

SPECIAL MEETING

AGENDA

CITY OF FREDERICKSBURG CITY COUNCIL

MONDAY, JUNE 19, 2017

NOON

City Hall

1. Call to Order
2. WORKSHOP: Transportation Master Plan Project Update

ADJOURNMENT



CITY COUNCIL MEMO

DATE: June 19, 2017

TO: Mayor and City Council

FROM: Garret Bonn, P.E., Asst. City Engineer

SUBJECT: City of Fredericksburg Transportation Master Plan Project Update

Summary:

Representatives from Kimley-Horn will be present to give an update on the Transportation Master Plan.

Recommendation:

N/A

Background / Analysis:

The purpose of the City's Transportation Master Planning effort is to develop a plan that will address improvements for both existing and future motor vehicle, bicycle, and pedestrian mobility, be a tool to guide development in and around the City, and provide strategies for achieving a safe and efficient multimodal transportation system. This workshop will provide the City Council with an overview of the project scope, findings to date, review of previous works session/prioritization efforts, CIP rankings, and options for improvements to Main Street.

The City of Fredericksburg

Attachments:

Draft Transportation Master Plan Report

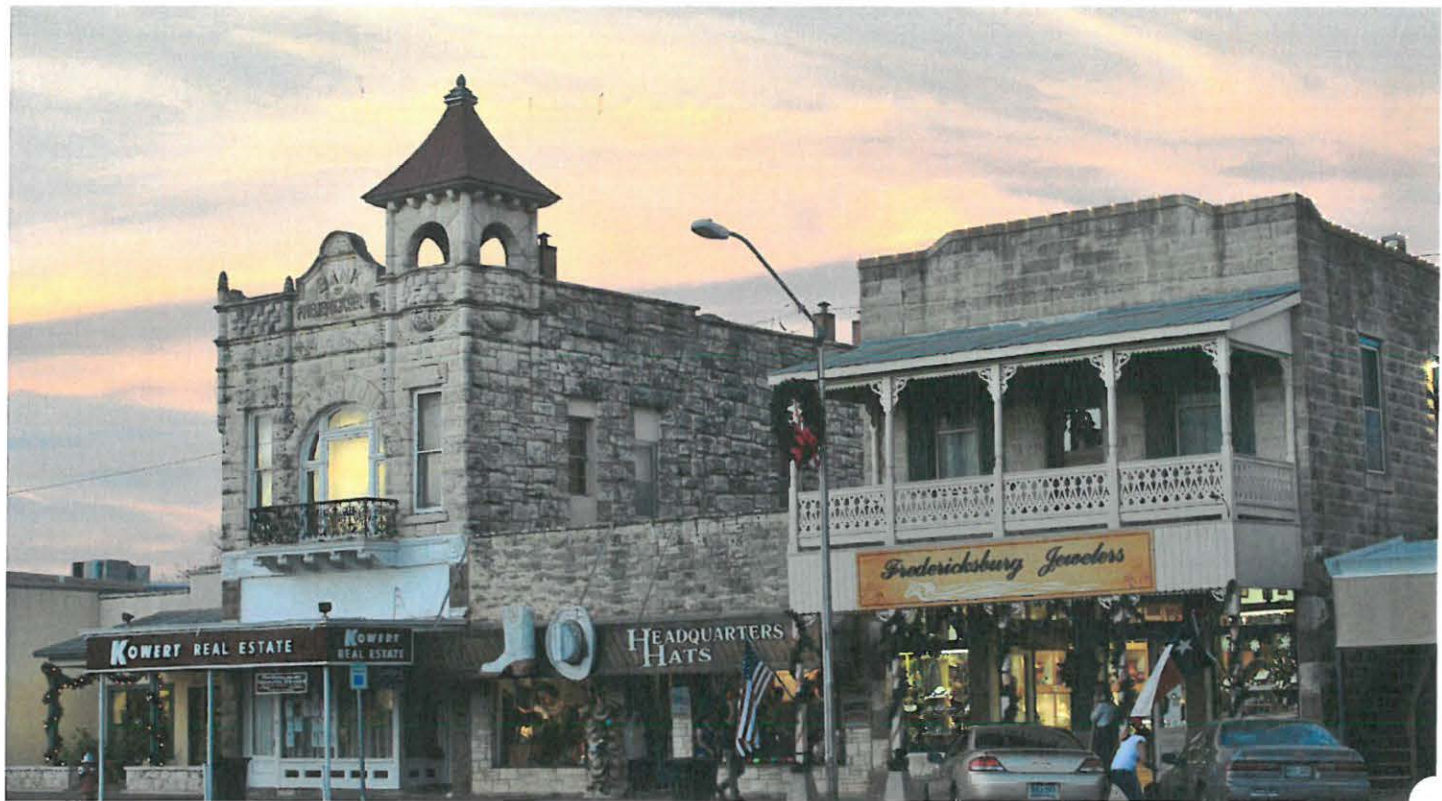


Department Approval

City Manager Approval

The City of Fredericksburg

126 W. Main St. • Fredericksburg, Texas 78624-3708 • (830) 997-7521 • Fax (830) 997-1861



DRAFT



FREDERICKSBURG TRANSPORTATION MASTER PLAN

Kimley»Horn

May 2017



This page intentionally left blank.





TABLE OF CONTENTS

Executive Summary 1

Chapter 1: Introduction 3

Role of the Transportation Master Plan 3

Study Elements 3

Chapter 2: Transportation Planning Framework..... 5

Goals and Objectives 5

Previous Plans 5

Public Input 11

Chapter 3: Existing Conditions 15

Demographics & Employment 15

Highway System 15

Thoroughfare Network 16

Traffic Volume Trends 16

Bicycle & Pedestrian System 18

Parking System 18

Chapter 4: Historic District 19

Street Network 19

Existing Issues 19

Recommendations 21



Chapter 5: Regional Impacts and Concerns 27

Truck Relief Route 27

Transit Services 29

Connectivity to Major Population Centers 30

Enchanted Rock Traffic 30

Chapter 6: Transportation Master Plan Development 33

Thoroughfare Plan 33

Alignment with Comprehensive Plan 33

Thoroughfare Design Standards 34

Chapter 7: Implementation and Recommendations 39

Prioritization of Transportation Needs: CIP Ranking Tool 39

One-Way Street Conversion 40

Chapter 8: Project Funding..... 43

Current Process 43

Alternative Funding Sources 43

Appendix 47

Appendix A: Meetings 47

Appendix B: Existing Plans 47

Appendix C: Additional Information 47



EXECUTIVE SUMMARY

The Transportation Master Plan (TMP) unifies the City's existing plans and brings them up-to-date and in line with the City of Fredericksburg's transportation priorities set forth in the Comprehensive Plan. It acts as a lens through which to evaluate projects and implementation strategies with these priorities in mind. The TMP is a framework that helps the City to balance trade-offs that are central to transportation planning. Some examples of these challenges include integrating the bicycle, pedestrian, transit, and automobile networks, resolving local issues with regional impacts in mind, and retaining historic character while also preserving right-of-way to accommodate future growth.

The TMP provides an overview of the existing transportation networks and traffic volume trends in Fredericksburg. It also includes an assessment of local and regional transportation concerns and documents existing bicycle and pedestrian infrastructure. One of the primary issues facing Fredericksburg today is increased noise, congestion, and safety concerns along Main Street due to truck traffic. The designation of Main Street as US 290 amplifies the competing interests between pedestrians and pass-through traffic. Distinguished regionally by its manifold tourist attractions, the City also faces the challenge of meeting transportation needs that fluctuate widely between off-peak times and weekends or tourism peak seasons.

This plan recommends solutions for current transportation challenges in Fredericksburg. To help address the competing interests on main street and fluctuation in need, signal timing strategies are evaluated. Alternative cross-sections for civic streets in the historic district, including Main Street, and two-way to one-way street conversions are detailed to reimagine existing space. Idea for transit solutions for the area, including regional shuttles and on-demand transit services, are explored to help serve underserved populations. Thinking beyond the automobile mode, recommendations are made for infrastructure improvements for the bicycle and pedestrian network.

Funding and implementation make a plan actionable. The following implementation strategies are provided by this plan:

- **Capital Improvement Program (CIP) Ranking Tool**
 - A prioritization tool was established for the City to rank CIP projects based on the goals identified by this plan. The CIP ranking tool uses a points-based system of performance measures and includes cost estimates for current and new CIP projects.
- **Truck Relief Route**
 - The TMP includes recommended next steps for design and construction of the proposed truck relief route that help enhance Main Street as a destination.
- **Project Funding**
 - An overview of project funding sources that are currently in place is provided. Additional funding sources are explored to expand the City's access to transportation solutions.

The TMP accomplishes its purpose of unifying existing planning efforts and establishing a set of identifiable, measurable goals with which to evaluate projects in the CIP. The plan recommends solutions to the existing transportation needs for Fredericksburg and identifies funding sources to implement these solutions. Lastly, the plan is well informed by the citizens of Fredericksburg, City staff, and councilmembers to ensure that it is a product of the people.

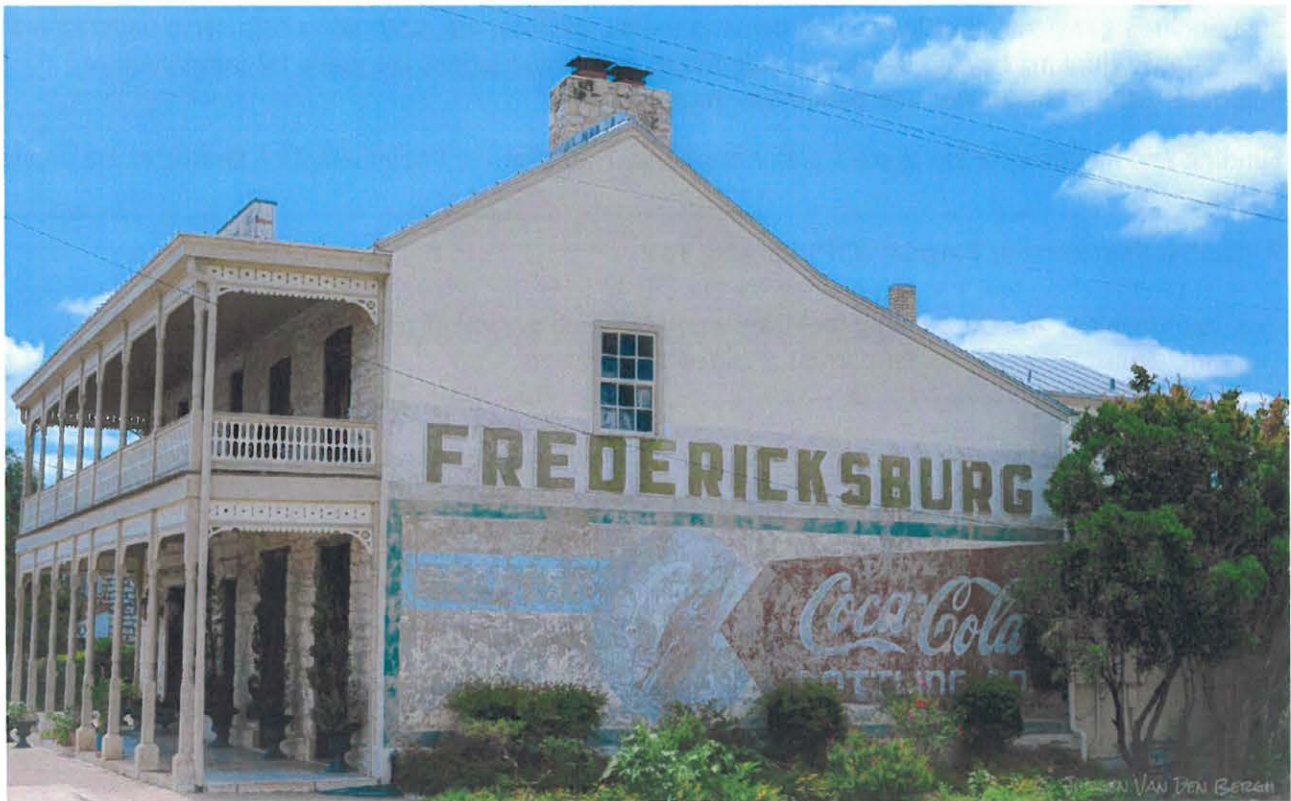


Photo Credit Jurgen Van Den Bergh



CHAPTER 1: INTRODUCTION

Role of the Transportation Master Plan

The Transportation Master Plan (TMP) guides transportation policy and project prioritization to help the local multimodal transportation system conform to community priorities. It also provides recommendations for implementation and funding strategies.

The TMP is a high-level view of the City's transportation network. It is a compendium of available information and updates the Thoroughfare Plan to reflect changes since that plan's adoption. Data from previously adopted plans is aggregated into a single framework.

This plan, along with the updated Thoroughfare Plan, serves as the primary tool to enable the City to preserve future corridors and right-of-way as the City develops and to improve the existing street network as needs arise. The TMP also provides the ability to integrate networks of other modes, including walking, bicycling, and transit. This plan guides future City investments and provides the community with information about the long-term plan for the transportation network. It is a blueprint for a safe, efficient, and sustainable transportation system. It creates a system that balances local and regional priorities and steer the City towards its vision for the future.

Study Elements

This plan consists of the following study elements:

- **Chapter 2: Transportation Planning Framework**
 - This chapter describes the foundation of the plan, which includes planning goals established by the City, previous and concurrent local plans, and the public input process.
- **Chapter 3: Existing Conditions**
 - This chapter provides an overview of the existing transportation system in Fredericksburg, including demographics, traffic volumes, the active transportation network for pedestrians and bicyclists, and local planning constraints.
- **Chapter 4: Historic District**
 - This chapter focuses on the historic downtown area of Fredericksburg and the challenges unique to a corridor that serves as both a destination and a major thoroughfare. It provides an inventory of existing issues, descriptions of best practices, and specific recommendations for the City, especially regarding pedestrian safety and comfort.
- **Chapter 5: Regional Impacts and Concerns**
 - This chapter describes and analyzes critical challenges in the Fredericksburg region, including the proposed truck relief route, transit, and access to major activity centers.



- **Chapter 6: Transportation Master Plan Development**
 - The chapter describes the process undertaken to create this TMP and update the Thoroughfare Plan in alignment with the City's Comprehensive Plan.
- **Chapter 7: Recommendations and Implementation**
 - This chapter discusses the creation of the Capital Improvement Projects ranking tool developed as a part of this TMP to prioritize transportation funding in alignment with the City's goals and objectives.
- **Chapter 8: Project Funding**
 - This chapter outlines current transportation funding practices in Fredericksburg and describes possible alternative funding sources.



Photo Credit Miguel Lecuona



CHAPTER 2: TRANSPORTATION PLANNING FRAMEWORK

High level goals determined by the Council, City staff, and local stakeholders have guided the development of this Transportation Master Plan. The plan also rests on a foundation created by previous planning efforts, public involvement, and workshops with City staff, council members, and other stakeholders.

Goals and Objectives

City staff participated in an eight-hour workshop to establish and rank goals for the Transportation Master Plan. These goals were presented in a Public Open House and then further refined in a workshop with City Council. The CIP Prioritization Tool (discussed in *Chapter 7: Implementation and Recommendations*) contains concrete performance measures for each of the objectives as listed below:

- Congestion Mitigation - prioritize projects that maximize the efficiency of vehicular travel within the roadway network.
- Safety & Welfare - provide a transportation system safe for all users and secure against natural disasters.
- Connectivity - enhance access and connectivity across the community as well as to specific land uses along a corridor for all modes of transportation.
- Mobility - maximize the mobility of all modes within the roadway network while maintaining access to key destinations.
- Implementation - prioritize projects that are shovel-ready and have demonstrated support among all project sponsors.
- Community Character - prioritize projects in areas where investments will enhance the existing unique community character and create new patterns for development.

Previous Plans

The TMP project team leveraged the work completed in the City's previously adopted plans, supplementing and augmenting those project and policy recommendations to create this plan. These previous planning efforts are summarized in the following section.



Comprehensive Plan

Created in 2006 “as a guide toward a vision of what the community should retain and what the community can ultimately become,”¹ the Comprehensive Plan incorporates five main elements:

- Livability
- Land Use
- Growth
- Transportation
- Parks and Recreation

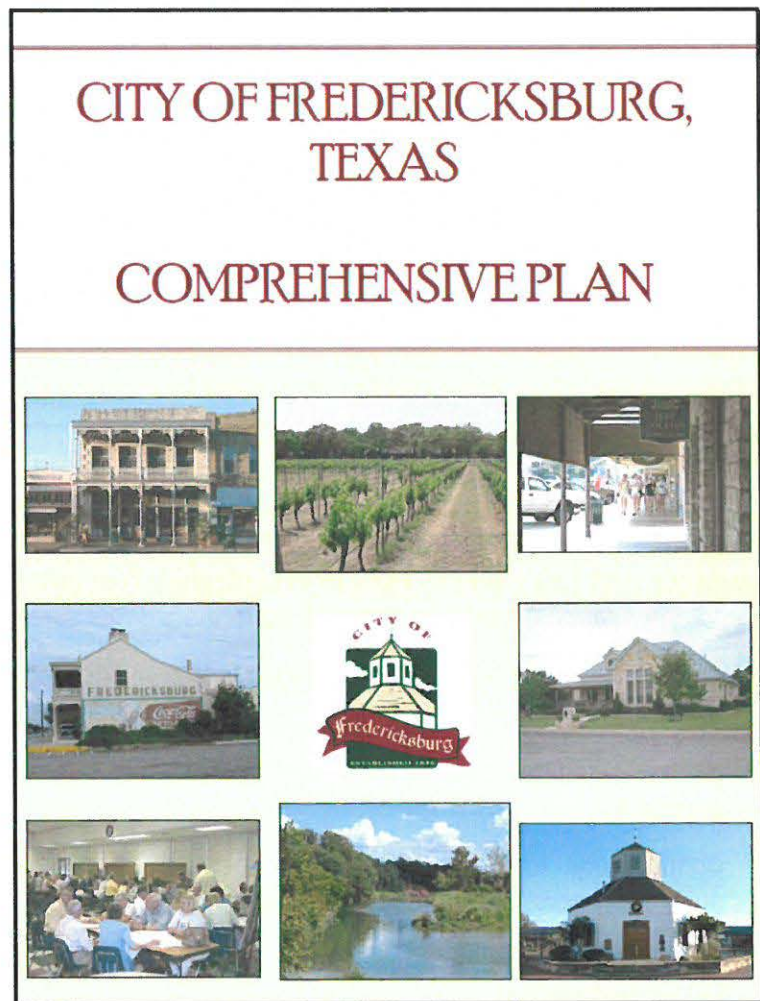
The following mobility goals from the Comprehensive Plan pertain directly to this Transportation Master Plan:

- Goal 34: A range of mobility choices available to Fredericksburg residents, business employees, and visitors.
- Goal 35: A network of sidewalks, trails, paths, and designated lanes that allows residents to walk or bicycle within neighborhoods, to and within the Central Business District, and to other key locations.
- Goal 36: A street system and related facilities that provide adequate capacity for vehicular traffic (cars, public transportation and trucks) in Fredericksburg and that is compatible with its surroundings.
- Goal 38: Adequate levels of transportation facilities and services available to existing development and to new development when it is occupied.

A 2015 Issues Update to the Comprehensive Plan provides:

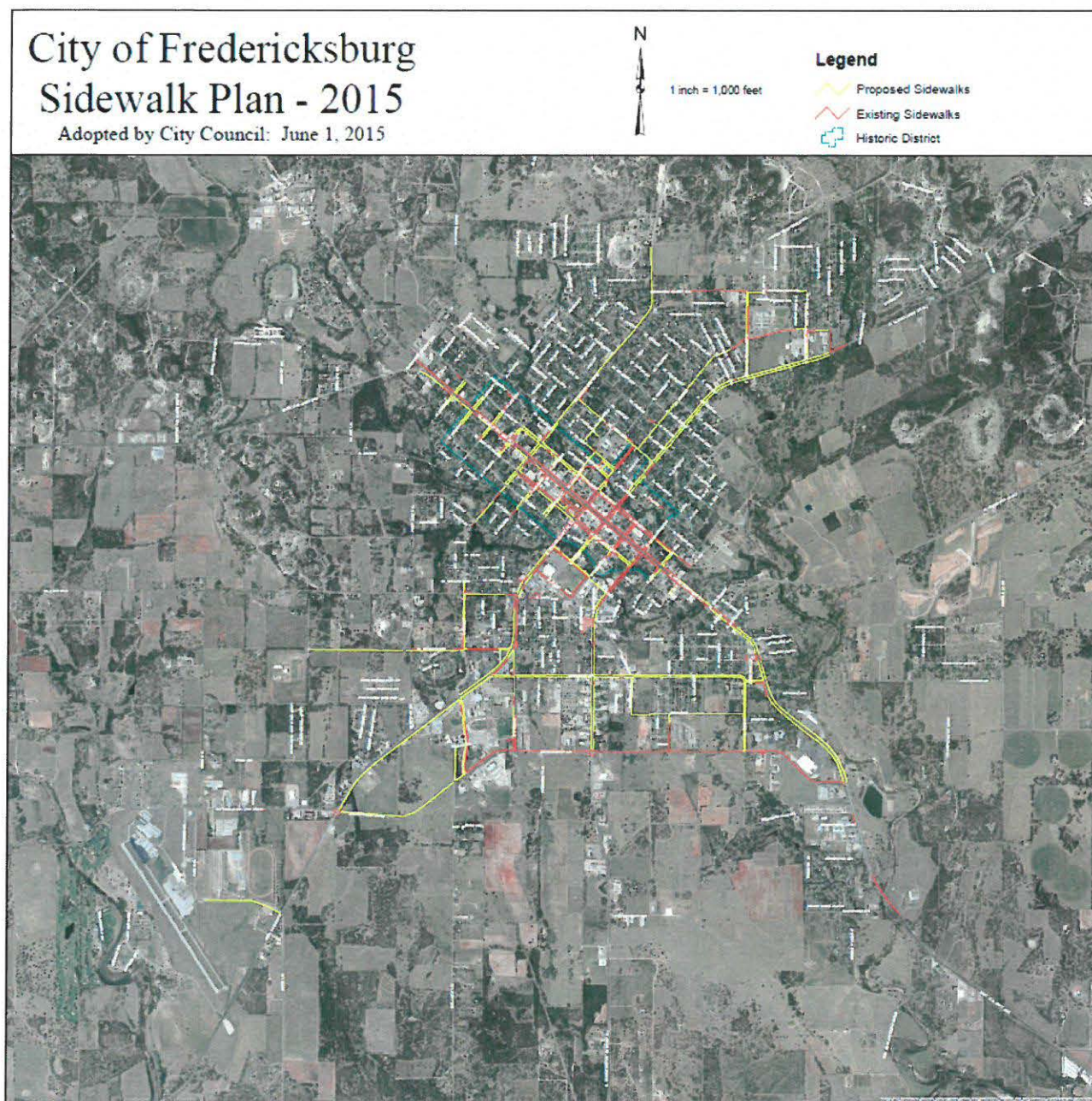
- A Sidewalk Plan to be referenced by the City’s Subdivision Ordinance, Section 6.11.B.1., so that all new subdivisions must include the construction of sidewalks identified by the Plan.
- A Gateways Plan that identifies six entrances to Fredericksburg that should enhance the City’s character. The Plan describes design standards for the gateways and unique concept plans for each gateway that should be considered as redevelopment occurs.

¹ 2006 Comprehensive Plan, City of Fredericksburg



2006 Comprehensive Plan

Sidewalk Plan

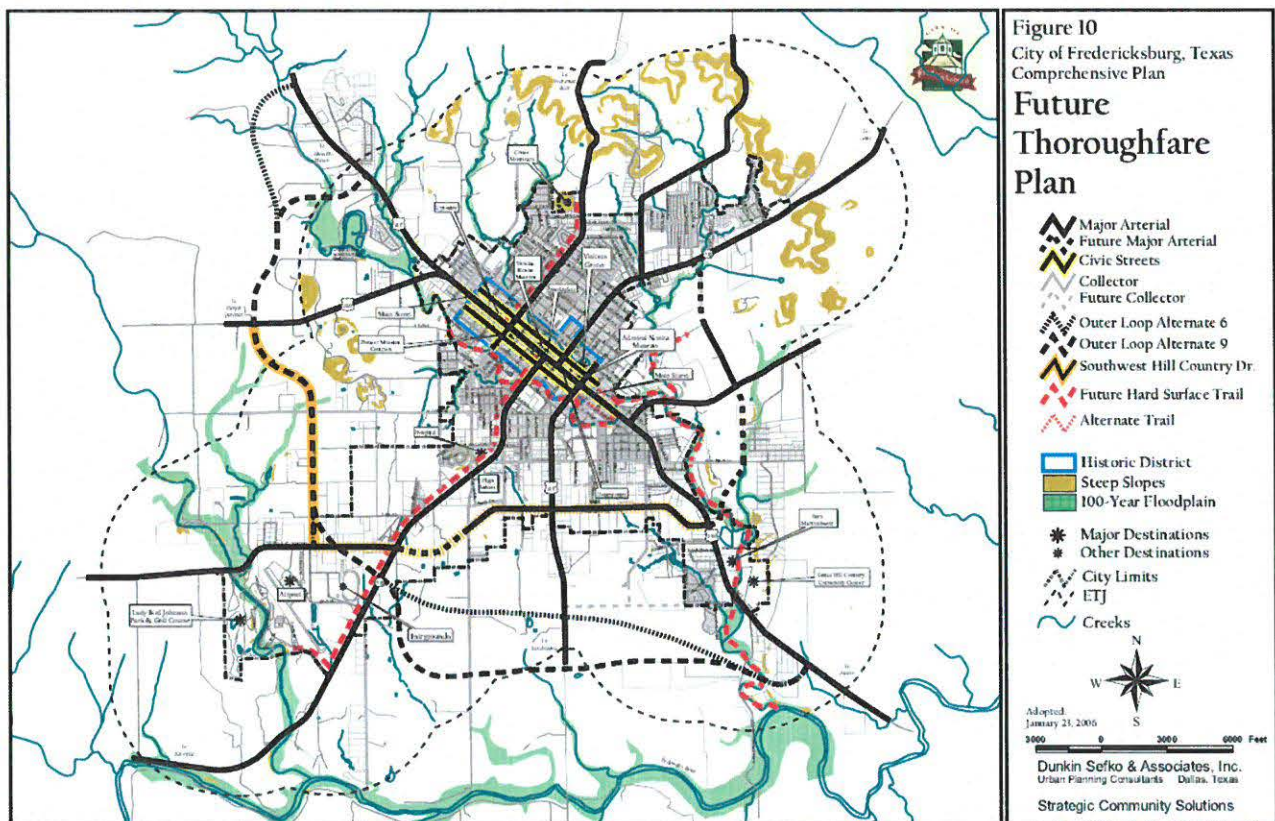


2015 Sidewalk Plan

The City of Fredericksburg Sidewalk Plan, developed in June 2015, includes existing and proposed sidewalks. The City uses the Sidewalk Plan to specify sidewalk improvements for each fiscal year. The sidewalk plan is maintained by the City in a GIS format to plan for future sidewalk projects. The Comprehensive Plan provides guidance for project prioritization with recommendations for high, medium, and low priority areas for sidewalks



Thoroughfare Plan (2006)



2006 Thoroughfare Plan

Developed in 2006, the Thoroughfare Plan designates existing and proposed thoroughfares of varying classifications in the City of Fredericksburg, including trails and outer loop alternatives. As part of the development of this TMP, the Thoroughfare Plan was updated to include recently constructed roads and to account for current transportation needs and constraints.

Capital Improvement Projects (CIP) Plan

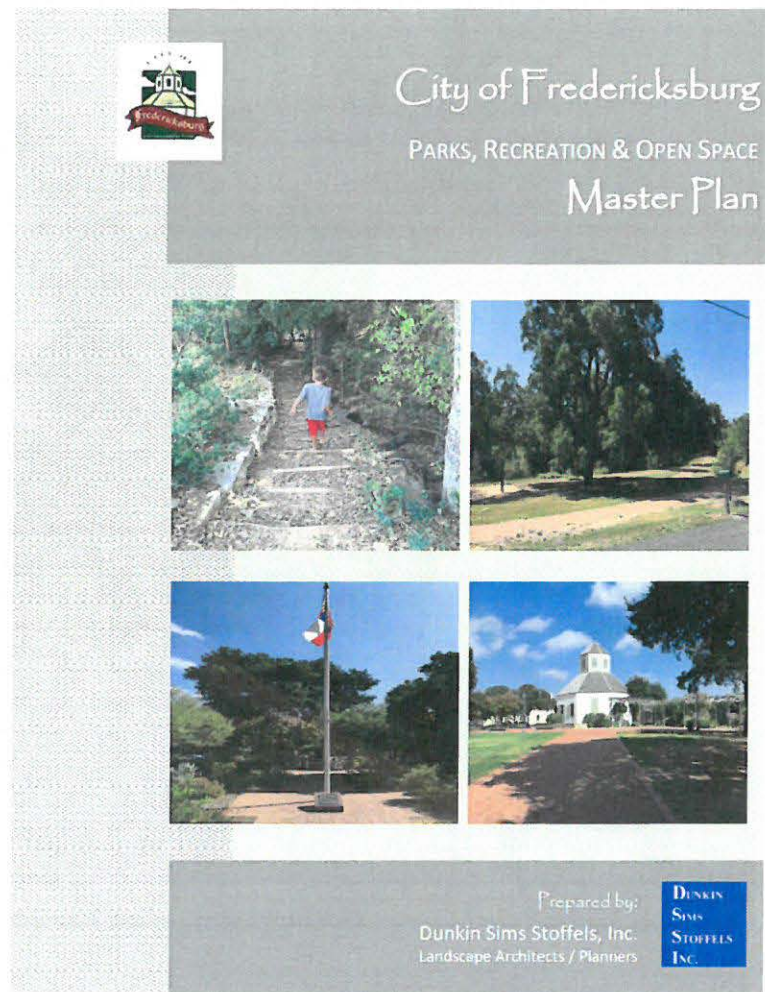
The CIP includes present needs and a 20-year projection of future needs, including fiscal requirements. The CIP is updated annually to show planned projects over the next five years, as well as a projection of unfunded needs beyond the five-year horizon.

Parks, Recreation & Open Space Master Plan

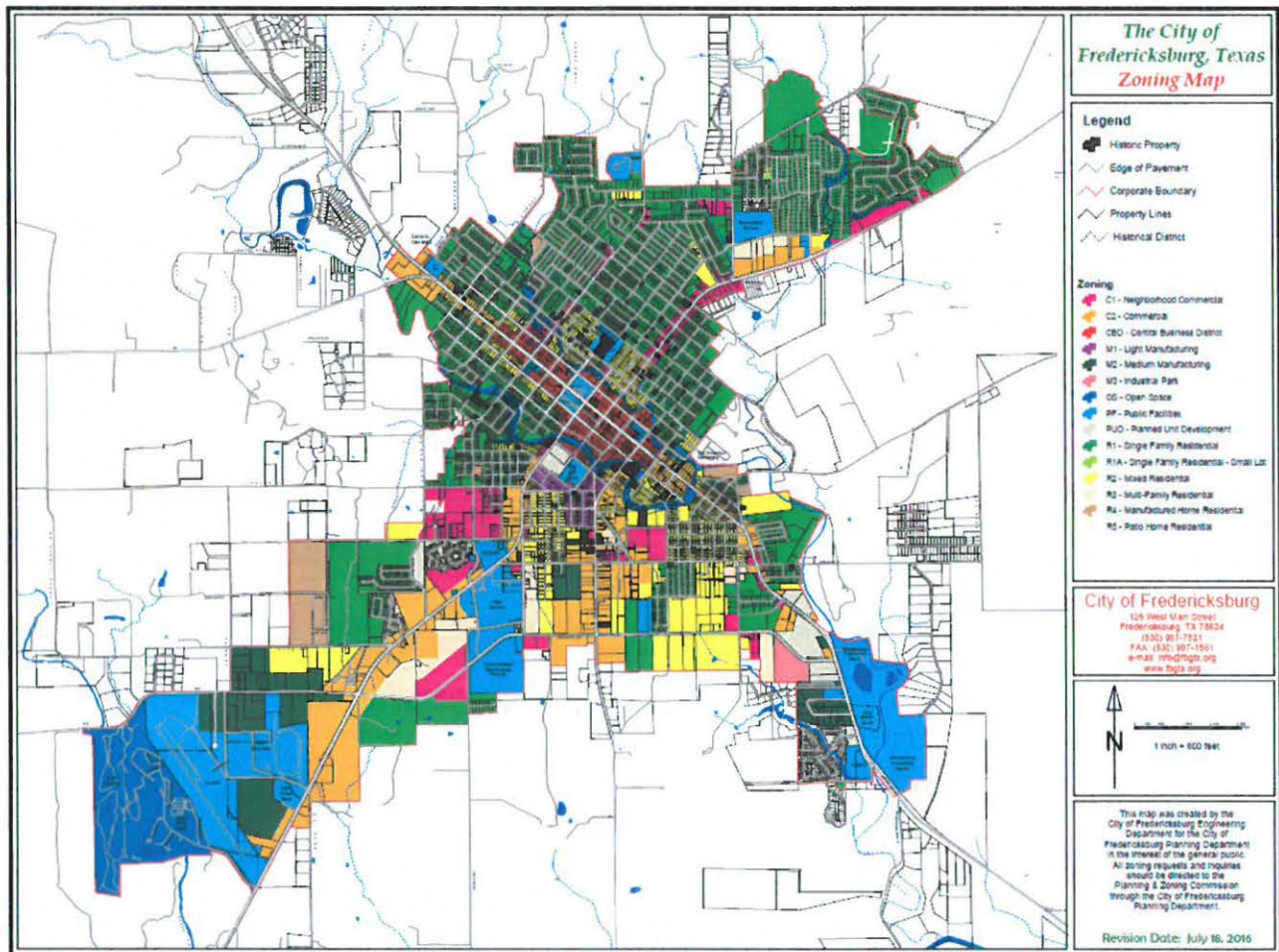
The City's Parks, Recreation, and Open Space Master Plan was adopted in March 2016. It provides a ten-year action plan and priority list of recommendations for future park acquisition based on perceived community needs.

Zoning Map

The City's zoning map was last revised in July 2016. The primary purpose of zoning is to put land to the use for which it is best suited. Another purpose is to protect or maintain property values by separating non-compatible land uses. It provides for a more orderly development as the city grows. A copy of the most recent zoning map can be found on the City of Fredericksburg's website.



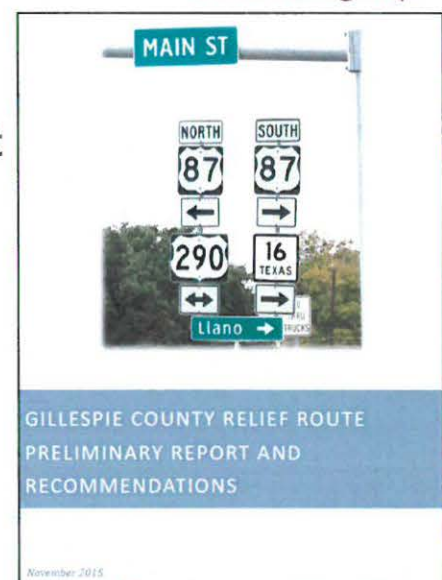
2016 Parks, Recreation & Open Space Master Plan



2016 Zoning Map

Gillespie County Relief Route Preliminary Report

The Gillespie County Relief Route Preliminary Report was published in November 2015. In 2016 a corresponding Fact Sheet was released. The Relief Route Preliminary Report provides recommendations for the Relief Route Task Force to move forward towards right-of-way acquisition for and construction of the truck relief route. This relief route is discussed further in *Chapter 5: Regional Impacts and Concerns*.



2015 Relief Route Preliminary Report



Parking Study

Parking is a critical element for commercial land uses, particularly in the downtown area. The City of Fredericksburg is currently conducting a study of parking availability and utilization. This study will examine the feasibility of parking alternatives to better provide an adequate number of spaces for citizens, employees, and visitors. This report will be available on the City's website once it is complete.

Public Input

An important component of Fredericksburg's Transportation Master Plan process was the identification and integration of the community's transportation priorities, which acted as a guide for the development of the plan. Instead of addressing limited components of the network with a focus only on vehicular movement, current transportation planning best practices include improving the efficiency of the system in ways that promote the community's values. The public input process was designed to encourage involvement from a broad spectrum of residents, business owners, and community leaders.





January 20, 2017 Workshop

A detailed workshop with major City departments was conducted early in the development of this plan. The workshop was a tool to establish goals and objectives for the MTP as well as develop a tool that staff can use to prioritize transportation projects in their Capital Improvements Program.

In the morning session, City staff gathered to develop goals and priorities for CIP project prioritization. This workshop included discussions of existing issues in Fredericksburg and attributes of an ideal transportation system for the city. Staff members and stakeholders also participated in a variety of activities to rank nine potential goals for the TMP.

The priorities that emerged from these conversations and the goals from the 2006 Comprehensive Plan were used to develop the goals and objectives for the prioritizing the CIP.



Open House



Open House

In the afternoon session, over 50 community members attended an open house at City Hall. Informational boards presented attendees with information about existing plans and the role of the Transportation Master Plan.

Attendees also took part in a budget exercise where they were invited to allocate a sample City transportation budget to key infrastructure improvements of varying linear costs, including road widenings, bike lanes, sidewalks, and multi-use trails. Over the course of the open house, a map was built showing the chosen investments of each participant.



Open House Map

March 6, 2017 Staff and Council Workshop

On March 6, 2017, a staff workshop and a subsequent council workshop were held to refine the CIP Prioritization Tool and the draft 2017 Thoroughfare Plan.

Summer 2017 Council Presentation

A public hearing held with the City Council on _____ provided the community a final opportunity to provide input during the plan adoption process.



This page intentionally left blank.



CHAPTER 3: EXISTING CONDITIONS

Founded by German settlers in 1846, the City of Fredericksburg is located in Gillespie County in the Texas hill country.² The city boasts a unique heritage that attracts tens of thousands of visitors annually and provides an environment for residents that is rich with local culture and attractions. Shopping, dining, live music, wineries, and festivals serve as the main attractions for both residents and tourists.

With 23 hotels and motels, 400 bed-and-breakfasts, and nine RV parks and campgrounds, the area has a potential capacity for overnight guests of over 5,700. Enchanted Rock State Natural Area's attendance in 2015 was over 290,000 visitors. The Convention and Visitor Bureau's Visitor Information Center assisted 61,765 visitors in 2015.³

Demographics & Employment

The quickly changing demographic and economic growth conditions in the Central Texas region is one of the primary reasons to develop the City of Fredericksburg's Transportation Master Plan and stay ahead of future travel demands.

Fredericksburg had an estimated population of 10,826 in 2015, with a median age of 52. The city has experienced steady growth of approximately 100 residents per year (or 1% growth) since 2010, when the total population was 10,363. Gillespie County had a total population of 25,398 in 2015.⁴ With new residents and economic development continuing to surge into the region, Fredericksburg will face critical decisions on how to accommodate the increase in trips both locally and regionally.

Populations in Fredericksburg vary based on tourism trends. Summers and weekends draw significantly higher vehicular and pedestrian traffic volumes. Two thirds of visitors stay overnight, taking advantage of the region's vast array of bed-and-breakfasts and inns, while one third are day trippers, perhaps in town to enjoy local wineries, hiking, or historic sites.⁵

Highway System

Fredericksburg is served by three major highway systems:

- US 290 is a major arterial that serves vehicular traffic traveling to and from the Austin area to the east, and connects to I-10 about 40 miles west of the city. To the east of Fredericksburg, US 290 is a 60-mph four-lane highway with a center turn lane. Upon entering the city, the speed limit drops to 40 mph just west of Wal Mart Drive, then 30 mph at Elk Street and through the downtown area, where US 290 becomes Main Street, a five-lane cross-section with four travel lanes, left turn lanes, sidewalks, and angled on-street parking. West of downtown, the speed limit is 45 mph between Bowie Street and through the US 87 intersection. West of the city, it returns to a four-lane undivided highway with a speed limit of 70 mph.

² *Community Profile*, City of Fredericksburg, <http://www.fredericksburg-texas.com/local/community-profile.aspx>

³ *2015 Annual Report*, Fredericksburg Convention and Visitor Bureau

⁴ *American Community Survey Data Profiles*, American Fact Finder, United States Census Bureau

⁵ *2013 Annual Report*, Fredericksburg Convention and Visitor Bureau



- State Highway 16 is a 55-mph four-lane undivided major arterial that extends to the northeast and southwest of Fredericksburg. Within the City limits, the speed limit is 35 mph, increasing to 50 mph north of Lower Crabapple Road and 45 mph south of Live Oak to Friendship Lane. Many Fredericksburg residents use SH 16 to commute to and from work in Kerrville to the south. Within the city, it is known south of Main Street as S Adams Street and north of Main Street as N Llano Street.
- US 87 is an undivided major arterial that extends to the north of the city as a two-lane cross-section and to the south as a four-lane cross-section. Traffic to and from San Antonio to the south of the city uses US 87. US 87 has a speed limit of 70 mph south of the city, which drops to 35 north of Hwy Street. North of downtown, US 87 splits off from Main Street (US 290) with a speed limit of 55 mph, which increases to 70 mph north of Balcones Drive.

Thoroughfare Network

The Thoroughfare Plan identifies designated arterials, collectors, civic streets, and trails. The 2017 update to the Thoroughfare Plan is discussed in detail in *Chapter 6: Transportation Master Plan Development*.

Fredericksburg's thoroughfares serve two typical functions: commuter routes to downtown, and circulation routes within downtown. Key thoroughfares for Fredericksburg commuters accessing the downtown area include:

- Main Street
- Adams Street
- Milam Street
- Llano Street
- Cherry Street
- Washington Street
- Lower Crabapple Road

Thoroughfares that serve as circulation routes within downtown include:

- Main Street
- San Antonio Street
- Austin Street

Traffic Volume Trends

Historical Annual Average Daily Traffic (AADT) volumes provide information on traffic patterns on Fredericksburg's roadway network and can provide insight into how the network performs.

Fredericksburg's historic downtown is marked by vibrant economic activity including museums, historical sites, and popular shopping and dining destinations. Most visitors arrive from the south and east, particularly from San Antonio and Houston, Texas,⁶ making it unsurprising that Main Street (US 290) east of SH 16 experiences the highest daily traffic volumes in the city.

Field observations and historical traffic data yield the following additional traffic volume trends:

- Main Street volumes exceed 20,000 vehicles per day.
- Main Street travel speeds are approximately 20 mph through downtown on weekdays and slow to 10 mph during heavy tourist events.

⁶ 2013 Annual Report, Fredericksburg Convention and Visitor Bureau



- Traffic volumes on US 87 south and west of downtown, US 290 west of downtown, and SH 16 north and south of downtown range from 5,000 to 10,000 vehicles per day.
- Collectors like Live Oak Street, Post Oak Road, Highway Street, and Adams Street have volumes ranging from 2,000 to 7,000 vehicles per day within city limits.
- The daily volumes of nearby local streets range from less than 100 to approximately 1,500 vehicles per day.⁷

Historical data shows that major roadways within Fredericksburg have experienced a significant increase in traffic volumes since 2010 as shown in the following table.

Roadway	Count Location	2010	2015	Annual Growth Rate	Total Change
US 290	E of 1631	15,100	20,723	7%	37%
	E of 87 S	14,800	19,591	6%	32%
	E of 16 N	13,900	20,668	10%	49%
	Between 16 N and 16 S	12,400	16,783	7%	35%
	Between 16 S and 965	10,500	15,242	9%	45%
	W of 965	12,000	14,734	5%	23%
	S of US 87 W	4,900	5,075	1%	4%
SH 16	N of Main Street	7,300	8,670	4%	19%
	S of Main Street	10,900	11,402	1%	5%
FM 965	N of Main Street	3,200	4,895	11%	53%
	N of Broadmoor Drive	6,600	8,168	5%	24%
Average:				6%	30%

The 2013 Alternate Truck Route Analysis noted that on Main Street “within 5-6 years the average daily traffic flow (will) exceed capacity.”⁸ In addition to traffic delays, the following impacts of this trend were considered likely:

- Increased vehicular and pedestrian crash rates, as frustrated drivers exceed the speed limit to make up for delays caused by congestion
- Increased emergency response times
- Increased traffic spillover into adjacent residential neighborhoods
- Negative effect on local economic development

The Hazardous Material Commodity Flow Study conducted by the City in 2012 observed that during business hours, a large truck passes through downtown approximately once every minute, creating congestion and negatively impacting the idyllic downtown atmosphere for residents and visitors. The need for a truck relief route is discussed in more detail in *Chapter 5: Regional Impacts and Concerns*.

⁸ *Alternate Truck Route Analysis*, Walter Ragsdale, 2013



Bicycle & Pedestrian System

A city's active transportation network is intended to provide transportation alternatives and recreational opportunities for people of all ages and abilities. The installation of pedestrian and bicycle facilities can be the most visible element of a city's multimodal transportation network. It shows that the community is a welcoming place for non-motorized trip choices and supports the safe use of streets by all road users.

The use of sidewalks, trails, and bicycles is a transportation choice that benefits personal health, reduces traffic congestion, and air pollution, and enhances quality of life by creating opportunities for cost savings and social interaction. Interest in bicycling for commuting or recreation is increasing, but many novice riders do not feel comfortable riding on-street with traffic. Concerns about safety, barriers, and lack of infrastructure often lead people to continue using cars for many typical short trips. Increased bicycle and pedestrian facility choices not only address safety concerns, but enhance long-term community livability, create welcoming streets and neighborhoods, and strengthen local economic competitiveness.

As part of the TMP planning effort, the local bicycling community was engaged to determine the best possible routes within the city for cyclists based on existing recreational and commuting patterns. The most popular existing routes were compiled in a map, and this map was circulated among the local bicycling community for comment. Just because a route is shown on the map does not mean the routes are endorsed for safety, but if these routes are included in a roadway project, it is recommended that bike facilities be considered. A map of these routes is provided in the *Appendix*.

Parking System

The majority of downtown streets allow on-street parking, with many streets providing designated parallel or angled parking adjacent to businesses. Given Fredericksburg's strong identity as a thriving economic center and destination for both locals and visitors, the demand for parking in downtown has been an ongoing issue.



CHAPTER 4: HISTORIC DISTRICT

This chapter provides focused guidance about how to adapt civic streets within the historic downtown area to better meet the unique transportation needs of the district and to support the development and economic goals of the historic heart of the City.

Street Network

Fredericksburg's Thoroughfare Plan (further described in *Chapter 6: Transportation Master Plan Development*) delineates three primary east-west civic streets in the historic downtown area:

- Main Street
- Austin Street
- San Antonio Street

Main Street serves the dual functions of facilitating efficient throughput and providing access to downtown parking and local businesses. Austin Street and San Antonio Street run parallel to Main Street, one block away to the north and the south. They serve as circulation travel-ways in the historic district and provide additional on-street parking for residents and visitors. The following north-south civic streets are also part of the downtown circulating system: Milam Street, Adams Street, Llano Street, and Washington Street.

Existing Issues

Main Street as a tourism destination and a designated highway faces the competing objectives of mobility and local multimodal access. Residents traveling to their daily destinations find themselves in conflict with visitors looking to park and enjoy the city's renowned dining, shopping, and historical attractions.

Tourism vs. Off-peak Seasons

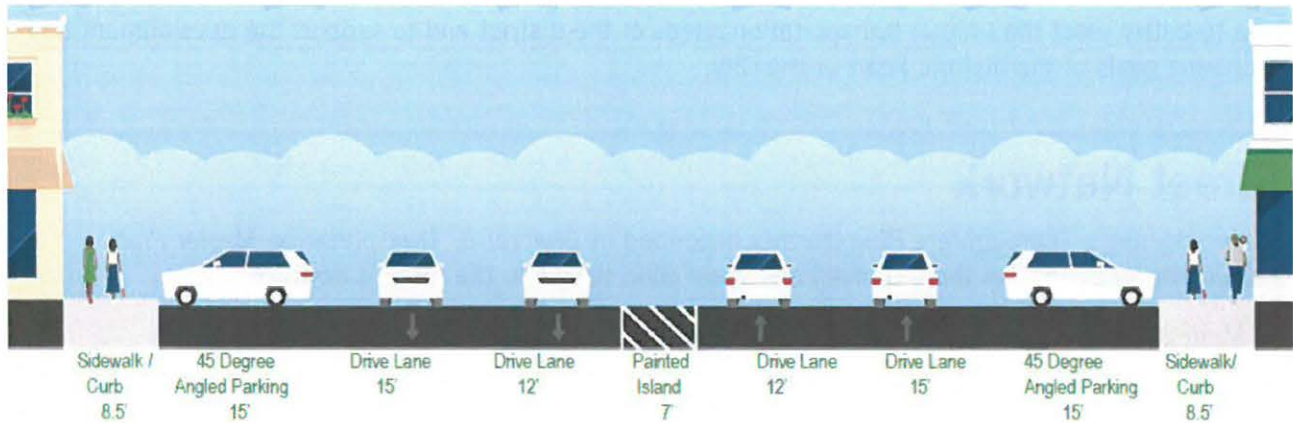
Weekend vehicular and pedestrian traffic are significantly higher than weekday volumes, due to Fredericksburg's strong tourism sector. Attractions including the Admiral Nimitz Museum, local wineries and bed and breakfasts, scenic cycling routes, and shops and restaurants representing the city's German heritage draw a steady stream of visitors to the hill country.

Main Street development and improvements must continue to be guided such that it is a comfortable and appealing destination for locals and visitors, yet also an efficient thoroughfare for everyday travel. The existing cross-section on Main Street has limited sidewalk widths, long blocks, and signalized pedestrian crossings at intersections that quickly become congested during heavy tourist times.



Travelway Analysis

The existing cross-section along Main Street includes four travel lanes, a center lane with left turn bays, and angled on-street parking.



While the dimensions of the outside travel lane and angled on-street parking spaces do not meet minimum Urban Land Institute recommendations for urban thoroughfares,⁹ vehicles can park in the angled spaces with less delay to through traffic than would accompany parallel parking. The existing angled parking along Main Street is adjacent to an outside lane that is narrower than would generally be recommended for 45 degree parking, resulting in slower speeds and an underutilized traffic lane.

Minimum Dimensions for Head-In Angled On-Street Parking

Angle	Stall Width	Stall Depth (Perpendicular to Curb)	Min. Width of Adjacent Lane	Curb Overhang
45°	8.5–9.0 feet	17 feet 8 inches	12 feet 8 inches	1 foot 9 inches
50°	8.5–9.0 feet	18 feet 3 inches	13 feet 3 inches	1 foot 11 inches
55°	8.5–9.0 feet	18 feet 8 inches	13 feet 8 inches	2 feet 1 inches
60°	8.5–9.0 feet	19 feet 0 inches	14 feet 6 inches	2 feet 2 inches
65°	8.5–9.0 feet	19 feet 2 inches	15 feet 5 inches	2 feet 3 inches
70°	8.5–9.0 feet	19 feet 3 inches	16 feet 6 inches	2 feet 4 inches
90°	8.5–9.0 feet	18 feet 0 inches	24 feet 0 inches	2 feet 6 inches

Source: *Dimensions of Parking*, 4th Edition, Urban Land Institute

Notes:

Typical design vehicle dimensions: 6 feet 7 inches by 17 feet 0 inches. Use 9.0 feet wide stall in commercial areas with moderate to high parking turnover.

*For back-in angled parking, reduce curb overhang by one foot.

⁹ *Dimensions of Parking*, 4th Edition, Urban Land Institute & *Designing Walkable Urban Thoroughfares*, ITE



Sidewalk Width

Vibrant streets create an appealing sense of place by combining travel modes using wide sidewalks, accessible parking, and bicycle parking. Ample sidewalk widths also expand opportunities for human-scaled building edges; storefronts and street dining areas that blur the line between public and private spaces are far more inviting than blank walls or vast parking lots.¹⁰

Over 60,000 visitors flock to Fredericksburg each year,¹¹ creating the potential for pedestrian congestion on Main Street during peak periods. A crowded perception can harm the tourism industry, so careful planning is required to maintain the peaceful downtown atmosphere for which Fredericksburg is known.

Along many segments of Main Street, pedestrians are shielded from moving traffic by angled on-street parking and from the sun by storefront porches or street trees. Existing sidewalk widths along Main Street vary from 4 feet wide with a grass berm to 14 feet wide.

Signal Timing

The signals on Main Street are currently operated by TxDOT's Austin District. TxDOT recently added communications to signals and is working on developing coordinated timing plans. As discussed in *Chapter 5: Regional Impacts and Concerns*, the future construction of a relief route could transfer operations of Main Street signals to the City. This will require additional budget for equipment, staffing, and training to provide signal technicians for operation and maintenance. It will also require that a communications link be established between the signals and a central system to maintain timings.

Driveways on approaches to the historic area, heavy pedestrian crossings, and parking maneuvers in the historic area create a sense of friction, resulting in traffic having to travel at lower speeds.

Recommendations

Developing recommendations for Main Street necessitates ample consideration of trade-offs, as many transportation and livability needs are competing for the same limited available right-of-way.

Pedestrians

Creating comfortable spaces for people along urban streets is about more than providing alternate travel modes to driving; it is about implementing strategies that encourage community and connections between people. In destinations like Fredericksburg, downtown streets have the potential to return to being "places," not just "conduits for cars."²

While Fredericksburg's historic district already extends warm Texas hospitality to visitors, widening the narrow sidewalk segments would provide more space for benches, street trees, and bicycle racks. Maintaining beautiful public spaces for friends and family to gather during downtown excursions is central to the city's character and charm. In addition, providing increasingly convenient access to parking spaces where possible contributes to high parking turnover and consequently increased revenue for local businesses. Right-of-way is limited in some places by historic properties or other physical

¹⁰ *Streets as Places: How Transportation Can Create a Sense of Community*, Project for Public Spaces, March 2014

¹¹ *2015 Annual Report*, Fredericksburg Convention and Visitor Bureau



constraints, but maximizing the coverage of wide sidewalks would strengthen the city's pedestrian network.

The City budgets annually for sidewalk repairs along Main Street. Roadway widening projects are another potential source of funding for sidewalk improvements.

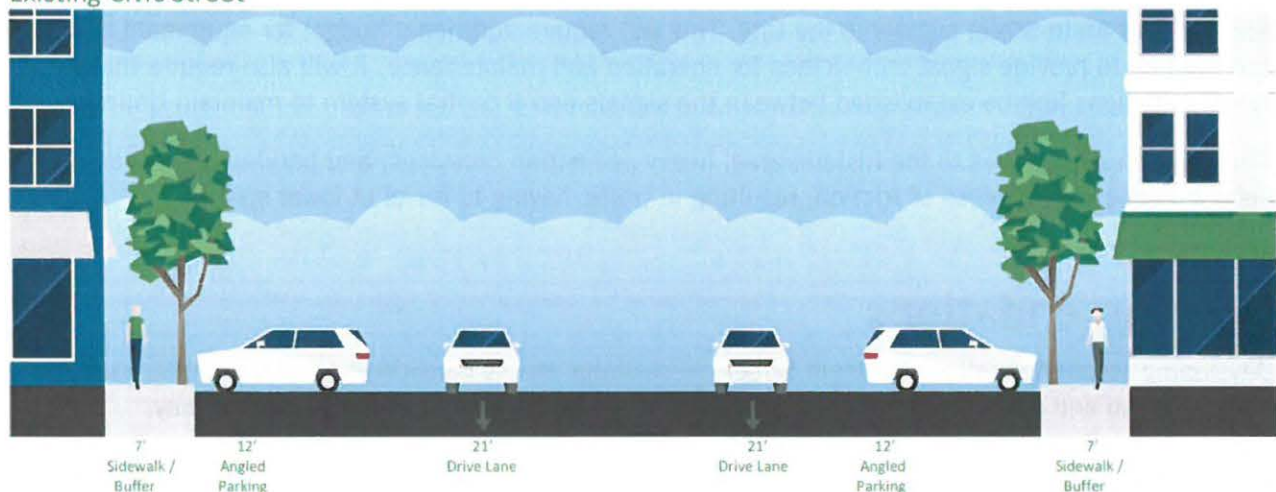
Alternate Cross-Sections

Civic Streets

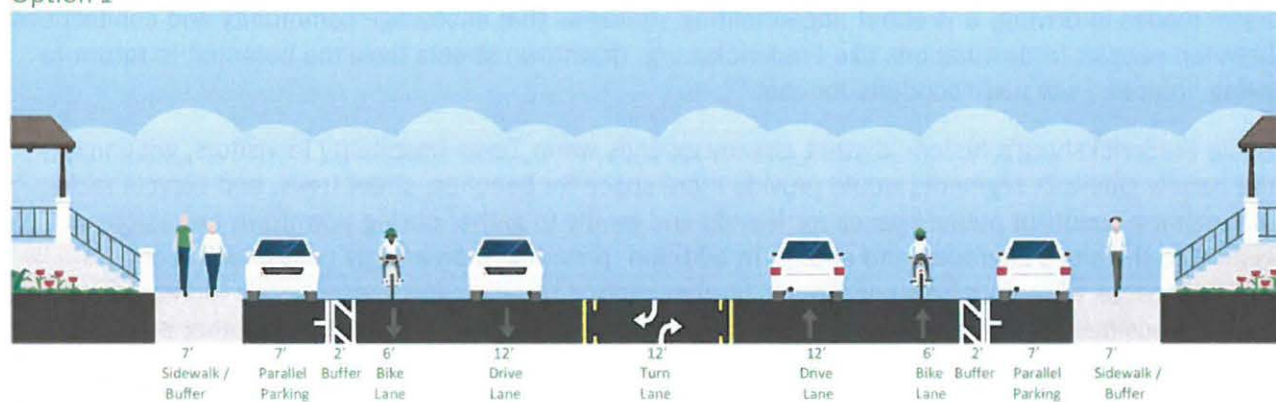
Built to a wide cross-section ranging from 55 to 80 feet, Austin Street and San Antonio Street function as two-lane undivided streets, with no pavement markings other than for on-street parking. The additional pavement width provides an opportunity to designate on-road bicycle facilities and install sidewalks where they are missing. Austin Street is also home to Marktplatz, which serves as the beginning and end point for most local bicycle routes.

With the wide pavement section along the Civic Streets, several options are available for providing increased parking, increased sidewalk width, and bicycle accommodations, as shown below:

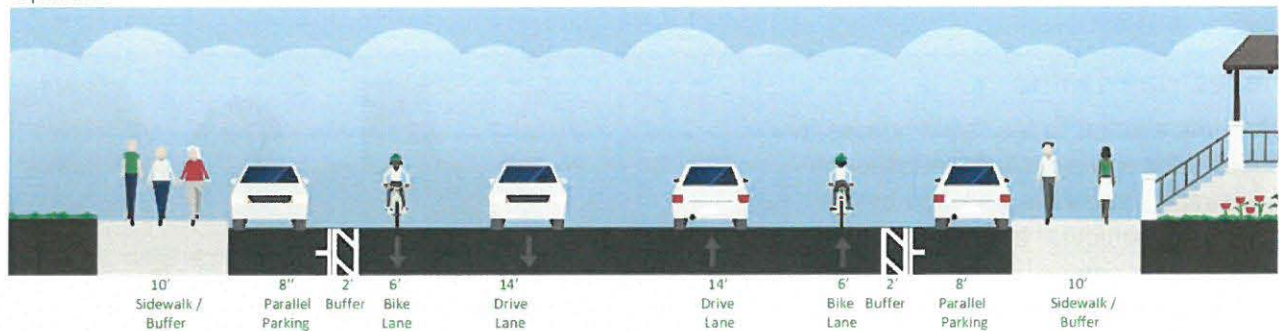
Existing Civic Street



Option 1



Option 2



Option 3



Main Street

Main Street is currently a four-lane cross-section with four travel lanes, a center painted island, and angled parking. At intersections, lanes are reconfigured to provide short left turn storage bays. As noted, the outside lanes need to be wider to accommodate the parking maneuvers. A short-term improvement to Main Street would be to restripe, eliminating the center island and increasing the outside lane widths by three feet on either side. Other, long-term considerations would be to implement a narrow, raised center island for access management as well as increasing the outside lane widths. A third option might be to consider a “road diet” whereby the road is reduced to a three-lane section, with a center turn lane, and wide outside lanes. This option would allow the widening of sidewalks and / or the incorporation of bike lanes. This option will likely become more viable after the truck relief route is constructed and Main Street traffic volumes become more manageable.

[Main Street renderings to be added in a future submittal]



Alternate Signal Operations

Pedestrian Traffic

The time allotted to the “walk” phase for pedestrians at a signalized intersection crosswalk is generally governed by the coincident vehicular through phase. Several safety issues can result from traditional pedestrian treatments at signals:

- Right-turning drivers, facing distractions like local attractions, following directions, or looking for parking can forget to yield to pedestrians entering the crosswalk.
- When pedestrians face significant delays at designated crosswalks, they often choose to cross mid-block or in conflict with traffic signals, creating safety issues.



Exclusive Pedestrian Phase

As a remedy, a “scramble phase” is sometimes employed in areas with high pedestrian traffic. Also known as an exclusive pedestrian phase, the scramble phase allows pedestrian movements in all directions, even diagonally between intersection corners, while all vehicles are stopped. This strategy would be more effective at intersections with the heaviest pedestrian utilization, such as the intersection adjacent to the Admiral Nimitz Museum.



Exclusive Pedestrian Phase (San Antonio)

More commonly, many cities have employed a Leading Pedestrian Interval (LPI) that gives pedestrians the “WALK” signal with a three- to six-second head-start before the parallel vehicular movement is given the green light.

Another strategy is the “split pedestrian phase”, which divides the time allotted to the pedestrian phase and the parallel vehicular through movement into two parts: a vehicular right turn with a “DON’T WALK” pedestrian signal, and a through-only vehicular movement while pedestrians cross. The split pedestrian phase removes the conflict between right-turning vehicles and pedestrians using the crosswalk.¹²

¹² Pedestrian Signal Timing, USDOT FHWA, http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=47



Vehicle Traffic

TxDOT is currently developing coordinated signal timing plans for Main Street. These plans, once implemented, should provide a “green band” that repeats every cycle for through vehicles and improves traffic flow. Since traffic volumes vary by time of day and by volume of traffic, we recommend peak, off-peak, and weekend timing plans be developed for tourist season and non-tourist days.

Another alternative for signal timing in Fredericksburg would involve the installation of Flashing Yellow Arrow (FYA) displays. With the current five section heads, only a leading left turn interval can be utilized. Under the FYA scenario, left turns can either come before (Leading) the green ball or come after (Lagging). This can greatly affect the amount of “green band” progression along the arterial.

Consideration should be given to find ways to eliminate “split phased” signals. For instance, at the intersection of Highway Street and Main Street, the absence of left turn storage bays requires the intersection legs on Main Street operate separately. This type of signal phasing is very inefficient when compared to standard operations.

“Road Diets” are another consideration on streets crossing Main Street. For example, southbound Llano Street is a four lane undivided roadway north of Main Street with parallel parking on both sides of the road. However, to the south it is unmarked and serves as a two lane undivided cross section. Converting the northern roadway segment to a three lane section, with one travel lane in each direction and a center turn lane, would improve operations of the traffic signal at Main Street. The additional pavement can be used to incorporate angled parking or a six foot bicycle lane



This page intentionally left blank.

CHAPTER 5: REGIONAL IMPACTS AND CONCERNS

Fredericksburg's transportation network comprises local elements, as described in the previous chapter, but also regional systems and influences.

Truck Relief Route

The volume of heavy vehicles using Main Street is perceived as problematic for quality of life in the historic area. The resulting noise along a major destination corridor and potential safety issues from large vehicles (many carrying wind turbines) coming through downtown can create frustration for pedestrians and business owners.

The Hazardous Materials Commodity Flow Study completed by the Texas A&M Transportation Institute in 2012 made the following observations of daily weekday truck traffic volumes in Fredericksburg:

- 510 trucks traversed Main Street (250 eastbound and 260 westbound) between 8 a.m. and 5 p.m.
- There were 23 trucks per hour on US 290, east of Washington Street.
- 4.3% of trucks observed had HazMat placards.
- Nearly 63% of trucks observed on Main Street were tractor-trailer configurations.



Truck on Main Street

According to the City's Comprehensive Plan:

"Reducing truck traffic in [Fredericksburg's central roadway segments] will strengthen the community character and economic appeal of the CBD. It may benefit the trucks as well, if they can use routes through Fredericksburg that are less congested and have fewer traffic lights."

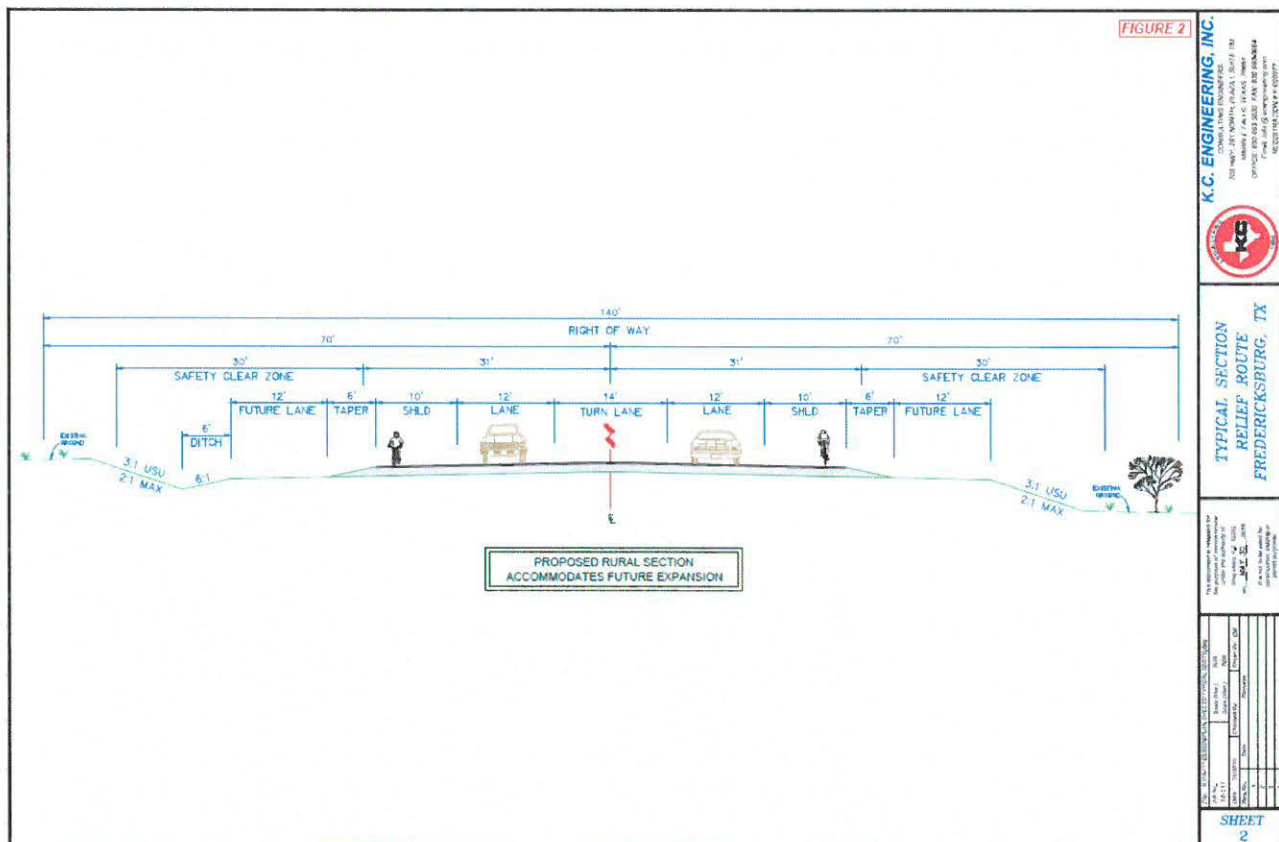


A truck relief route for the City of Fredericksburg has been planned for fifty years in the following plans and studies:

- 1967 Comprehensive Plan
- 1973 Gillespie County Transportation Plan
- 1996 City Thoroughfare Plan
- 2003 TxDOT Alignment Study
- 2006 Comprehensive Plan
- 2006 Thoroughfare Plan
- 2013 Alternate Truck Route Analysis
- 2015 Relief Route Preliminary Report

A proposed solution is to remove the truck route designation from Main Street and instead construct a truck relief route around the city, shown on the Thoroughfare Plan as "Southwest Hill Country Drive." With the new relief route, the truck route designation could be removed from Main Street, and TxDOT could be consulted regarding the possibility of truck limitations in the downtown area.¹³

Beginning in 2013, an 11-member Relief Route Task Force discussed design alternatives with TxDOT representatives and in 2015 proposed a 140-foot rural cross-section to meet current transportation needs and accommodate future expansion.¹⁴



City Recommended Cross Section

An alignment for the relief route has not yet been selected, although primary and alternate routes are differentiated in the updated Thoroughfare Plan (previously known as Loop 9 and Loop 6, respectively).

¹³ 2006 Comprehensive Plan, City of Fredericksburg

¹⁴ Gillespie County Relief Route Preliminary Report, November 2015



Close coordination with Gillespie County and TxDOT Austin District will accelerate the relief route design and construction process.

While not a focus of this plan, land use planning will also be an important element to ensure local compatibility of the proposed alignment, bolster its ability to serve the needs of through traffic, and minimize impacts to adjacent and nearby landowners.

The following next steps are recommended for the City:

- Finalize the relief route alignment
- Acquire and preserve right-of-way
 - A bond will likely be required for appraisal and acquisition
- Determine funding sources and phasing strategies
 - Include local match funds and ROW acquisition in the CIP
 - Consider a bond election
- Coordinate with TxDOT
 - Roadway design
 - Construction
 - Operations and maintenance

Main Street Operations & Maintenance

Once the relief route is constructed TxDOT will require the City to take over operations of Main Street between the termini of the route. The City should budget for additional annual maintenance costs once this occurs, including an allocation for operation and maintenance of the traffic signals.

Transit Services

Public transportation has far-reaching community benefits. Transit use can:

- Decrease traffic congestion, and therefore travel times
- Increase mobility for people who are unable to drive
- Reduce greenhouse gas emissions from personal vehicles
- Foster a sense of community among transit ridership
- Reduce the demand for limited available parking
- Create local jobs for drivers and fleet managers
- Increase access of disadvantaged populations to schools and workplaces

There is a wide spectrum of transit options, from the commuter rail and bus rapid transit in an urban context, to the paratransit shuttles that meet the needs of a more rural area. The appropriate transit options for a given community depend on population and employment density.

Existing transit in the Fredericksburg area is provided by Alamo Regional Transit (ART). Gillespie County is the northernmost county in ART's service area. ART provides on-demand services with small buses and vans, giving priority to senior citizens, low-income families, persons with disabilities, and veterans.



The most common uses for this service are non-emergency medical, work, school, daycare, and other personal needs.¹⁵ Other buses and taxis also provide transportation to and from major destinations like San Antonio.¹⁶

As part of the ongoing parking study, a feasibility study is underway to evaluate the option of running a private shuttle route from hotels to the downtown area. The results of this study will be available on the City's website.

Other ideas for transit initiatives include:

- **Kerrville Shuttle:** The Alamo Area Council of Governments conducted a study in 2014 to investigate the feasibility of a weekday Kerrville-Fredericksburg shuttle service. The study proposed one shuttle that would make four one-way trips between the two cities between 6 a.m. and 8:15 a.m. and three one-way trips between 5:15 p.m. and 7:45 p.m.¹⁷
- **Center City Shuttle:** A circulator bus route through downtown Fredericksburg that would allow people to board and alight at various local destinations. The circulator route, which would use small buses or rubber-tired trolleys, would reduce the need for visitors to walk long distances or search repeatedly for parking spaces. This service could also alleviate Main Street traffic, especially during special events.⁸
- **On-demand Transit Service:** A local transit service to assist County residents with transportation could supplement the services that ART provides.
- **Airport Shuttle Service:** A regularly scheduled shuttle service from Gillespie County Airport to the San Antonio International Airport and Austin-Bergstrom International Airport would enhance mobility options for residents, while also making it easier for out-of-state visitors to travel to Fredericksburg. A feasibility study is recommended to evaluate the benefits and costs of an inter-airport shuttle service.

Connectivity to Major Population Centers

Fredericksburg is 70 miles from San Antonio and 80 miles from Austin. Access to these centers is a priority for the City of Fredericksburg. SH16 (Adams Street) and US 290 (Main Street) are the primary routes. As such, improvements along these corridors should be given a high priority when looking at capital improvement projects. The City will continue working with TxDOT to develop funding for projects along these routes.

Enchanted Rock Traffic

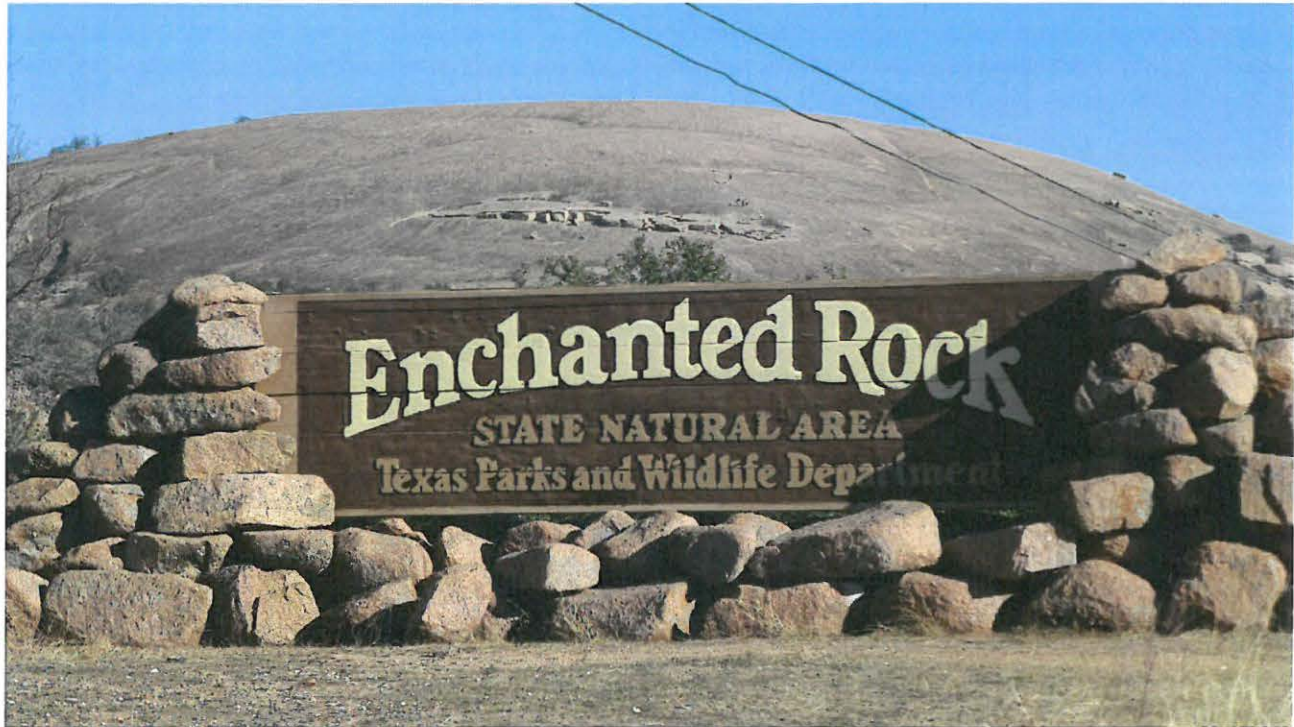
Located 18 miles north of Fredericksburg in Llano County, the Enchanted Rock State Natural Area is a well-known destination for hiking, camping, and climbing. The park frequently reaches its maximum capacity early in the day on weekends and holidays, with significant queueing on Ranch Road 965 towards Llano to the north and Fredericksburg to the south.

¹⁵ *Alamo Regional Transit Informational Brochure*, Alamo Area Council of Governments

¹⁶ *2006 Comprehensive Plan*, City of Fredericksburg

¹⁷ *Kerrville/Fredericksburg Shuttle Presentation*, Alamo Regional Transit, Alamo Area Council of Governments, November 2014

Flashing signs on Ranch Road 965 alert drivers approaching from both directions when the park is full. Visitors who arrive soon after the park reaches capacity sometimes receive parking vouchers to return in the afternoon. These visitors are likely to spend time in Fredericksburg in the meantime.



Enchanted Rock State Natural Area



This page intentionally left blank.



CHAPTER 6: TRANSPORTATION MASTER PLAN DEVELOPMENT

This chapter explains the process that was undertaken to develop the TMP and update the existing Thoroughfare Plan. This TMP ties together existing plans and provides a cohesive vision for the City's transportation network, with a focus on key local and regional concerns.

Thoroughfare Plan

A Thoroughfare Plan is the tool that enables the City to preserve future roadway corridors and to protect or acquire the necessary right-of-way to improve the local transportation system. The plan consists of a map that reflects the City's goals regarding future thoroughfare alignments, thoroughfare design standards, and cross-sections within city limits and the one-mile Extraterritorial Jurisdiction (ETJ).

The Thoroughfare Plan incorporates feasibility constraints including floodplains, steep contours, creeks, and historic areas. Analysis of land use context zones also allows the City to develop context-sensitive alternative street designs, where appropriate.

Update

The most recent Thoroughfare Plan was developed in 2006. As a part of the effort to develop this Transportation Master Plan, the Thoroughfare Plan was reviewed and brought up to date for 2017. This updated map can be found in the *Appendix*.

Main updates to the Thoroughfare Plan include:

- Addition of new CIP projects
- Addition of existing segments of Friendship Lane, Sunrise Street, Brehmer Lane, Post Oak Road, and Windcrest Street
- Removal of Friendship Lane as an alternate truck relief route (due to its design speed of 45 mph)

Alignment with Comprehensive Plan

This 2017 Transportation Master Plan builds upon previous planning efforts, particularly the 2006 Comprehensive Plan and 2015 Comprehensive Plan Update, to serve the community both in terms of a comprehensive vision and in its day-to-day use.

One of the key thoroughfare components of the Comprehensive Plan was the planned Outer Loop or truck relief route, which is described in *Chapter 5: Regional Impacts and Concerns*.

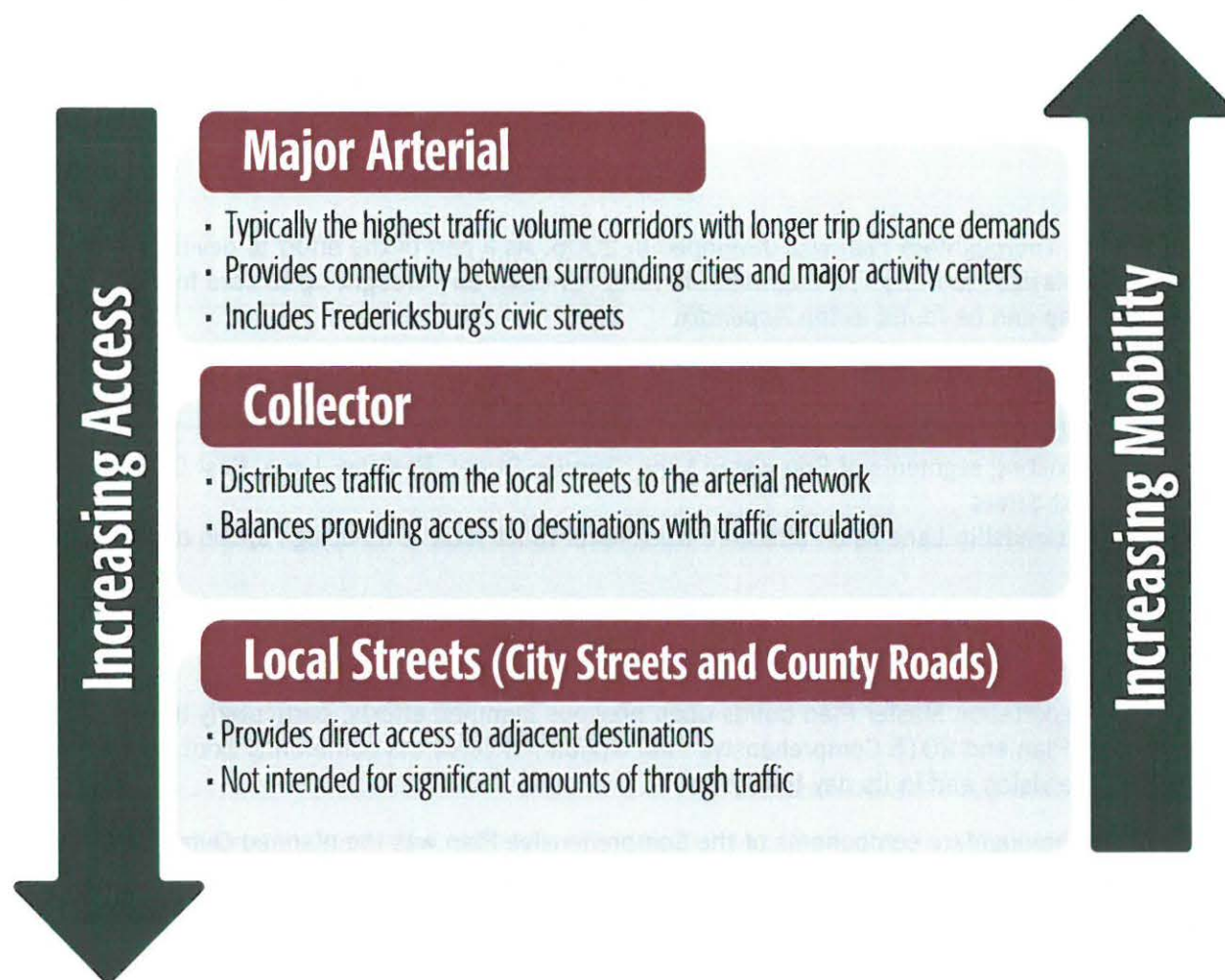


Thoroughfare Design Standards

The City of Fredericksburg has minimum design standards in their Subdivision Regulations. Design standards for entry corridors were established in the 2015 Comprehensive Plan Update along major corridors, near major destinations and for buildings adjacent to the Historic District. These standards provide guidance for new development in order to create character in the corridors.

Road Classifications

Fredericksburg's Thoroughfare Plan is comprised of a variety of standard street types, with the overall system designed to maintain balance between mobility (the through movement of trips) and access to destinations. Fredericksburg's functional classification system is structured in a hierarchical manner, with the goal of providing a balanced network with appropriate roadway capacity, access, and efficiency. The network is made up of three classifications of streets: Major Arterial, Collectors, and Local Roads. Civic streets are also designated on the Thoroughfare Plan. A summary of the functional class characteristics is shown below.



Physical Constraints & Planning Considerations

There is not a single solution for improving all streets and enhancing mobility throughout the City. Street design that is context-sensitive, by definition, will vary in its cross-section based on the existing physical constraints, the character of the land use in the surrounding area, and the preferences of the community.

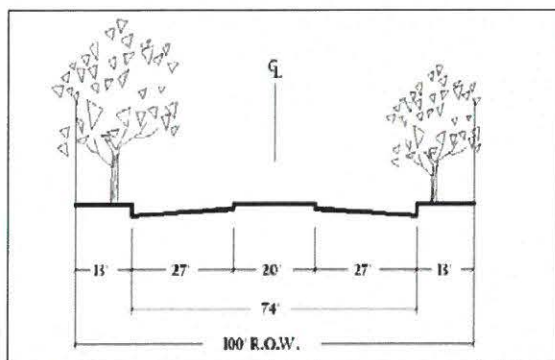
Corridor Cross-sections

The City's Code of Ordinances Chapter 38 Section 6.12. contains Subdivision Design Standards for Streets. It includes the following street types:

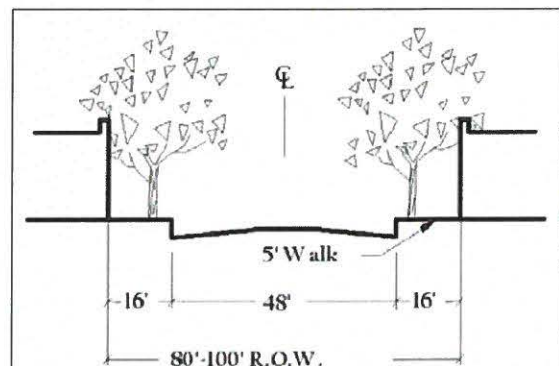
- Divided Highway
- Civic Street
- Arterial
- Collector
- Type A Local Street – A1
- Type A Local Street – A2
- Type B Local Street
- Type ETJ Local Street
- Marginal Access Local Street
- Type RR Local Street

Most Fredericksburg streets have been planned and constructed based on one preferred design for each functional classification. While a standard street design, known as a typical cross-section, may be appropriate in many cases, in some areas, an alternative design may be more appropriate. There is not a single solution for improving all streets and enhancing mobility throughout the city. Street design that is context-sensitive, by definition, will vary in its cross-section based on the existing physical constraints, the character of the land use in the surrounding area, and the preferences of the community.

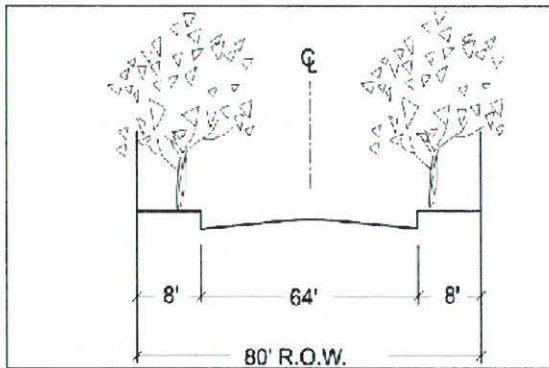
The following cross-sections illustrate the standard design for streets designated as collector or higher, as defined by the City's Subdivision Regulations. Each section represents the predominant section of roadway and identifies the preferred street elements and widths. Street element measurements are from face of curb.



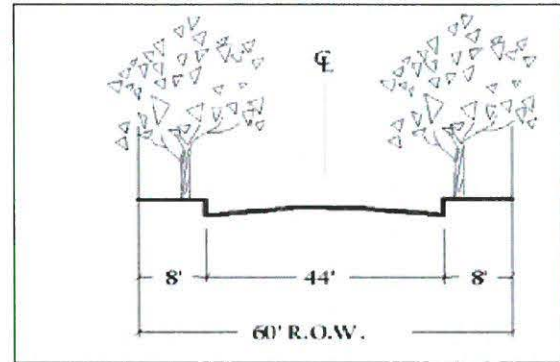
Divided Highway



Civic Street



Arterial



Collector

Multimodal Streets

Multimodal elements are an important part of the Thoroughfare Plan design standards. Establishing thoroughfare design standards with active transportation modes in mind supports community health and vibrancy and relieves the street network of automobile trips.

Pedestrian & Bicycle Circulation

Goals of the recommended pedestrian facility design concepts are to:

- Improve pedestrian safety and mobility,
- Support access to downtown businesses, and
- Create streetscape elements that complement the City's historic identity, while also not impeding vehicular travel.

*"Fredericksburg is fortunate to have a downtown area that is very walkable. It retains the historic character and street grid of a downtown developed when most trips were made on foot. This is an important asset in planning for the mobility needs of future residents and businesses."*¹⁸

The City has the following objectives for walkability and bikeability in Fredericksburg:

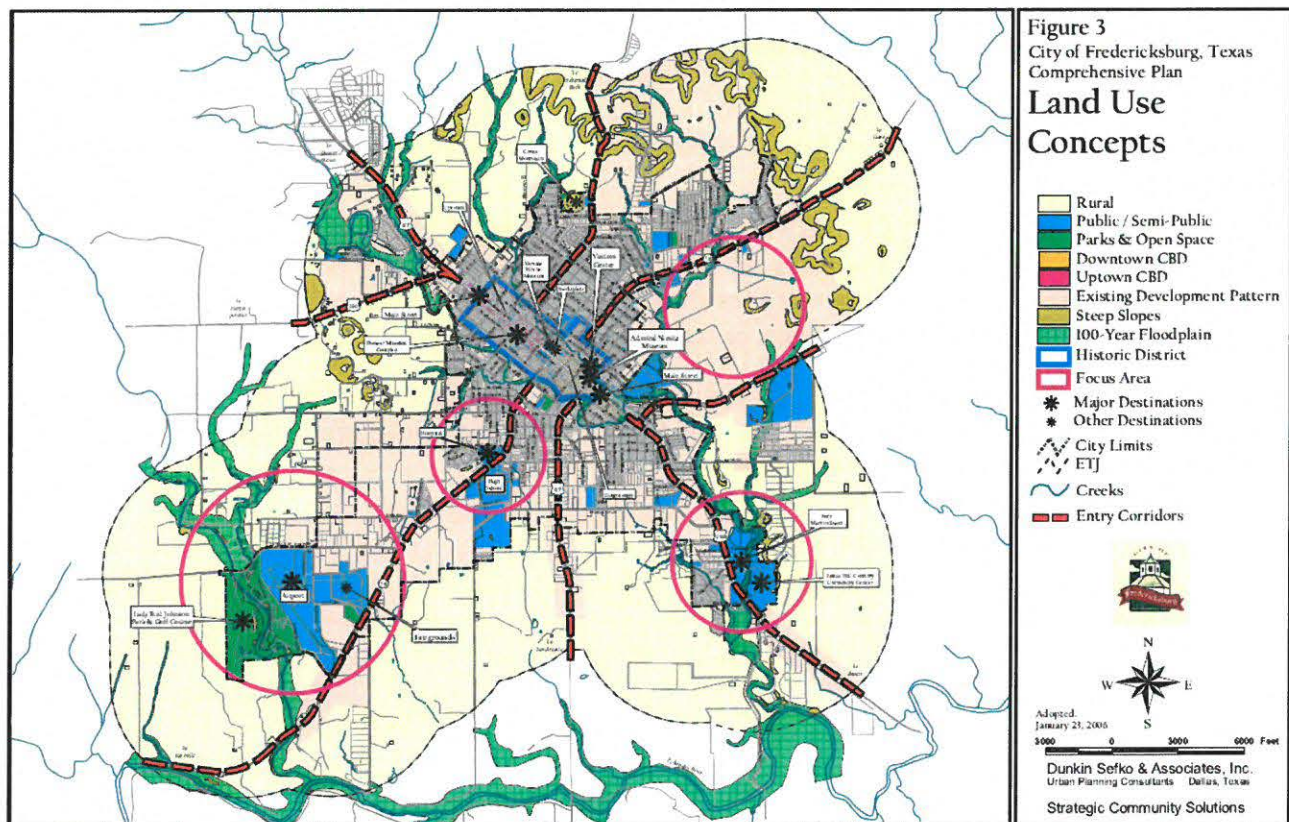
- Follow context-sensitive design principles for new pedestrian facilities by creating trails or sidewalks that correspond to their surroundings, whether natural, suburban, or urban.
- Prioritize the safety of pedestrians and bicyclists along multimodal connections in rural areas, where vehicles travel at high speeds.

¹⁸ 2006 Comprehensive Plan, City of Fredericksburg

City of Fredericksburg Transportation Master Plan



- Design the four land use focus areas from the Comprehensive Plan to be highly walkable and connected to other existing sidewalks and trails.
 - Airport Focus Area
 - Area surrounding Gillespie County Airport, including Lady Bird Johnson Park
 - Health Focus Area
 - Area surrounding Hill Country Memorial Hospital and other medical facilities
 - University Focus Area
 - Region along US 290 west of downtown near Fort Martin Scott and the Texas Hill Country University Center
 - Residential Focus Area
 - Relatively flat region of ETJ northeast of downtown between State Highway 16 and Ranch Road 1631 with development opportunities



2006 Comprehensive Plan Land Use Focus Areas

- Continue to design the downtown sidewalk network with pedestrian safety and comfort in mind.
 - Shaded areas, wayfinding signage, and sidewalks located adjacent to interesting locations improve the pedestrian experience. Attractive waste receptacles also promote cleanliness along pedestrian walkways.
 - On-street parking stalls and landscaping provide a buffer between travel lanes and sidewalks.
 - Corner bulb outs (or curb extensions) along Main Street create safer and shorter crossings for pedestrians. They can also create additional space for seating and street furniture.
 - Downtown pedestrian crossings can be further enhanced with unique pavers or stamped asphalt.



Bike Routes & Trails

Signed bike routes and multi-use trails provide opportunities for healthy recreation, exercise, and community building. As noted in *Chapter 3: Existing Conditions*, existing bicycle routes have been documented and vetted with the local bicycle community, while not specifically endorsed by the City for safety.

Trails are used for walking and bicycling and typically are located in greenways. The design and construction of additional trails in Fredericksburg will require careful planning and right-of-way preservation. Recommendations for proposed are integrated into this TMP through the updated Thoroughfare Plan. Funding sources for additional trails could include applying for support from partner agencies, such as Texas Parks and Wildlife Grants. Trails on new development could be a requirement of the developer. Citizen support for trails was evident at the public open house, with approximately 1/3 of the attendees indicating that they would prefer trails over other projects. Some short segments of the trail plan were opposed. These sections have been re-routed along city roadways in the updated Thoroughfare Plan.

Sidewalks

Throughout much of the city, the primary facilities for non-motorized travel and active transportation are sidewalks. In newer areas, most sidewalks are constructed at the time development occurs and the City is responsible for the upkeep and maintenance of adjacent sidewalks. However, older neighborhoods are typically in greater need of sidewalk repairs or lack sidewalks altogether.

The 2015 Sidewalk Plan identifies critical gaps in the existing pedestrian network and locations around the City where sidewalks need improvements. The City has also begun integrating trail and bicycle facilities to connect key areas around the city.



CHAPTER 7: IMPLEMENTATION AND RECOMMENDATIONS

This chapter outlines recommended prioritization of transportation improvement needs to provide the City with the ability to best determine effective timing for mobility investments. It also discusses additional steps for successful implementation of the TMP.

Prioritization of Transportation Needs: CIP Ranking Tool

The City of Fredericksburg has a limited annual budget for Capital Improvement Projects (CIP). To prioritize CIP funds in alignment with their established transportation planning goals, the City created a CIP ranking tool as a part of the TMP development process. The CIP ranking tool is an Excel spreadsheet that aids in ranking transportation projects based on data-driven performance measures that map back to the City's planning goals.

As described in *Chapter 2: Transportation Planning Framework*, the goals that govern this TMP resulted from an eight-hour staff workshop on January 20, 2017 and a subsequent City Council workshop held on March 6, 2017. The weights assigned to each goal in the CIP ranking tool are derived from activities in which City staff distributed a sample budget of \$100 between the goals. Of the nine goals, the three that received the lowest weights were removed to simplify the project ranking process. The weights from these goals were distributed among the remaining six goals. The tool was developed and refined based on feedback from the City. Then it was used to rank existing and proposed projects.

The CIP ranking tool includes all projects in current CIP plan. Additional projects were added to reflect improvements needed to implement the Thoroughfare Plan. Each project loaded into the CIP ranking tool receives an aggregate score based on how it performs against quantifiable performance measures assigned to each goal. The following sections provide descriptions of the goals and performance measures employed by the CIP ranking tool.

Congestion Mitigation

Congestion mitigation is the top priority identified by City staff and councilmembers. Projects that are expected to improve traffic flow by adding turn lanes at intersections or improving signal operations receive points in the ranking tool. Projects that take place along major roads with higher traffic volumes and are expected to reduce CO₂ emissions are also given priority.

Safety & Welfare

While safety benefits of a project are often difficult to quantify, especially prior to implementation, the CIP ranking tool uses historical crash data and legal claims to identify where safety concerns exist and may be mitigated by the project. If crashes have been recorded within the project limits or there are known legal claims that may be affected by the project, the project receives points.

Projects that provide enhanced connections between residential areas and local businesses, or between two economic centers, are considered resident welfare improvements.



Connectivity

Connectivity is a key element of the City's transportation planning framework. Safer and more robust connections for all modes of transportation improves quality of life, reduces travel times, and supports local business who enjoy improved customer access and visibility. The performance measures in the ranking tool for this goal center on linking critical destinations, including historic, civic, and natural sites, with a focus on connections to schools. Priority is also given to increased connectivity to existing parking facilities, both on-street and off-street.

Often a transportation network is compromised by gaps in the system of roadways, sidewalks, bicycle facilities, or trails. Projects that fill identified gaps in Fredericksburg's transportation network receive points for connectivity, with increased weight allotted to projects that fill gaps in networks for multiple modes.

Mobility

The goal of mobility gives points to projects that improve travel efficiency. The proposed truck relief route, for example, would receive a high mobility score because it promotes smooth traffic flow for trucks traveling through Fredericksburg, as well as for local traffic on Main Street. Other mobility performance measures prioritize projects that add through lanes to roadways or promote non-automobile mobility.

Implementation

Often a project that meets multiple transportation goals is stalled by right-of-way constraints or funding challenges. To promote timely completion of CIP projects, projects that have identified funding sources or supportive agency partners receive points in the ranking tool. Projects that do not require acquisition of additional right-of-way are also weighted by this category.

Community Character

Fredericksburg is famous for its serenity and hospitality, and it is important to the City to maintain this character. To this end, the CIP ranking tool gives points to improvement projects that are located in the historic district or enhance pedestrian facilities and signage. The addition of aesthetic elements like landscaping or stylized gateway improvements, or active transportation amenities, including benches, shade canopies, and bike parking, also raises a project's community character score.

One-Way Street Conversion

One step of the TMP process was field observations for the improvement of vehicular mobility, including providing recommendations about converting two-way streets in the historic district to one-way. Several streets were evaluated by studying the potential benefits and disadvantages associated with one-way conversion.



Potential Benefits

- Increased traffic capacity
 - Under appropriate circumstances, a pair of one-way streets can have a greater capacity than a pair of two-way streets. Signal timing plans for one-way street networks can allow for more efficient allocation of green time.
- Reduced number of conflict points for drivers
 - There are fewer turning movements at an intersection of one-way streets than with two-way streets, which decreases the potential for collisions of through vehicles with turning vehicles.
 - At signalized intersections, the reduction in vehicle movements can result in more green time for the remaining movements, decreasing the amount of driver delay.
- Reduced delay caused by curbside activity
 - Loading and unloading is often less disruptive on a one-way street, where other through lanes allow drivers to bypass service vehicles.
- Increased on-street parking capacity
 - An estimated 30% more spaces can be gained when parallel parking on a two-way street is converted to angled parking on a one-way street.
- Bike lanes
 - Converting a street to one way operations allows consideration of installing six foot wide bicycle lanes without removing any vehicle lanes.

Costs and Disadvantages

- Economics
 - Businesses often believe two-way streets provide greater access and increase their visibility to traffic.
- Cost of signal modification
 - Traffic signals would need to be modified or removed to accommodate one-way travel at each signalized intersection.
- Costs of pavement markings and signage
 - Appropriate markings and signage would be needed to accommodate one-way travel.
- Navigation confusion
 - One-way street networks can be more confusing for drivers. A circulation system of two-way streets may be easier for drivers to understand, particularly visitors unfamiliar with downtown.
- Potential increase in traffic speeds
 - One-way streets tend to increase traffic speeds, which can create a less comfortable environment for pedestrians and bicyclists.
- Conflict points for pedestrians
 - The unusual configuration can reduce pedestrians' ability to predict vehicle behavior.



- Increased Circulation Volumes
 - Networks of one-way streets cause drivers to add distance to their trips when they are required to travel in the opposite direction of intended travel, increasing overall vehicle miles traveled and travel times for individual drivers. The necessity of these maneuvers also potentially increases areawide traffic congestion.

Recommendations

1. North Washington Street from Main Street to Austin – This segment of Washington Street is underutilized, serving as a two-lane undivided roadway with parallel parking on both sides. Converting to one-way operations northbound would improve intersection efficiency at the intersection of Main Street and Washington. It would also allow for consideration of installing angled parking or bike lanes.
2. East Creek Street from Adams to Llano – Vehicle lanes are typically 11 to 12 feet wide in each direction. A parked vehicle utilizes approximately seven feet of pavement width. This street is only 26 feet wide, which can cause problems for two way operations if vehicles are parked along the curb. It is recommended that this street be converted to one way operation eastbound, which will allow vehicular access in the case that cars are parked on both sides of the street. It will also enhance efficiency of the intersection at South Adams Street, as fewer vehicle movements will have to be served at the traffic signal.
3. North Adams Street from Travis to College – Similar to East Creek Street, this narrow street is only 23 feet wide. Furthermore, it serves as a circulation route for Fredericksburg Middle School traffic. It is recommended that this street be designated as a one-way street southbound for this segment.
4. West Schubert Street from North Adams to North Crockett – This street serves the Town Pool and Turner Hall. The eastern segment of this block is narrow and creates problems when vehicles are parked on both sides of the street. Converting the street to one-way will allow additional parking to be added and still have unrestricted passage of vehicles.

Based on existing traffic volumes, the large proportion of visitor traffic, and the City's focus on local businesses and safety for multimodal travel, it is not recommended for the other downtown two-way streets to be converted to one-way at this time.



CHAPTER 8: PROJECT FUNDING

The recommended improvements in the Transportation Master Plan will vary in cost depending on the necessary funds for project design, right-of-way acquisition, and construction. This chapter describes funding sources that are currently utilized and additional sources that could be considered.

Current Process

The City uses the Capital Improvement Projects (CIP) plan to allocate funding for transportation improvements. The CIP budget is currently funded through the general fund. The Street portion of the CIP represents a substantial portion of the total CIP budget. Sidewalks and trails are maintained and constructed using Parks and Recreation Department funds.

Capital Improvement Projects include new street sections, street reconstruction, sidewalk installation, and intersection realignments in various locations throughout the City based on need and the existing Thoroughfare Plan.¹⁹

Alternative Funding Sources

While the City will undoubtedly provide a significant share of the costs, combining funds from multiple sources can help ease the burden on taxpayers. The following sections outline some of the potential funding sources for the recommended transportation action items.

City Revenue Streams

Property Tax

Property taxes are commonly used to fund the costs of transportation projects, along with their operation and maintenance. Property in the City of Fredericksburg is assessed each year by the Gillespie County Appraisal District. The 2016 city tax rate for Fredericksburg is \$0.24 per \$100 in valuation.

Local Sales Tax

Local sales taxes are widely used for funding transportation projects. In addition to being fairly consistent and predictable, they are also inflation sensitive. A major drawback to using sales tax is that it is not possible to link the use of roadways to payment of the tax.

Vehicle Registration Fees

Municipal governments are allowed to impose vehicle registration fees for the funding of transportation programs within their jurisdictions. These fees generate stable revenue and require minimal administrative expense. They are generally considered a user-based tax.



Bonds

A municipality has the authority to issue bonds to finance the construction of public improvements. Bonds can be an efficient and effective means of financing large public projects. If the issuance of the bonds is subject to voter approval, advance planning will be required.

A candidate bond program could be funding the local match for construction and right-of-way acquisition for the truck relief route.

- General Obligation (GO) / Local Obligation (LO)
- Backed by Property Tax / Portion of Traffic Violation Fines

Economic Development Corporations / Dedicated Sales Tax

Fredericksburg is eligible to adopt section 4A and 4B sales taxes for economic development. The funds raised by 4A taxes must be spend on projects that create or retain primary jobs. If a road project is needed to promote or develop new or expanded business enterprises, then 4A funds can be used.

Section 4B taxes do not have to be tied to jobs to be used for roadway projects. These taxes can be up to ½ of one percent for each. However, there is a two percent limit to the total amount of all local sales and use taxes collected by a city.

Permits and Fees

There are a number of ways that development permits and fees can be used to provide funds for ongoing and future road improvement and maintenance.

Transportation Utility Fee

The City of Austin has established a fee that treats the road network as a utility. This fee assists with street maintenance, repairs, traffic signals, construction, and operations. Users are billed each month on their waste collection bill.

Stormwater Utility (SWU) Fees

Since streets form a part of the drainage system, certain maintenance activities may be eligible for funding through the SWU. These include the cleaning of streets and maintaining areas where drainage is affected. They can also be used to construct new roadways or storm drains that will improve the drainage system.

Site Specific

As development occurs, the City requires ROW dedications by landowners and developers. The subdivision regulations also require Traffic Impact Studies for developments that generate a substantial amount of traffic.



City of Fredericksburg Transportation Master Plan

Traffic Impact Studies

These studies identify mitigation measures needed to maintain acceptable operations at nearby intersections. Most cities require developers to pay for their “pro-rata share” of these improvements.

Boundary Street Policies

The City can adopt a boundary street policy which requires developers to construct one half of the cross-section for Thoroughfare Plan street adjacent to their property and the full cross-section for streets running through their development.

Rough Proportionality

Case law and state legislation requires that Cities verify that transportation improvements required of developers be “roughly proportionate” to the demand that the development places on the roadway network. There are several spreadsheets available from the cities of Austin, San Antonio, and Fort Worth that can be used to perform this check.

Potential Partner Agencies

Especially for transportation projects whose impact exceeds the boundary of Fredericksburg’s city limits, partnerships with other agencies can be feasible and advantageous.

Gillespie County

It is fairly common for Counties and Cities to partner on roadway projects that cross jurisdictional lines. A large number of Gillespie county residents live and work in the City’s corporate limits and Extraterritorial Jurisdiction. By working closely with Gillespie County, roadways in the ETJ that continue on to other county destinations can be better planned.

TxDOT

With primary access to and through Fredericksburg being on TxDOT roadways, the City can provide local match funds to help leverage state projects. These would require Advance Funding Agreements between the City and TxDOT. In addition to roadway projects, TxDOT has the ability to build smaller projects using Hazard Elimination Program and Safe Routes to School funding.

TxDOT can also provide funding assistance through the State Infrastructure Bank (SIB). The overall goal of the SIB program is to provide innovative financing methods to communities and assist them in meeting their infrastructure needs. The SIB program allows borrowers to access capital funds at or lower-than-market interest rates. For a project to be eligible for a SIB loan, it must be on the state’s highway system and included in the statewide Transportation Improvement Plan.

Work eligible for the program’s funding in Texas includes planning and preliminary studies, feasibility, economical and environmental studies, right-of-way acquisition, surveying, appraisal and testing, utility relocation, engineering and design, construction, inspection, and construction engineering.



Regional Mobility Authorities (Tolls)

Often the amount of available state funding is inadequate to address pressing transportation needs. Constructing new roadways as turnpikes or tollways provides an additional revenue stream, which can be a catalyst for congestion relief.

Grants from Outside Agencies

Periodically, outside agencies and organizations provide opportunities for grants and other funding to help promote projects consistent with their goals. Transportation and sustainability have been the subjects of a number of grant programs in the past, but there are other objectives as well.

As with other types of outside funding, the City or organization seeking a grant is often required to provide in-kind services or some percentage of the total funding for a project that is approved. The important thing is to be creative, proactive and persistent when looking for grant funds.

Special Districts

Special improvement districts are authorized through state legislation for the funding of public improvements. These include Transportation Reinvestment Zones (TRZ), Roadway Improvement Districts (RID), Public Improvement Districts (PID), and Municipal Utility Districts (MUD). These districts allow for the sale of bonds to make infrastructure improvements and then pay off the bonds over time through special taxes or the increase in tax values in the district.

Tax Increment Financing

Tax increment financing encourages economic development within a defined geographic area or zone. It is primarily focused on infrastructure development. Enabled by Transportation Infrastructure Zones (from the Texas Transportation Code) or Tax Increment Reinvestment Zones (TIRZ, from the Texas Tax Code), tax increment financing sets aside property tax revenues due to assessed valuation growth to stimulate economic development in a zone.¹⁹

Public-Private Partnerships

Due to widespread public opposition to raising taxes to fund major infrastructure investments, alternative funding sources like public-private partnerships (PPPs) are often pursued. In these types of projects, the City, developer and other agencies (i.e. school district, utility providers, TxDOT, etc.) agree on the scope and cost of the project to construct, with each agreeing to pay a percentage of the cost.

¹⁹ *Tax Increment Financing: Council Work Session Presentation*, City of Austin Financial Services Department, June 2013



APPENDIX

Appendix A: Meetings

- Meeting Agendas
- Meeting Notes
- Workshop Materials
- Workshop Exercise Results
- Council Exercise Results
- Open House Exercise Results

Appendix B: Existing Plans

- 2015 Comprehensive Plan Update – Introduction & Purpose
- 2015 Sidewalk Plan
- 2006 Thoroughfare Plan
- 2016 Capital Improvements Projects (CIP) Plan – Street Dept Summary
- Parks, Recreation & Open Space Master Plan – Introduction
- 2016 Zoning Map
- Gillespie Country Relief Route Preliminary Report (No Appendices)

Appendix C: Additional Information

- Draft 2017 Thoroughfare Plan Update
- Draft Bike Route Map

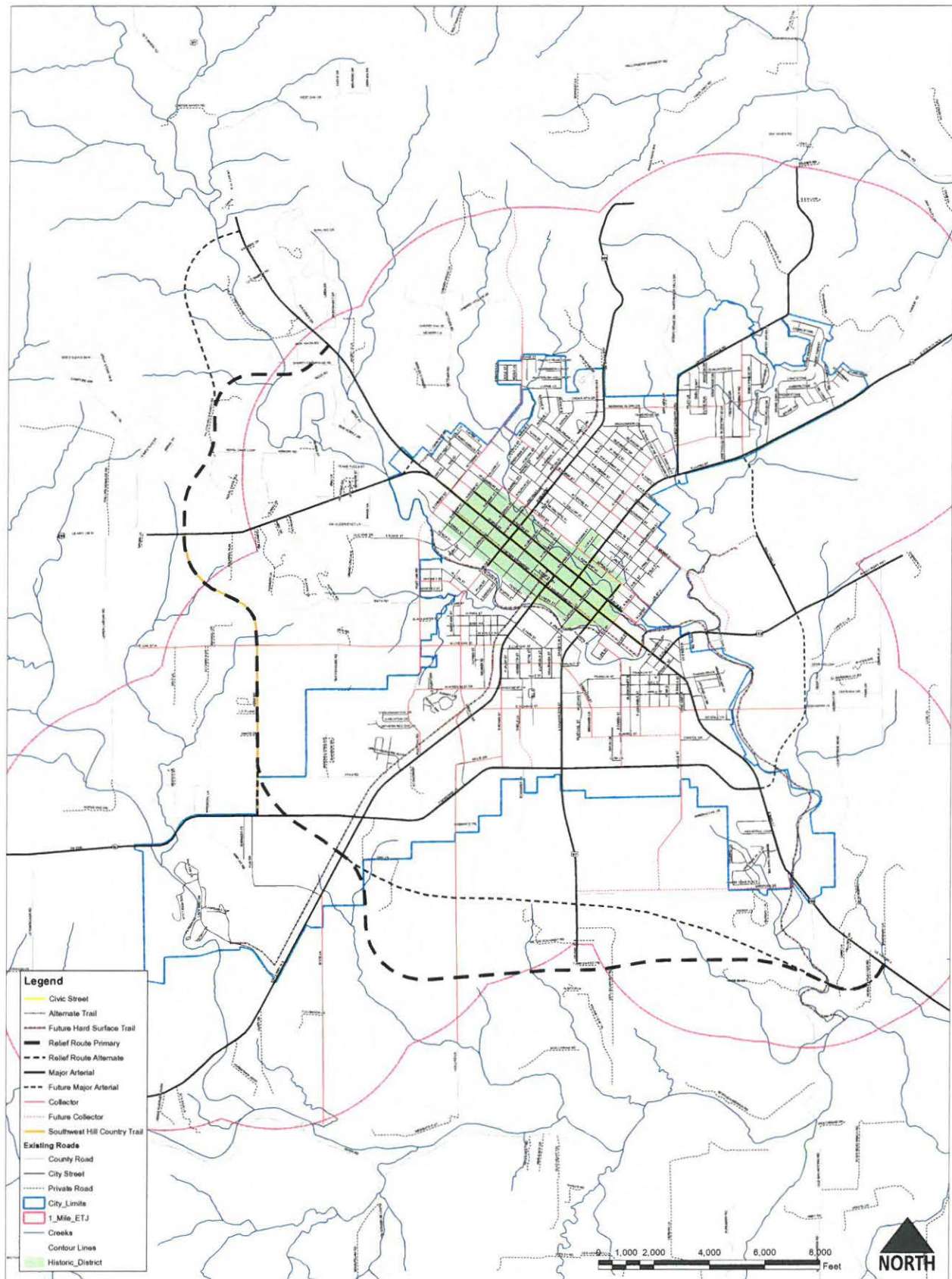




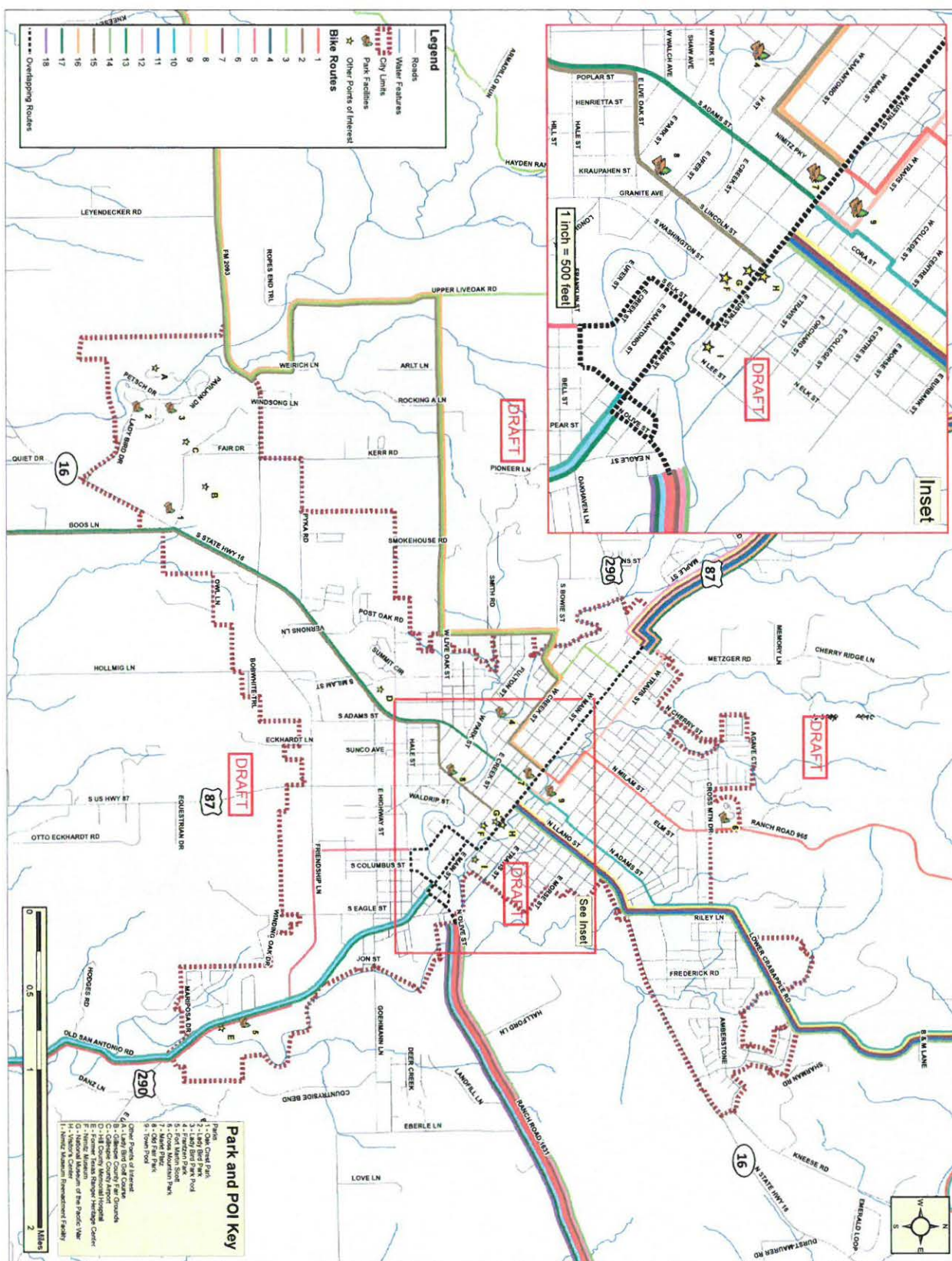
APPENDIX

Appendix C: Additional Information

- Draft 2017 Thoroughfare Plan Update
- Draft Bike Route Map



NOT TO SCALE

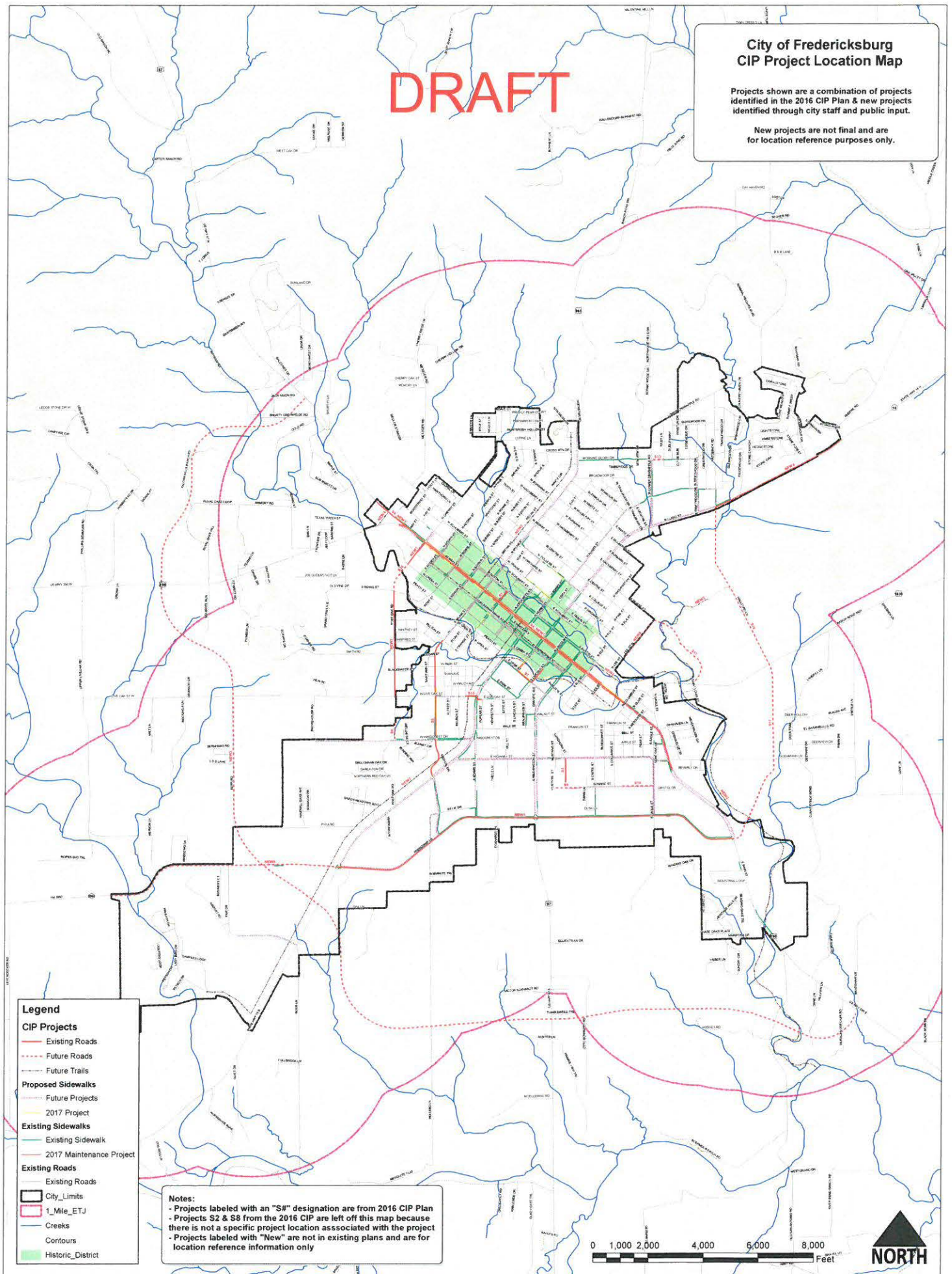


DRAFT

City of Fredericksburg
CIP Project Location Map

Projects shown are a combination of projects identified in the 2016 CIP Plan & new projects identified through city staff and public input.

New projects are not final and are for location reference purposes only.



Project Number	Name	Description	Limits	Rank
NEW3	US 290 Truck Relief		US 290 West to US 87	1
S4	Main Street Sidewalk Repairs			2
S14	South Cherry Street Extension		Creek St to Post Oak Rd	3
S16	Frederick Rd Extension		Hwy 16 to FM 1631	4
S11	East Morse Street & Bridge			5
S17	Frederick Rd Extension		FM 1631 to US 290 East	5
S6	Post Oak Rd Extension		Live Oak to Windcrest	7
S2	Annual Sidewalk Improvements			8
NEW2	Multi Use Trails			9
NEW14	Bicycle Routes			10
NEW1	Main Street Signal Timing	Re-time signals and add pedestrian scatter phase	Wal Mart to Milam	11
NEW5	Friendship Lane Reconstruction		US 290 to SH 16	12
NEW4	US 290 / US 87 Intersection Realignment			13
NEW10	S. Washington / Longhorn / Walnut Intersection			14
NEW7	Post Oak Rd / Cherry St Widening		Live Oak to US 290	15
NEW6	SH 16 Widening		Frederick Road to Stoneledge	16
NEW11	N Llano/Travis Improvements	Intersection/turn lane improvements		17
NEW9	Tivydale Road Widening		SH 16 to City Limits	18
S7	East Ufer Sidewalks			19
NEW12	Hwy St/290 E Improvements	Intersection/turn lane improvements		20
NEW13	Hwy St/S. Washington Improvements	Intersection/turn lane improvements		20
S15	Live Oak Street / Adams Street Intersection Re-alignment			22
S13	Morning Glory Drive Extension		Lower Crabapple to Riley Ln	23
S10	Sunrise Street Extension		Columbus to Eagle	24
S9	Sunrise Street Extension		Mustang to Dawn	25
NEW8	Lee Street Extension		East Travis Street to East Morse Street	26

Preliminary Fredericksburg CIP Project Prioritization Scoring Matrix (06/12/2017)

Goal	Description	Objective Category	Performance Measure
Congestion	This goal seeks to prioritize projects that maximize the efficiency of vehicular travel within the roadway network.	Signal Timing	Includes timing improvements (coordinated or pre-timed)
			Includes timing improvements (actuated, uncoordinated)
			Does not include timing improvements
		Intersection Improvements	Adds turn lane capacity
			Does not add turn lane capacity
		Existing Traffic Volumes	Over 5,000 vehicles per day on major road
			1,000 - 5,000 vehicles per day on major road
			Fewer than 1,000 vehicles per day on major road
		Air Quality	Substantial anticipated reduction in CO ₂
			No anticipated reduction in CO ₂
Safety and Welfare	This goal seeks to provide a transportation system safe for all users and secure against natural disasters.	Crash Rates	5 or more crashes in project limits in past three years
			1-4 crashes in project limits in past three years
			No crashes in project limits in past three years
		Resident Welfare	Improves connection from residential areas to local businesses
			Provides connections between economic centers
			No resident welfare improvements
		Legal Claims	3 or more claims in project limits that may be affected by project
			1-2 claims that may be affected by project
			No claims that may be affected by project

Preliminary Fredericksburg CIP Project Prioritization Scoring Matrix (06/12/2017)

Goal	Description	Objective Category	Performance Measure
Connectivity	This goal seeks to prioritize projects that enhance access and connectivity across the community as well as to specific land uses along a corridor for all modes of transportation.	Link Critical Destinations	Enhances connectivity to schools and other destinations
			Enhances connectivity to schools
			Enhances connectivity to historic, civic, or natural sites
			Does not enhance connectivity to critical destinations
		Connected Network	Fills a critical gap in multiple transportation modal networks
			Fills a critical gap in bicycle and/or pedestrian network only
			Fills a critical gap in automobile network only
			Does not fill a critical network gap
		Parking Connections	Provides increased connectivity to existing on-street or off-street parking facilities
			Does not provide increased connectivity to parking facilities
Mobility	This goal seeks to prioritize projects that maximize the mobility of all modes within the roadway network while maintaining access to key destinations.	Truck Traffic Relief	Provides alternate truck route to Main Street
			Does not provide truck route to Main Street
		Efficiency	Additional through lanes
			No additional through lanes
		Multimodal	Specifically addresses non-automobile mobility
			Only addresses automobile mobility
		Internal Funding Sources	Has identified source of funding to support >50% of project cost
			Has identified source of funding to support <50% of project cost
			Has no identified funding sources

Preliminary Fredericksburg CIP Project Prioritization Scoring Matrix (06/12/2017)

Goal	Description	Objective Category	Performance Measure
Implementation	This goal seeks to prioritize projects that are shovel-ready and have demonstrated support among all project sponsors.	ROW Constraints	Does not require acquisition of additional right-of-way
			Requires acquisition of additional right-of-way
		Agency Partnership	Eligible for greater than 50% funding match from outside agencies
			Eligible for 20-50% funding match from outside agencies
			Eligible for 10-20% funding match from outside agencies
			Not eligible for funding match from outside agencies
Community Character	This goal seeks to prioritize projects in areas where investments will enhance the existing unique community character and create new patterns for development.	Pedestrian Realm	Includes improvements to crosswalks, sidewalks, curb ramps, or multi-use paths
			Includes pedestrian signing and marking only
			Does not include pedestrian improvements
		Historical Value of Area	Located in or bordering historic district
			Not located in or bordering historic district
		Style	Includes landscaping, gateway, or other aesthetic improvements
			Does not include landscaping, gateway, or other aesthetic improvements
		Amenities	Includes addition of amenities (such as benches, shade canopies, bike racks, or water fountains)
			Does not include amenities

Project Number	Name	Description	Limits	Total Score
NEW3	US 290 Truck Relief		US 290 West to US 87	74.47
S4	Main Street Sidewalk Repairs			57.62
S14	South Cherry Street Extension		Creek St to Post Oak Rd	55.76
S16	Frederick Rd Extension		Hwy 16 to FM 1631	54.57
S11	East Morse Street & Bridge			52.07
S17	Frederick Rd Extension		FM 1631 to US 290 East	52.07
S6	Post Oak Rd Extension		Live Oak to Windcrest	47.73
S2	Annual Sidewalk Improvements			46.67
NEW2	Multi Use Trails			46.46
NEW14	Bicycle Routes			45.90
NEW1	Main Street Signal Timing	Re-time signals and add pedestrian scatter phase	Wal Mart to Milam	43.74
NEW5	Friendship Lane Reconstruction		US 290 to SH 16	40.75
NEW4	US 290 / US 87 Intersection Realignment			38.22
NEW10	S. Washington / Longhorn / Walnut Intersection			37.12
NEW7	Post Oak Rd / Cherry St Widening		Live Oak to US 290	35.54
NEW6	SH 16 Widening		Frederick Road to Stoneledge	35.19
NEW11	N Llano/Travis Improvements	Intersection/turn lane improvements		32.83
NEW9	Tivydale Road Widening		SH 16 to City Limits	32.10
S7	East Ufer Sidewalks			31.46
NEW12	Hwy St/290 E Improvements	Intersection/turn lane improvements		29.13
NEW13	Hwy St/S. Washington Improvements	Intersection/turn lane improvements		29.13
S15	Live Oak Street / Adams Street Intersection Re-alignment			22.20
S13	Morning Glory Drive Extension		Lower Crabapple to Riley Ln	16.77
S10	Sunrise Street Extension		Columbus to Eagle	13.82
S9	Sunrise Street Extension		Mustang to Dawn	10.81
NEW8	Lee Street Extension		East Travis Street to East Morse Street	6.58