Texas Archeological Society 66:361-400.fcasarez.
13. Texas Historical Commission (THC). 2015. Texas Historical Sites Atlas. <https://atlas.thc.state.tx.us/>, accessed January 20, 2016.
14. Rogers, Minnie L. 1970. Driftwood Heritage: The History of Driftwood, Texas. Driftwood Ladies-Aid. Capital Printing Company. Austin, Texas.
15. Philips Cemetery Association. 2015. Philips Cemetery: About Us. <http://www.phillipscemetery.com/#!about/cjn9>, accessed February 4, 2016.
16. Hays County Historical Commission. 2016. Hays County Cemeteries. <http://www.hayshistoricalcommission.com/cemeteries/Cemeteries-Main.php>, accessed January 20, 2016.
17. Bella Nido LLC Bed and Breakfast. www.bellanido.com/index.html, accessed March 23, 2016.
18. Federal Highway Administration (FHWA). Welcome to CSS. <http://contextsensitivesolutions.org/>, accessed October 10, 2014.

Page left intentionally blank