City of Harlingen

TRAILS MASTER PLAN

March 2010

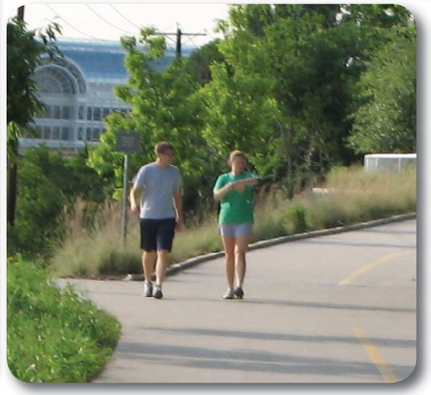
CITY OF HARLINGEN TEXAS

City of Harlingen 2010 TRAILS MASTER PLAN










CITY OF HARLINGEN TEXAS

HALFF

March 2010

March 30, 2010

Michael Hopping, Director of Parks and Recreation
City of Harlingen
900 Fair Park Boulevard
Harlingen, TX 78550

Reference: Harlingen Trails Master Plan

Halff Associates Inc. is pleased to submit the final Harlingen Trails Master Plan report. This report strives to capture the many observations and findings developed as part of the planning process, and to match those to the desires and expectations of the citizens of Harlingen. The plan's recommendations encompass a variety of different trail types, seeking first and foremost to create a citywide interconnected system of continuous trails that link all parts of Harlingen. The ultimate goal of this plan is to truly connect all of Harlingen.

As in any comprehensive analysis, this document contains many recommendations that are prioritized over time. Many of the actions in this plan are immediate in nature and can be developed as funding becomes available. Others can be developed in conjunction with ongoing development in Harlingen. Finally, some are long term actions that may not be funded for some time, but that are shown to ensure that they remain present in the City's planning for the future and as new funding sources become available.

Ultimately, this plan stresses what citizens of Harlingen desire from their trails system. As much as any other type of infrastructure in a city, trails can transform Harlingen and continue to make it one of the best places to live in Texas.

We greatly appreciate the opportunity to have worked with you, your staff, and the citizens of Harlingen.

Sincerely,

Halff Associates Inc.

Jim Carrillo, ASLA, AICP
Vice President, Director of Planning

RESOLUTION NO. ___

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HARLINGEN, TEXAS ADOPTING THE TRAILS MASTER PLAN FOR THE CITY OF HARLINGEN, TEXAS; FINDING AND DETERMINING THAT THE MEETING AT WHICH THIS RESOLUTION WAS PASSED WAS OPEN TO THE PUBLIC AS REQUIRED BY LAW.

WHEREAS, the City Commission of the City of Harlingen recognizes the need for a 2010 Trails Master Plan ("the Plan") to provide goals, assessments, standards, recommendations, and strategies for implementation over a ten-year period in an effort to provide for trails, preserve open spaces, and rehabilitate existing trails in the City of Harlingen; and

WHEREAS, the primary objective of "the Plan" is to address trail needs that are desired by the citizens of Harlingen; and

WHEREAS, in order to address connectivity needs in the future, the City of Harlingen has sought public input from the citizens of Harlingen through public input meetings, the Harlingen Park Advisory Board, the City Commission, and the Parks and Recreation staff; and that input has been incorporated into "the Plan"; and

WHEREAS, the City Commission, having taken into consideration the results of the in-depth study conducted by Halff Associates, Inc. for the City of Harlingen, determines that "the Plan" is reasonable;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF HARLINGEN, TEXAS:

SECTION 1. That the 2010 Trails Master Plan for the City of Harlingen, Texas, is hereby officially adopted, as attached hereto and incorporated herein for all intents and purposes.

SECTION 2. That a ten-year Action Plan has been developed to prioritize implementation of the 2010 Trails Master Plan, guide the rehabilitation of existing trails, provide guidance in the application of funding, and suggest alternative funding mechanisms. Adoption of the 2010 Trails Master Plan shall not commit the City of Harlingen to specific funding levels or implementation strategies, but shall provide a guidance plan for the City's implementation of trails.

SECTION 3. That it is hereby officially found and determined that the meeting at which this resolution was passed was open to the public as required by law.

PASSED AND APPROVED this ____ day of _____, 2010.

CITY OF HARLINGEN, TEXAS

ATTEST:

_____
Chris Boswell, Mayor

_____
Gabriel Gonzales, Interim City Manager

APPROVED AS TO FORM AND CONTENT:

_____
Roxann P. Cotroneo, City Attorney

ACKNOWLEDGEMENTS

The 2010 Trails Master Plan was developed by the City of Harlingen Parks and Recreation Department with the technical assistance and design help of Halff Associates, Inc. A special thanks goes to the many residents, landowners, business owners, and community leaders for their insight and direction throughout the duration of this planning effort.

City of Harlingen City Commission

Mayor Chris Boswell
Larry Galbreath, City Commissioner, Place 1
Robert Leftwich, City Commissioner, Place 2
Kori Marra, City Commissioner, Place 3
Jerry Prepejchal, City Commissioner, Place 4
Joey Trevino, City Commissioner, Place 5

City of Harlingen Staff

Gabriel Gonzales, Interim City Manager
Roxann P. Cotroneo, City Attorney
Michael Hopping, Director of Parks and Recreation
Jeff Lyssy, Parks Superintendent, Parks and Recreation Department

Parks Advisory Board

Bob Binney
Bonnie de la Rosa
Eileen Brown
Sue Griffin
Glenda Ledesma
Ruben de la Rosa
Juan T. Garza, former board member

Harlingen Irrigation District, Board of Directors

Harvey Adams, President
Edward Bauer, Vice President
Rick Guerrero, Secretary
William (Bill) Wepfer, Attorney
Wayne Halbert, General Manager
H.J. (Jack) Garrett, Member
Leonard Simmons, Member

Consultant

Halff Associates, Inc.

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Arroyo Colorado Trail


City Park Trail

The forgotten outdoorsmen of today are those who like to walk, hike, ride horseback, or bicycle. For them we must have trails as well as highways... As with so much of our quest for beauty and quality, each community has opportunities for action. We can and should have an abundance of trails for walking, cycling, and horseback riding, in and close to our cities.

-President Lyndon B. Johnson

EXECUTIVE SUMMARY

CITY OF HARLINGEN TEXAS

Introduction

Across the United States and Texas, trails are and always have been one of the most popular physical features of communities. A survey conducted by the National Association of Realtors and National Association of Home Builders found that the second most important community amenity (after Highway Access) to residents is walking/jogging/bicycling trails.[1] Trails serve everyone, and offer a multitude of benefits, including helping us lead a healthier lifestyle, supporting economic development and improving the quality of life in Harlingen, offering an alternative transportation option, and helping preserve precious natural areas and historical features.

This long range plan envisions a comprehensive system of trails that can be used by pedestrians and bicyclists that connects all of Harlingen, allowing one to go from one end of the city to the other in a fun and healthy way. This plan will identify key trail corridors and guide the creation of a citywide network to be used for both recreation and commuting purposes. A plan such as this will provide guidance on the preferred location for trail corridors and will help the city acquire greenbelt corridors for trail use. A citywide hike and bike plan will also provide a framework through which the City of Harlingen and the private sector can work together to jointly create spectacular trail corridors. Finally, this plan will help Harlingen staff, elected officials, and citizens make informed decisions as to how to fund trail development in a satisfactory manner.

This Trails Master Plan is flexible; it must continue to be viable even as Harlingen grows and changes. The plan will serve for many years, but should be periodically updated so as to reflect changing conditions within the city, surrounding cities, and the greater Cameron County.

Goals of the Harlingen 2010 Trails Master Plan

In order to create a comprehensive system of trails that is both visionary and practical, the recommendations of this master plan were guided by a set of principles and goals. The guiding principles include:

- **CREATE A SYSTEM** - Creating an interconnected system of trails
- **CONNECTIVITY** - Enhancing connections and linkages to existing destinations
- **ACCESS** - Maximizing accessibility as much as possible
- **IDENTITY** - Conveying the physical and historical character of Harlingen
- **LEARNING** - Providing opportunities to learn about the history, culture, and environment of Harlingen.
- **SAFETY** - Providing safe corridors for walking and bicycling.
- **BEAUTY OF THE CITY** - Enhancing the physical appearance of Harlingen.
- **CREATING PARTNERSHIPS** - Encouraging partnerships between public and private sectors.

The goals of the Harlingen 2010 Trails Master Plan are:

- **GOAL 1:** Create a trail system that provides for recreation and alternative modes of transportation between various destinations throughout Harlingen.
- **GOAL 2:** Create and maintain a high-quality trail system that promotes a sense of place and identity in Harlingen.
- **GOAL 3:** Maintain a safe environment on the Harlingen Trail System.
- **GOAL 4:** Develop tools to facilitate the development of trails and implementation of the Harlingen Trails Master Plan.
- **GOAL 5:** Develop funding sources on a continuous basis to supplement the City's resources for trail development.
- **GOAL 6:** Incorporate a citizen participation process in all trail planning and design.

1 *National Association of Realtors & National Association of Home Builders. (2002). Consumers' Survey on Smart Choices for Home Buyers. Retrieved May 22, 2009, from http://www.santacruztrail.org/pdfs/NAR-NAHB02.ppt#331,7,Importance of Community Amenities*

Summary of Opportunities and Key Recommendations

Located in the Brownsville-Harlingen-Raymondville MSA, Harlingen is the third largest city in the Lower Rio Grande Valley. The city is located roughly 25 miles northwest of Brownsville and 35 miles east of McAllen. The Rio Grande Valley as a whole has experienced immense growth over the past 10 to 20 years. With a low cost of living and a strong economic base, that growth is expected to continue.

Tables 1 and 2 below show historical and projected population growth in Cameron County and the city of Harlingen.

Table 1
Historical Population of Cameron County and City of Harlingen

Year	Cameron County		City of Harlingen		
	Population	Annual Percent Change	Population	Annual Percent Change	City Share of Population
1970	140,368	-	33,503	-	23.9%
1980	209,727	4.9%	43,543	3.0%	20.8%
1990	260,120	2.4%	48,735	1.2%	18.7%
2000	335,227	2.9%	57,564	1.8%	17.2%
2008	385,274	1.9%	62,985	1.2%	16.3%

Note: Cameron County and Harlingen experienced a decline in population in the 1960s with the closing of Harlingen Air Force Base; subsequently, the jump in growth during the 1970s seems significant. See Vision 2020 Comprehensive Plan for more historical population estimates.
1970 - 2000 Estimates Source: City of Harlingen. 2002. Vision 2020 Comprehensive Plan. Table 2-1 Historical Population of Cameron County and City of Harlingen.
2007 Population Estimate Source: US Census Bureau, 2005-2007 American Community Survey, Harlingen city, Texas Fact Sheet.

Table 2
Population Projections for Cameron County and City of Harlingen, 2000-2030

Year	Cameron County (TxSDC Scenario 1.0)	City of Harlingen
2000	336,454[1]	57,564
2005	378,284	62,220
2008[2]	385,274	62,985
2010	421,048	66,970
2015	465,900	71,960
2020	514,658	77,380
2025	565,937	83,080
2030	617,442	88,810

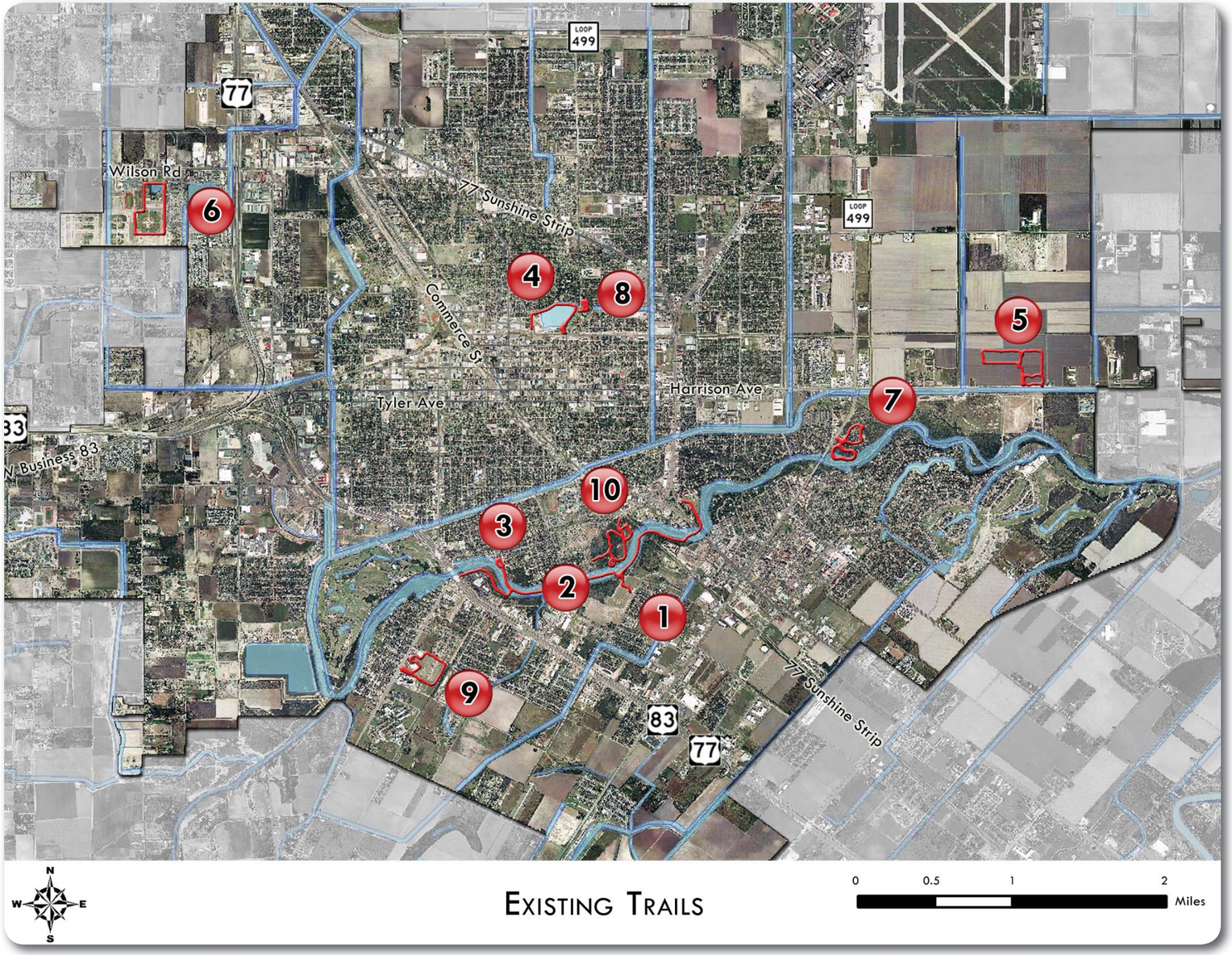
[1] *Actual Census estimate was 335,227.*
[2] *2008 estimate based on U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates*
Source: City of Harlingen. 2002. Vision 2020 Comprehensive Plan. Table 2-6 Population for Projections for Cameron County; Table 2-8 Medium Population Projections for Metropolitan Planning Area and City of Harlingen.

Summary of Existing Trails in Harlingen

Harlingen currently has approximately 9 miles of trails. Most trails are internal paths in many of its parks, ranging from 6 feet to 8 feet wide and are relatively short in length and serve primarily as walking facilities within each park. The exception is the two mile long, 10 foot wide hike and bike trail along the Arroyo Colorado which can serve as part of the overall Harlingen trail system. Table 3 below describes the existing trails in Harlingen.

Table 3
Existing Trails in Harlingen

Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
1	Arroyo Park Trail	3	0.25	8'	Asphalt
2	Arroyo Trail	3/4	2.2	10'	Asphalt
3	CB Wood Park Trail	4	0.1		Asphalt
4	City Lake Park Trail	2	0.7	8'	Asphalt
5	Harlingen Soccer Complex	3	1.5		
6	Harlingen/Wilson Sports Complex	5	1.0	6'	Crushed Rock
7	Hugh Ramsey Nature Trails	3	1.5	5-8'	Natural
8	Liberty Gardens Trail	2	0.25		Asphalt
9	Rangerville Park Trail	5	0.9	8'	Asphalt
10	Thicket Nature Trails	4	0.75		Crushed Rock & Natural
Total			**9.15**		

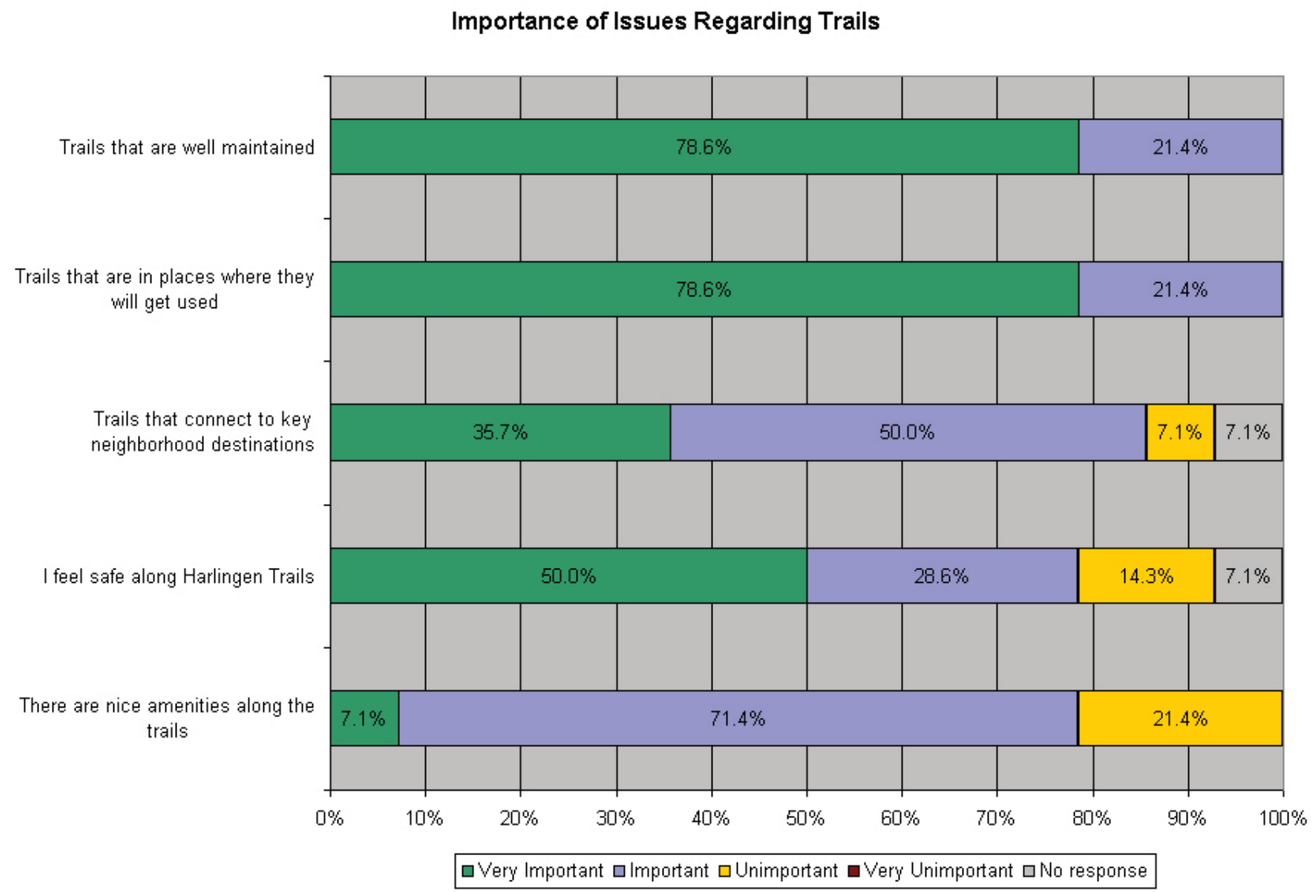


Existing Trails

Summary of Public Input

The City of Harlingen was committed to gathering citizen input in this trail planning process. Citizen feedback helped identify potential trail corridors and designate priorities. The public input process included two citywide public meetings to discuss potential corridors and citizens' concerns. A questionnaire was distributed at the public meetings to identify residents' desires and concerns regarding trails in Harlingen. A summary of the results of this survey are below.

- The survey asked whether or not they have utilized a trail in Harlingen, Cameron County, or nearby cities within the past 12 months. **A majority of respondents have used a trail in Harlingen and another nearby city, and half of the respondents have used a trail in Cameron County.**
- Residents were also asked how often they used trails. **Most people (42.9%) use them at least couple times a month, and 35.7% use them more than once a week.**
- Residents were asked what they would like trails in Harlingen to connect to. Choices ranged from civic destinations, recreational opportunities, parks, schools, as well as shopping areas, restaurants, and employment centers. **The number one response was parks, followed by surrounding neighborhoods.**
- Residents were asked what activities they use trails for. It is important to know what activities people use trails for so that those types of activities can be accommodated in future trails. **The majority of survey respondents use trails for bike riding as well as for walking or running for either leisure or exercise.** The mix of users indicates a need for major trails to be built wide enough to accommodate a variety of activities.
- Similarly, residents were asked what type of experience they seek when using a trail. **The results reinforce that trails are used for a wide variety of reasons, indicating that a variety of trails should be provided throughout the City of Harlingen to serve the various experiences.**
- Residents in Harlingen were asked if they would like to see trails developed as an alternative way to commute. **All but one of the respondents agreed that they would like to see trails developed as an alternative way to commute or get around Harlingen.**
- As shown previously in this report, there are opportunities available for trail development along the Arroyo Colorado and along irrigation channels. It is important to know whether or not the residents of Harlingen would feel comfortable having a trail built adjacent to their home. **Of those who responded to the survey, 85.7% said they would be comfortable with this.**
- The survey asked how strongly they would support or oppose a future bond election. **Of those who responded, 85.7% indicated they would support a bond for trails.** Without knowing exact details of how much a bond would be for and where the trails would be constructed, there is still a great deal of support for financing the construction of trails through a bond election.
- Residents were given a list of different issues that could arise from developing trails and were asked how important or unimportant each issue was to them. Based on the number of people who indicated very important and important for the issues, **the most important issues for trails are that they are well maintained and that they are in places where they will get used.** All respondents indicated that trail maintenance and trail location are either very important or important. (See chart below)

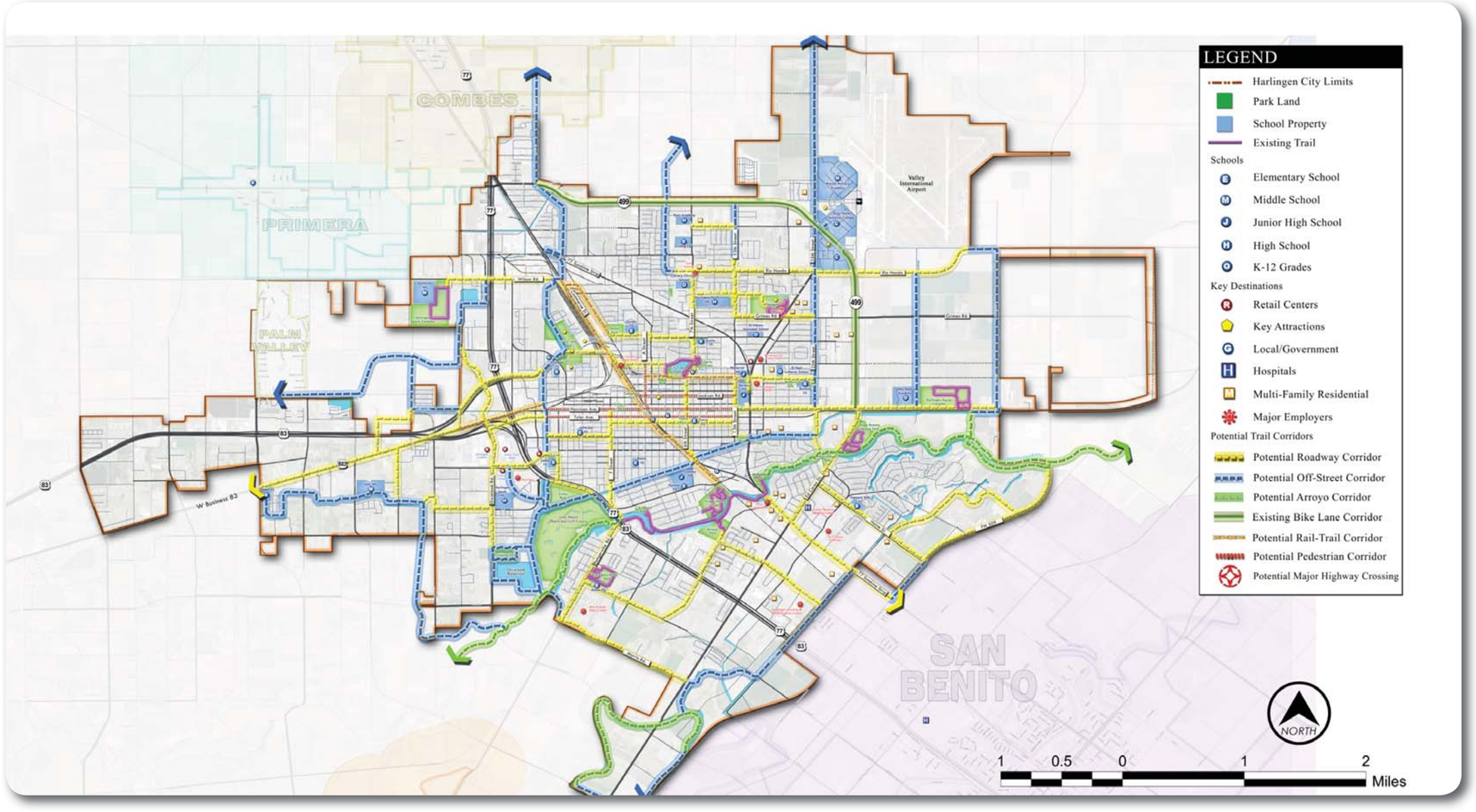


Summary of Recommendations

Four areas of opportunities for trail development were identified during the planning process:

- arroyo trails
- irrigation trails
- rail trails
- street trails

Each of these trails have inherent opportunities and constraints, which are discussed in Chapter 5. The constraints do not render the trail impossible. Rather, constraints identify areas where extra attention or detail should be given to minimize the constraint. The map to the left illustrates this network of trails based on these types.



Trail Opportunities

Based on public input and other evaluation criteria, key priority trails were identified from the opportunities, which are discussed in Chapter 6. These corridors were selected to meet the goals established by the planning effort, and to reflect citizen comments and desires received during the extensive public input process. Cost projections were prepared for each of the key priority trail corridors, allowing for the preparation of an action plan for trail implementation.

Corridors were evaluated using compatibility and accessibility criteria. These criteria are based on:

Citizen Input
Neighborhood desires for trails or concerns over specific trail corridors were considered as a key component of the evaluation.

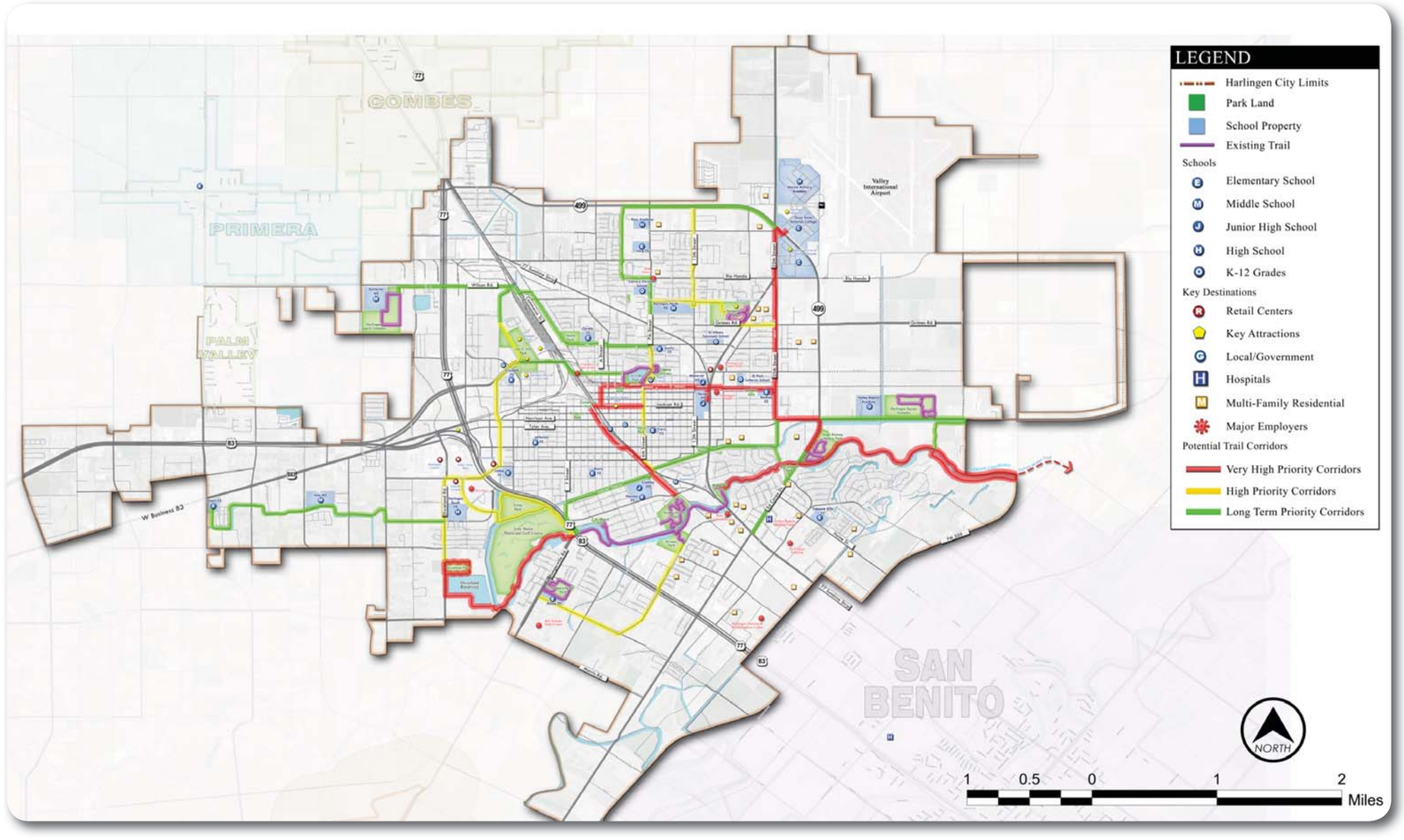
Relationship to Residences
Many of the preferred corridors are along easements adjacent to residential back yards. Preference was given to corridors that allowed greater separation from fences and where the trail would be level with backyards to maintain the existing degree of privacy.

Connectivity to Destinations
Potential corridors were evaluated as to their potential to connect to schools, area parks, employers, retail or civic uses, and to other trails.

Corridor Availability
Most of the corridors are controlled by either city, state, or flood control district entities, ensuring that acquisition or permission to use the corridor was at least possible. Corridors owned privately may require trail dedication when the land is developed, or acquisition, and corridors with multiple owners may make trail development more difficult.

Scenic Qualities
Scenic qualities may improve the feasibility of a trail being used as they become an attraction to the trail and give a trail a sense of destination. Therefore, scenic features were considered as one of the evaluating criteria.

Potential Use
Actual current use of a corridor, even without any facilities in place, was considered as a factor determining whether to consider a corridor or not.



KEY PRIORITY TRAILS

Summary of Implementation Process & Timeframe

The master plan identifies key steps to facilitate implementation of the trail recommendations. An action plan designated for the implementation of each specific trail corridor should coordinate all of the following steps:

- **Preliminary items** - Environmental analysis, property easement or right of way needs analysis, preliminary concept design, possible feasibility study, allocation of general budget - all these should be obtained before proceeding.
- **Permits** - By City of Harlingen, possibly Cameron County, and all involved trail corridor owners, e.g. TxDOT, utility companies and irrigation boards. Responsibility for the project construction lies primarily with the City of Harlingen.
- **Funding** - Research for necessary grant qualification, Council approval to apply for grants or other funding sources, and ROW issues should be settled at this point.
- **Design** - Preparation of construction documents, specifications and cost estimates, followed by bid documents and bidding procedures after permits and funding are clarified.
- **Physical construction** of the project.

The overall recommendations of this Trails Master Plan are estimated to take up to 20 years to complete. The following sequence or hierarchy of actions is recommended to implement the Trails Master Plan.

Consider acquisition of trail corridors as the highest priority - Connectivity across the City remains the highest priority of the trails plan, and to accomplish that access trail corridors must be acquired. Creek corridors can be acquired through outright purchase or through access easements. Once a tract of land is developed, it is extraordinarily difficult to acquire land or easements for trail corridors.

Consider embarking on an extensive trail development schedule over the next 10 years - As Harlingen continues to grow, demand for quality of life features such as trails will only grow. It is while the City is growing that it becomes the easiest time in which to build trails.

Average the construction of one to two miles of trails per year for the next ten years - Maintain a steady funding channel so that trail development can remain a high priority over the next decade.

Develop strategies to work with private sector development - Voluntary and mandatory processes to work with private development should be put in place immediately, so as to not miss any opportunity to implement segments of trails.

Review and update the citywide Trails Master Plan annually - This Trails Master Plan is a living document, and should be reviewed and updated periodically. This review should occur at the same time that the overall Parks and Recreation Master Plan is being reviewed, so that continuity between the two plans is maintained.

CITY OF HARLINGEN TEXAS

Chapter 1
INTRODUCTION

Why Plan for Trails in Harlingen

Across the United States and Texas, trails are and always have been one of the most popular physical features of communities. A survey conducted by the National Association of Realtors and National Association of Home Builders found that the second most important community amenity (after Highway Access) to residents is walking/jogging/bicycling trails.[1]

Benefits of Trails

- **Trails offer something for everyone**, from the very young, to the very active, to the elderly simply seeking a tranquil place to walk and enjoy being outside.
- **Trail help us lead a healthier lifestyle.** They provide opportunities to engage in exercise, whether by simply walking or through more strenuous activity such as running, cycling, or rollerblading.
- **Trails support economic development** by creating attractive greenbelts that can revitalize areas and enhance neighborhoods. Trails provide access to local businesses, and provide tourism opportunities. A great system of places to walk and ride makes Harlingen an even more attractive place to live and invest.
- **Trails provide an alternative transportation option** to get to key city destinations, such as school, work, and shopping areas.
- **Trails help to preserve** greenbelt areas and beautify linear open space and park corridors, such as the Arroyo Colorado.
- **Trails can preserve key historical features and areas.** By making these more accessible and easier to view, citizens and visitors can learn about the history and culture of Harlingen.
- **Trails promote a high standard of quality of life.** By investing in trail system development, the City is committing to establishing and maintaining a high quality of life in Harlingen.

Purpose of the Harlingen Trails Master Plan

This long range plan envisions a comprehensive system of trails that can be used by pedestrians and bicyclists that connects all of Harlingen, allowing one to go from one end of the city to the other in a fun and healthy way. This plan will identify key trail corridors and guide the creation of a citywide network to be used for both recreation and commuting purposes. A plan such as this will provide guidance on the preferred location for trail corridors and will help the city acquire greenbelt corridors for trail use. A citywide hike and bike plan will also provide a framework through which the City of Harlingen and the private sector can work together to jointly create spectacular trail corridors. Finally, this plan will help Harlingen staff, elected officials, and citizens make informed decisions as to how to fund trail development in a satisfactory manner.

This Trails Master Plan is flexible; it must continue to be viable even as Harlingen grows and changes. The plan will serve for many years, but should be periodically updated so as to reflect changing conditions within the city, surrounding cities, and the greater Cameron County.

The overriding goal of a citywide Trails Plan is to enhance the quality of life for Harlingen citizens by providing the opportunity for non-motorized travel from home to recreation, school, shopping, work or visiting friends.

-Harlingen Parks and Recreation Master Plan 2000

1 National Association of Realtors & National Association of Home Builders. (2002). Consumers' Survey on Smart Choices for Home Buyers. Retrieved May 22, 2009, from http://www.santacruztrail.org/pdfs/NAR-NAHB02.ppt#331,7,Importance of Community Amenities

Planning Methodology

The methodology used to develop this plan is graphically illustrated on this page. The process includes significant citizen input regarding where trails should be located throughout the City. The process also included extensive input from other entities such as levee improvement districts where non-City owned properties may be considered as trail corridors.

Review previous planning efforts
Develop goals for the hike and bike system
Identify key destinations citywide
Establish citizen task force

Inventory and review of existing trails in Harlingen
Define hike and bike corridor criteria
Compile list of citywide opportunities

Solicit input from task force, citizens, improvement districts, and other city departments

Define hike and bike trail analysis criteria and compile list of citywide corridor opportunities

Develop trail location and prioritization recommendations. Prepare projected costs by segments

Develop implementation strategy and action plan
Assemble into Citywide Trail System Master Plan Document

Plan Implementation

The implementation of the Harlingen Trails Master Plan will be led by the City of Harlingen and its Parks and Recreation Department. However, everyone in Harlingen has a vested interest in developing a citywide trails system. Key implementers will include:

- Primary responsibility - the City of Harlingen Parks and Recreation Department;
- All area governmental entities, including the City of Harlingen, Cameron County, Harlingen Consolidated Independent School Districts, and other entities such as TxDOT and the levee improvement districts;
- In their own way, all departments within the City of Harlingen, from Planning to Public Works and even the Police and Fire Departments should work with the Parks and Recreation Department to implement components of the plan;
- Other single purpose governmental entities, such as area Irrigation Districts and Flood Control Districts;
- The business community of Harlingen, including property owners, developers, commercial entities and others;
- Community homeowner associations (HOA's) as representatives of the residents who live in their neighborhoods;
- All citizens of Harlingen, no matter which part of the City they live in;
- Adjacent residents of Cameron County, since the park system of Harlingen is in effect their park system; this plan encourages connections and building "bridges" to other adjacent systems.

This Trails Master Plan follows the general guidelines for local park master plans established by the Texas Parks and Wildlife Department (TPWD). This document will be filed with the Texas Parks and Wildlife Department and allows the City to better qualify for trail grant opportunities as they become available.

Plan Timeframe

The plan is formulated to address the ten-year timeframe from the beginning of 2010 through the year 2020. While many of its recommendations will remain valid for a much longer period of time, periodic review is recommended to provide an opportunity for citizen feedback and to adjust for any major events or occurrences that may significantly alter the recommendations of this plan.

Previous Trail Planning Efforts

The creation of trails throughout the City has been a goal for many years, starting with the *Parks and Recreation Master Plan 2000*. That plan identified as one of its major recommendations the construction of hike and bike trails throughout the community. Below is a summary of past trail planning efforts undertaken by the City of Harlingen.

Parks and Recreation Master Plan 2000

In July 2000, the City of Harlingen adopted the Parks and Recreation Master Plan 2000, a comprehensive plan for the park and open space system in Harlingen. Additionally, goal 4 is to "Develop a network of pedestrian and bicycle ways for hiking, jogging, and cycling throughout the Harlingen area, including an interconnected system of paths, trails, lanes, and routes that are multipurpose, accessible, convenient and connect to residential neighborhoods, parks, schools, workplaces, shopping, major open spaces, and other destinations."[1]

Citizen surveys conducted as part of the *Parks and Recreation Master Plan 2000* identified a need and desire for trails in Harlingen. Thirteen percent of those surveyed identified trails as the most important recreational facility to construct. Other key trail-related findings of the public input survey include:

- 50% of those surveyed said that they participate in walking and/or hiking when they visit a park.
- 26% of respondents were most dissatisfied with the amount of walking or jogging trails in Harlingen
- 31% of respondents definitely want multi-purpose trails.[2]

Vision 2020 Comprehensive Plan

The *Vision 2020 Comprehensive Plan*, updated in 2002, not only speaks to trails as elements of recreation, but also identifies trails as transportation elements. This latter identification is important to fulfill the transportation needs of pedestrians and bicyclists. The plan acknowledges that Harlingen "has many wide streets, railroad corridors, irrigation and drainage canals, and parks and recreational areas that represent opportunities for future development of bicycle and pedestrian facilities. These opportunities can be incorporated as transportation enhancement projects such as bikeways, pedestrian facilities, historic sites, and scenic beautification areas."[3]

The parks and recreation goal and objectives of the *Vision 2020 Comprehensive Plan* mirror exactly those outlined in the *Parks and Recreation Master Plan 2000*. However, other elements of the comprehensive plan may impact or be impacted by trails in Harlingen, including the transportation and environment elements. Other specific goals of the Vision 2020 Comprehensive Plan that have implications of the Trails Master Plan include:

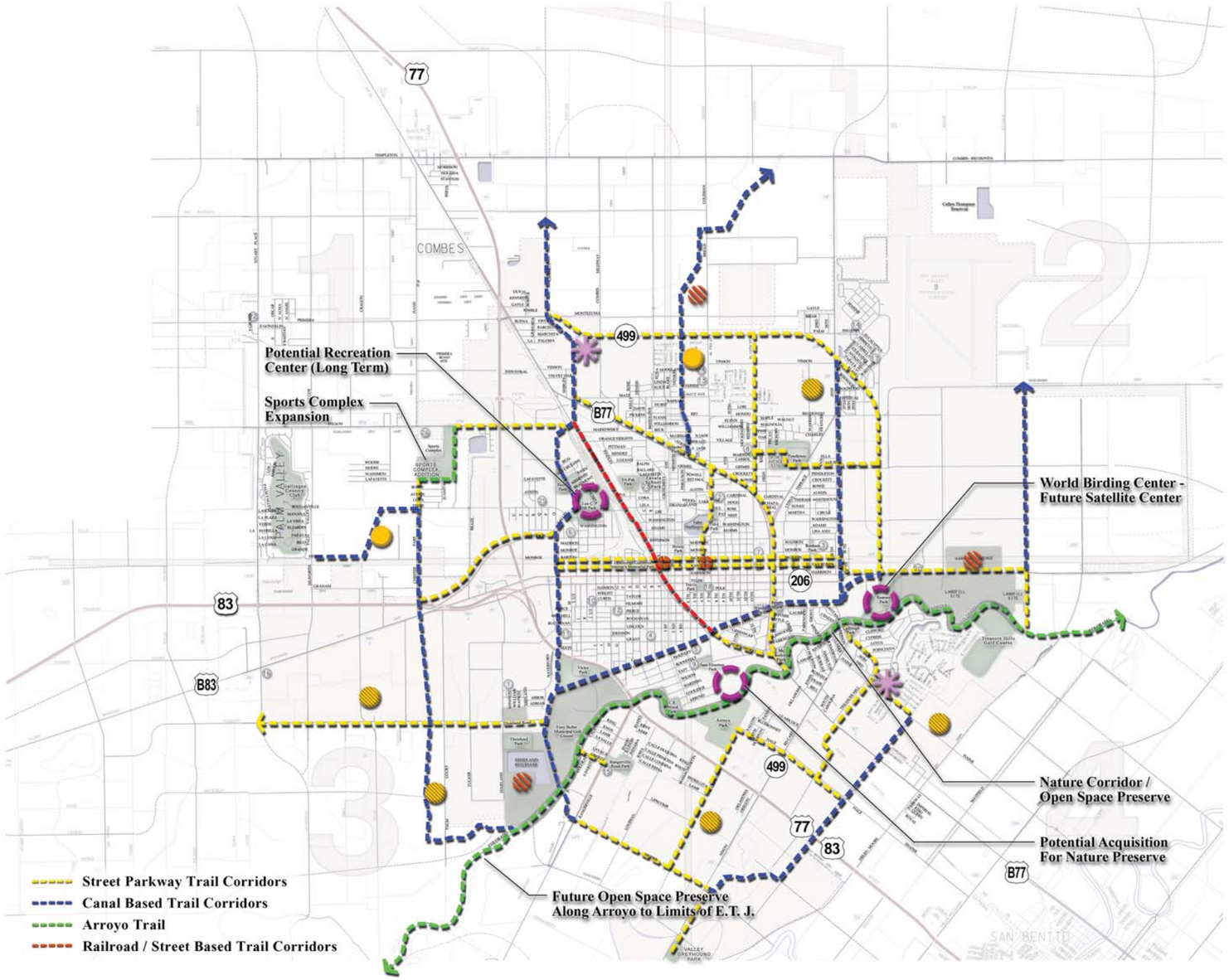
- Goal 4.1 Provide a safe and efficient multimodal transportation system to serve existing and projected land use and mobility needs.
- Goal 4.6 Promote alternative modes of transportation and related facilities including pedestrians, bicycles, public transit, and others.
- Goal 6.4 Promote landscape beautification and scenic enhancement, including public rights-of-way as well as private development.

Harlingen 100 Plan

The *Harlingen 100 Plan* is a strategic plan "to serve as a call to action to improve and enhance the Quality of Life and Economic Vitality of the City of Harlingen."[4] This plan identifies major goals in seven areas: (1) tourism, (2) health care, (3) image, (4) recreation, (5) business recruitment and retention, (6) education, and (7) revitalization. Trails play an important role in improving the quality of life of a city, and can help promote the goals of the *Harlingen 100 Plan*.

The *Harlingen 100 Plan* specifically stated that, "Harlingen will provide first class recreational facilities for its youth... ."[5] Specifically, it notes developing the Master Trails Plan (of the Parks and Recreation Master Plan 2000) as a major goal of the strategic plan, including partnering with the Irrigation District to utilize open space around irrigation canals for trails.

1 Harlingen, City of. 2000. City of Harlingen Parks and Recreation Master Plan 2000. [Electronic version]. Ch 4, p. 3.
2 Ibid. Ch 5, pp. 2-3.
3 Harlingen, City of. 2002. Vision 2020 Comprehensive Plan. http://www.myharlingen.us/default.aspx?name=pz.comprehensivemaster. Ch 4.
4 Harlingen, City of. 2007. City of Harlingen Texas Harlingen 100 Objectives & Strategies. http://www.myharlingen.us/docs/24-Harlingen100.plan2_120407.pdf. p. 2
5 Harlingen, City of. 2007. City of Harlingen Texas Harlingen 100 Objectives & Strategies. http://www.myharlingen.us/docs/24-Harlingen100.plan2_120407.pdf. p. 7



LEGEND

- Harlingen City Limits
- Other Muncipalities
- 5 Mile Extraterritorial Jurisdiction
- Roadways
- Railroads
- Rivers, Lakes and Streams
- Canals, Ditches and Intermittent Streams
- Potential Trail Corridors
- Potential Downtown Pocket Parks
- Potential Community Park Site
- Short Term Neighborhood Park
- Long Term Neighborhood Park
- Proposed Neighborhood School/Park
- Existing Park Sites
- Existing School Sites

SCHOOLS:

1 Harlingen High School South
2 Austin Elementary School
3 Bonham Elementary School
4 Bowie Elementary School
5 Coakley Jr. High School
6 Crockett Elementary School
7 Memorial Jr. High School
8 Harlingen High School (North)
9 Houston Elementary School
10 Jefferson Elementary School
11 Lamar Elementary School
12 Guidance Center
13 Long Elementary School
14 Marine Military Academy
15 Milam Elementary School
16 Stuart Elementary School
17 Texas State Technical Institute
18 Travis Elementary School
19 Treasure Hill Elementary School
20 Valley Baptist Academy
21 Vernon Jr. High School
22 Wilson Elementary School
23 Zavala Elementary School
24 Keys Academy
25 Proposed Secondary School
26 Proposed Secondary School

Scale in Miles
0 ¼ ½ ¾ 1

July 2000

Halff Associates
PLANNERS · ARCHITECTS · SCIENTISTS · ENGINEERS · SURVEYORS

2000 Long Range Citywide Trails Master Plan

Harlingen - Parks and Recreation Master Plan / Recovery Action Plan

The Long Range Citywide Trails Master Plan as established by the 2000 Parks and Recreation Master Plan.

Guiding Principles of the Trails Master Plan

The system of trails and pedestrian connections recommended in this master plan will allow the City to enhance not only recreation opportunities but also to influence the appearance of much of Harlingen. This plan is both visionary and practical. The visionary component foresees a network of beautiful corridors that seamlessly allow a user to easily go from anywhere in Harlingen by walking or riding. The practical side envisions connections to all neighborhoods via readily accessible, wide, safe and attractive pathways.

The following guiding principles were developed through the master planning process, and serve to guide the alignment and layout of both the trails proposed by this document, as well as additional pathways proposed in the future.

(1) CREATE A SYSTEM
The ultimate goal is to create an interconnected system of trails that allow multiple connections across all of Harlingen. Segments currently unconnected should be joined into an overall system of continuous trails.

(2) CONNECTIVITY
Where possible, trails corridors and alignments should be designed so as to enhance linkages between parks, neighborhoods, schools, neighborhood services and key civic and community destinations.

(3) ACCESS
Access to the trail system must be maximized as much as is feasible. This may range from simple sidewalk connections to the trails, to complete "trail heads" with parking and comfort facilities such as shade shelters and restrooms.

(4) IDENTITY
Trail segments should be designed so that they convey the physical and historical character of the City of Harlingen and relate to the neighborhoods through which the trail corridors pass.

(5) LEARNING
Trail corridors provide unique opportunities to learn about the history, culture, and accomplishments of Harlingen. Trails provide access to the natural habitat in the city, and should offer ample opportunities to learn about the environment.

(6) SAFETY
Trails should provide smooth walkable corridors that are open and visible.

(7) BEAUTY OF THE CITY
Where possible, the trail system should contribute to enhancing the physical appearance of the city, whether through new pedestrian features, landscaping added to the trail corridors, or simply by revealing natural areas not previously visible to the general public.

(8) CREATING PARTNERSHIPS
The Citywide Trails System should encourage the creation of public and private partnerships that help build the entire system more quickly.

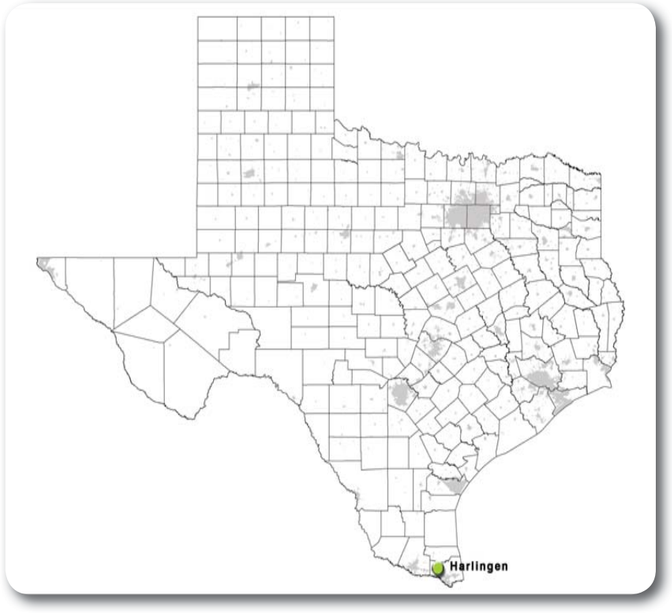
Chapter 2

EXISTING CONDITIONS

CITY OF HARLINGEN TEXAS

Planning for Trails for Today and Tomorrow

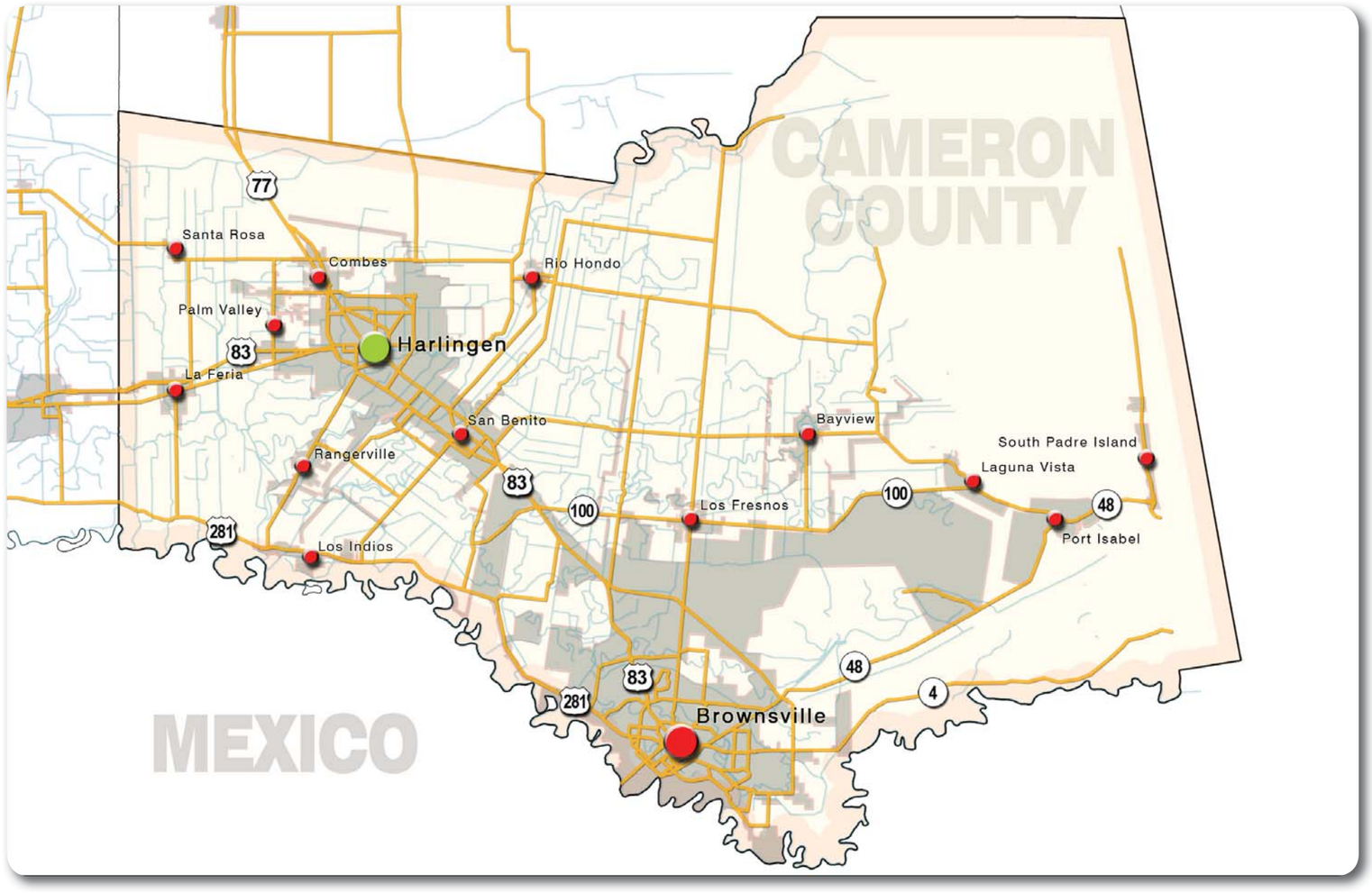
When planning for trails, a master plan such as this must consider both the current population of today as well as any growth that is expected to occur in the future. It must consider the context of the City today, looking at the many key destinations and attractions that should be accessible by the trail system. This master plan must also coordinate with regional trails and bicycle planning efforts in Cameron County as well as the Rio Grande Valley region.



A Growing Population

Located in the Brownsville-Harlingen-Raymondville MSA, Harlingen is the third largest city in the Lower Rio Grande Valley. The city is located roughly 25 miles northwest of Brownsville and 35 miles east of McAllen. The Rio Grande Valley as a whole has experienced immense growth over the past 10 to 20 years. With a low cost of living and a strong economic base, that growth is expected to continue.

Harlingen was formerly home to the Harlingen Air Force Base. That base closed in 1963, resulting in a decline in population. Today, the Valley International Airport, the Marine Military Academy, and Texas State Technical College occupy the former air force base. Other major employers in the City include the Harlingen Consolidated Independent School District, Valley Baptist Regional Medical Center, local government, Fruit of the Loom manufacturing firm, and Wal-Mart. Additionally, Harlingen is located at a major international trade center, increasing its ability to attract new industry and jobs. Continued employment growth in Harlingen and surrounding region will drive population growth in the City.



As the County and region experienced growth, likewise, the City of Harlingen has experienced significant growth, and it is expected to continue to grow. The average annual growth rate of the City of Harlingen from 1980 to 2007 is 1.7%.

Table 2.1
Historical Population of Cameron County and City of Harlingen

Year	Cameron County		City of Harlingen		
	Population	Annual Percent Change	Population	Annual Percent Change	City Share of Population
1970	140,368	-	33,503	-	23.9%
1980	209,727	4.9%	43,543	3.0%	20.8%
1990	260,120	2.4%	48,735	1.2%	18.7%
2000	335,227	2.9%	57,564	1.8%	17.2%
2008	385,274	1.9%	62,985	1.2%	16.3%

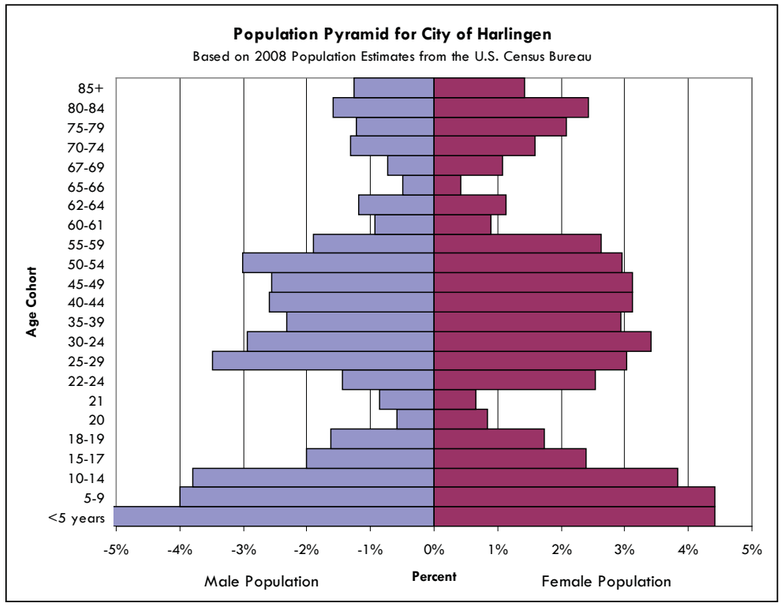
Note: Cameron County and Harlingen experienced a decline in population in the 1960s with the closing of Harlingen Air Force Base; subsequently, the jump in growth during the 1970s seems significant. See Vision 2020 Comprehensive Plan for more historical population estimates.
1970 - 2000 Estimates Source: City of Harlingen. 2002. Vision 2020 Comprehensive Plan. Table 2-1 Historical Population of Cameron County and City of Harlingen.
2007 Population Estimate Source: US Census Bureau, 2005-2007 American Community Survey, Harlingen city, Texas Fact Sheet.

In 2008, the median age of the population of Harlingen is 32.4. Over two-thirds of the population is under the age of 44, while 19.7% is 60 or above. The age and gender characteristics of Harlingen are portrayed in the following chart and population pyramid.

Table 2.2
Age and Gender Composition for City of Harlingen

Age Category	2008 Population	Percent of Total
0-19	20,990	33.3%
20-44	19,364	30.7%
45-59	10,197	16.2%
60+	12,434	19.7%
Males	29,566	46.9%
Females	33,419	53.1%
Total	**62,985**	

Source: U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates



The population projections for the City of Harlingen are based on those presented in the Vision 2020 Comprehensive Plan, which are based on the Texas State Data Center's (TxSDC) Scenario 1.0 Projection for Cameron County. From the TxSDC projection for Cameron County, the comprehensive plan projects potential population growth based on historical growth rates of the City. Historically, Harlingen's growth rate was 50% to 65% of Cameron County's. The table below represents the medium population projection, which assumes the City will grow at 65% of the Scenario 1.0 growth rate for Cameron County.

Table 2.3
Population Projections for Cameron County and City of Harlingen, 2000-2030

Year	Cameron County (TxSDC Scenario 1.0)	City of Harlingen
2000	336,454[1]	57,564
2005	378,284	62,220
2008[2]	385,274	62,985
2010	421,048	66,970
2015	465,900	71,960
2020	514,658	77,380
2025	565,937	83,080
2030	617,442	88,810

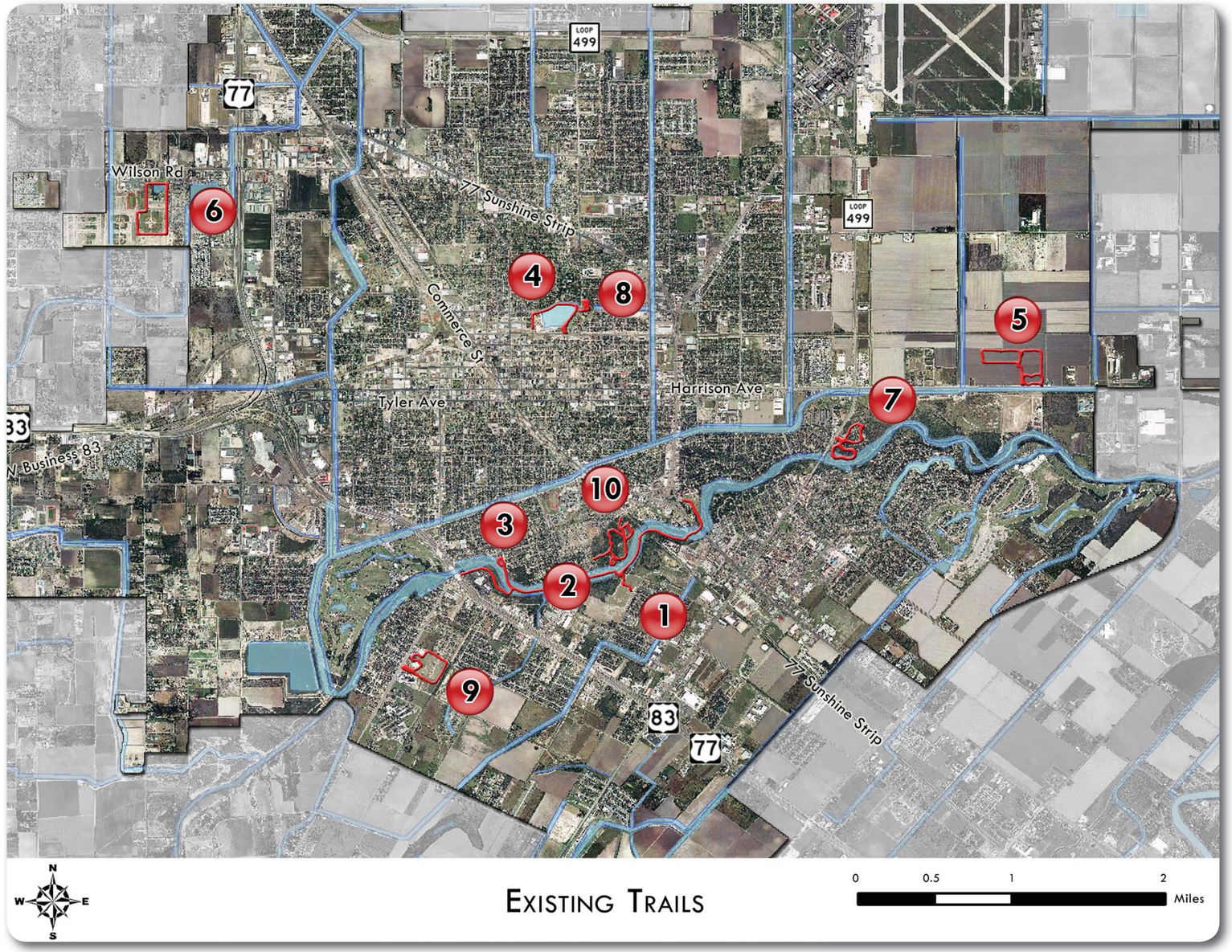
[1]*Actual Census estimate was 335,227.*
[2]*2008 estimate based on U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates*
Source: City of Harlingen. 2002. Vision 2020 Comprehensive Plan. Table 2-6 Population for Projections for Cameron County; Table 2-8 Medium Population Projections for Metropolitan Planning Area and City of Harlingen.

Existing Trails

Harlingen currently has internal paths in many of its parks. Most of these paths range from 6 feet to 8 feet wide and are relatively short in length and serve primarily as walking facilities within each park. The exception is the two mile long, 10 foot wide hike and bike trail along the Arroyo Colorado which can serve as part of the overall Harlingen trail system. The table below describes the existing trails in Harlingen.

Table 2.4
Existing Trails in Harlingen

Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
1	Arroyo Park Trail	3	0.25	8'	Asphalt
2	Arroyo Trail	3/4	2.2	10'	Asphalt
3	CB Wood Park Trail	4	0.1		Asphalt
4	City Lake Park Trail	2	0.7	8'	Asphalt
5	Harlingen Soccer Complex	3	1.5		
6	Harlingen/Wilson Sports Complex	5	1.0	6'	Crushed Rock
7	Hugh Ramsey Nature Trails	3	1.5	5-8'	Natural
8	Liberty Gardens Trail	2	0.25		Asphalt
9	Rangerville Park Trail	5	0.9	8'	Asphalt
10	Thicket Nature Trails	4	0.75		Crushed Rock & Natural
Total			**9.15**		



Existing Trails

1 Arroyo Park Trail

An 8' asphalt trail, this trail is located in Arroyo Park. This trail connects residential neighborhoods on the south side of the Arroyo Colorado to the Arroyo Trail.

2 Arroyo Trail

The Arroyo Trail is a 2.2-mile long trail running east-west along the Arroyo Colorado. The trail is accessible to several residential areas, and provides connectivity to a number of other cultural and recreational opportunities. The Arroyo Trail provides access across the Arroyo Colorado as well as 77 Sunshine Strip, overcoming these barriers and providing the beginnings of excellent pedestrian and bicycle mobility across the city.

3 CB Wood Park Trail

CB Wood Park has a 0.1-mile asphalt trail that connects to the Arroyo Trail. While a short distance, the trail connects to the Arroyo Trail on the south end of the park.

4 City Lake Park Trail

City Lake Park Trail is a 0.7-mile asphalt trail within City Lake Park, circling City Lake. The park and trail are located in a residential neighborhood and about 2 blocks north of the Historic Downtown District, providing a recreational opportunity to nearby residents and visitors to downtown. It is also surrounded by other cultural amenities including the Cultural Arts Center and Harlingen Library.

5 Harlingen Soccer Complex Trail

The Harlingen Soccer Complex has a 1.5-mile trail that loops throughout the park. The soccer complex is located in an undeveloped area of the City, therefore, users of this trail are probably limited to users of the Soccer Complex. However, as the area develops, it is expected that the trail will be used by future residents. Design of future developments around this park should strive to connect to the Soccer Complex and trail.

6 Harlingen Sports Complex Trail

Like the Soccer Complex, the Sports Complex has a 1.0-mile crushed rock trail that loops around the park. Nearby residential neighborhoods provide access to the park, but there is a significant amount of vacant land around the park. Design of future developments should strive to connect to the Sports Complex and trail.

7 Hugh Ramsey Nature Trail

The nature trails in Hugh Ramsey Nature Park allow visitors to hike in the 54-acre wooded nature area. Trails lead to overlooks of the Arroyo Colorado and serve as a recreational and cultural amenity in Harlingen. There are approximately 1.5 miles of nature trails in this nature park. Because of the park's proximity to the Arroyo Colorado, there is potential to connect to the Arroyo Trail when it is expanded to the east.

8 Liberty Gardens Trail

Liberty Gardens is a meditation garden in central Harlingen with 0.25 miles of asphalt trails. The park and trails are a cultural amenity for Harlingen.

9 Rangerville Park Trail

Rangerville Park has a 0.9-mile asphalt loop. It is accessible to the surrounding residential areas and is adjacent to Milam Elementary School.

10 Thicket Nature Trail

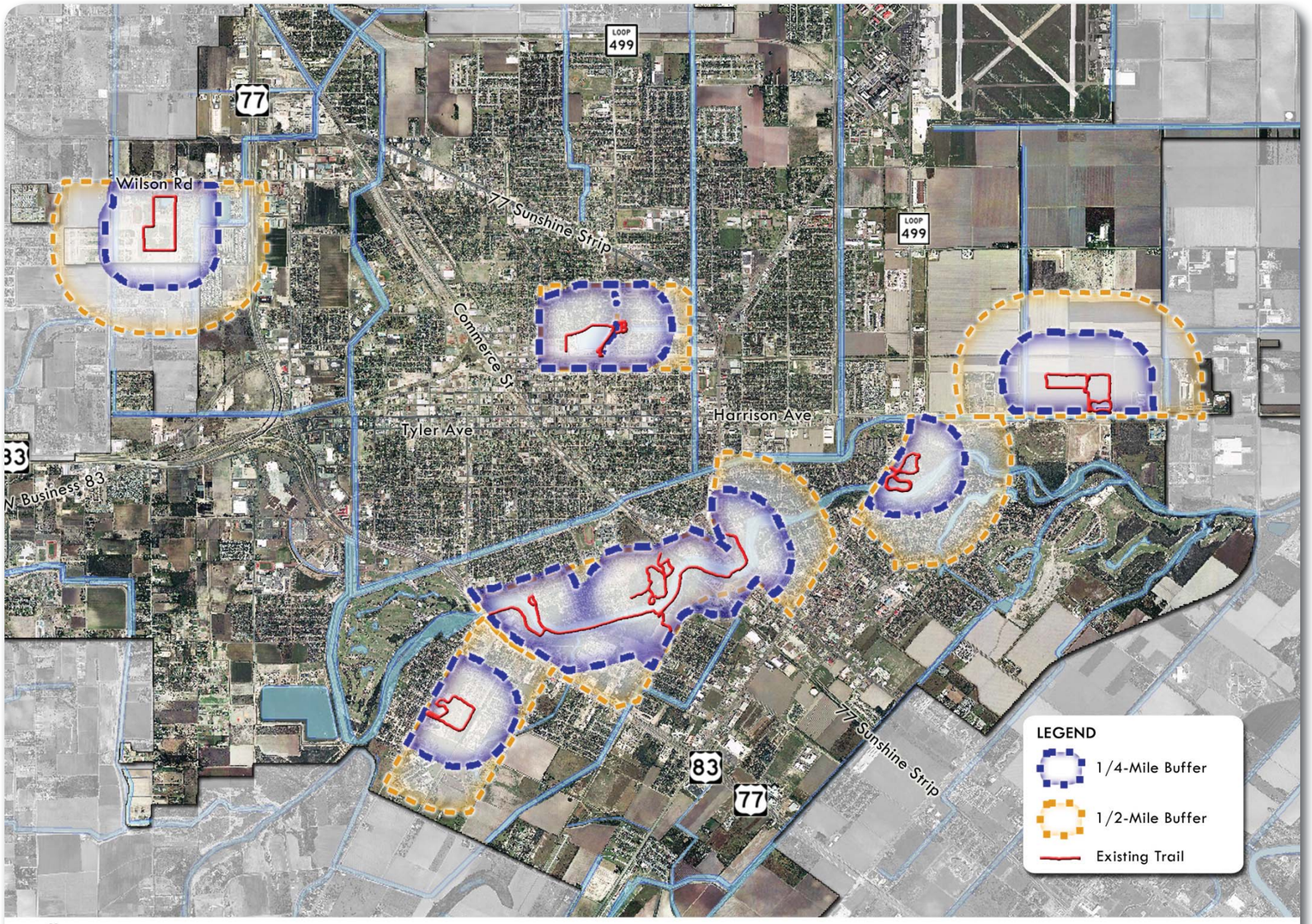
The Harlingen Thicket has approximately 0.75 miles of nature and crushed rock trails through the 40-acre natural area. The park and trail is accessible to the residential areas on the north side of the Arroyo Colorado as well as by users of the Arroyo Trail that connects to this area on the south side of the nature area.

Access to Trails

A geographic analysis of the existing trails was done to evaluate proximity to the trails, which might indicate how accessible the trails are to the potential users - the residents. A quarter-mile (1/4-mile) radius, known as the area of proximity, was drawn around the trails and plotted. This 1/4-mile radius represents the distance a person may comfortably walk to a destination. Areas of the city that were on opposite sides of a barrier, such as major and minor collectors and arterials, were removed from the area of proximity as they hinder access to the trail. For example, areas on the west side of Rangerville Rd. / FM 1479 were taken out of the area of proximity of the Rangerville Park Trail because of the physical barrier Rangerville Rd. presents. The map to the right illustrates this spatial analysis.

As illustrated by the map, a very limited amount of the population has easy access to a trail, as measured by being within this area of proximity. In fact, some trails are located on major arterials or collectors and are far-removed from residents, making them only accessible by car. Trails in the more urban areas of Harlingen, however, are more accessible to residents.

Additionally, trails located in parks are most accessible to those who live near the park. As opposed to serving as a transportation route, park trails serve primarily as a recreational or fitness trail. In comparison, linear trails, such as the Arroyo Colorado Trail, serve as a transportation corridor in addition to a means of recreation. As this community linear trail travels through Harlingen, it is accessible to a larger number of people geographically.



Existing Trails

Trail Proximity

Planning Sectors

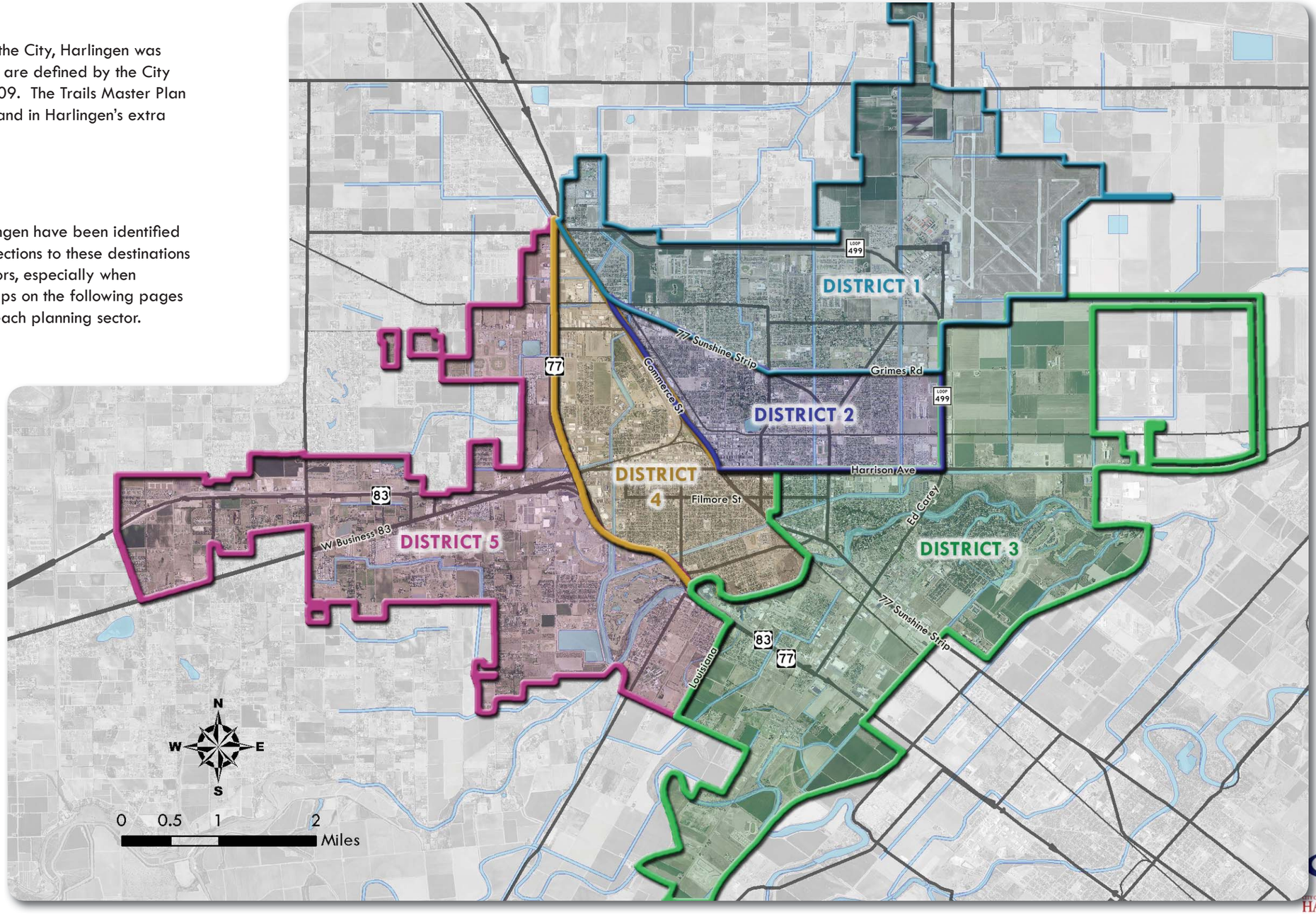
To allow for more detailed study in all parts of the City, Harlingen was divided into five planning sectors. These sectors are defined by the City Commission Districts that were established in 2009. The Trails Master Plan includes both areas within the current city limits and in Harlingen's extra territorial jurisdiction (ETJ).

Citywide Trail Destinations

Key potential trail destinations throughout Harlingen have been identified as part of the trail planning process. Trail connections to these destinations and attractors can promote usage of the corridors, especially when applying for competitive grant funding. The maps on the following pages identify existing trails and key destinations for each planning sector.

Destinations that were noted throughout the City include:

- Schools
- Existing parks and recreation areas
- Key City facilities
- Major employers identified by the Harlingen Chamber of Commerce
- Multi-family housing developments
- Major retail areas (both existing and future as identified by the City's land use plan)



Iwo Jima Memorial

Harlingen Arts & Heritage Museum

District 1 Planning Sector

District 1 encompasses the far north area of the City of Harlingen, north of Grimes Rd. and 77 Sunshine Strip and east of N Commerce St. The northern and western boundaries of District 1 are the city limits. In 2000, the District 1 Planning Sector was home to approximately 12,291 persons. The residential areas and many of the destinations of this sector are located primarily within Loop 499, with a significant amount of land outside of Loop 499 belonging to agricultural uses or the Valley International Airport.

There are no existing trails in District 1.

School Destinations

- Long Elementary
- Harlingen North High School
- Keys Academy High School
- Marine Military Academy (8-12)
- Calvary Christian School (Pre-K - 8)
- Texas State Technical College

Park & Recreation Destinations

- Hunter Park
- Pendelton Park
- HEB Tennis Center

Civic/Cultural Destinations

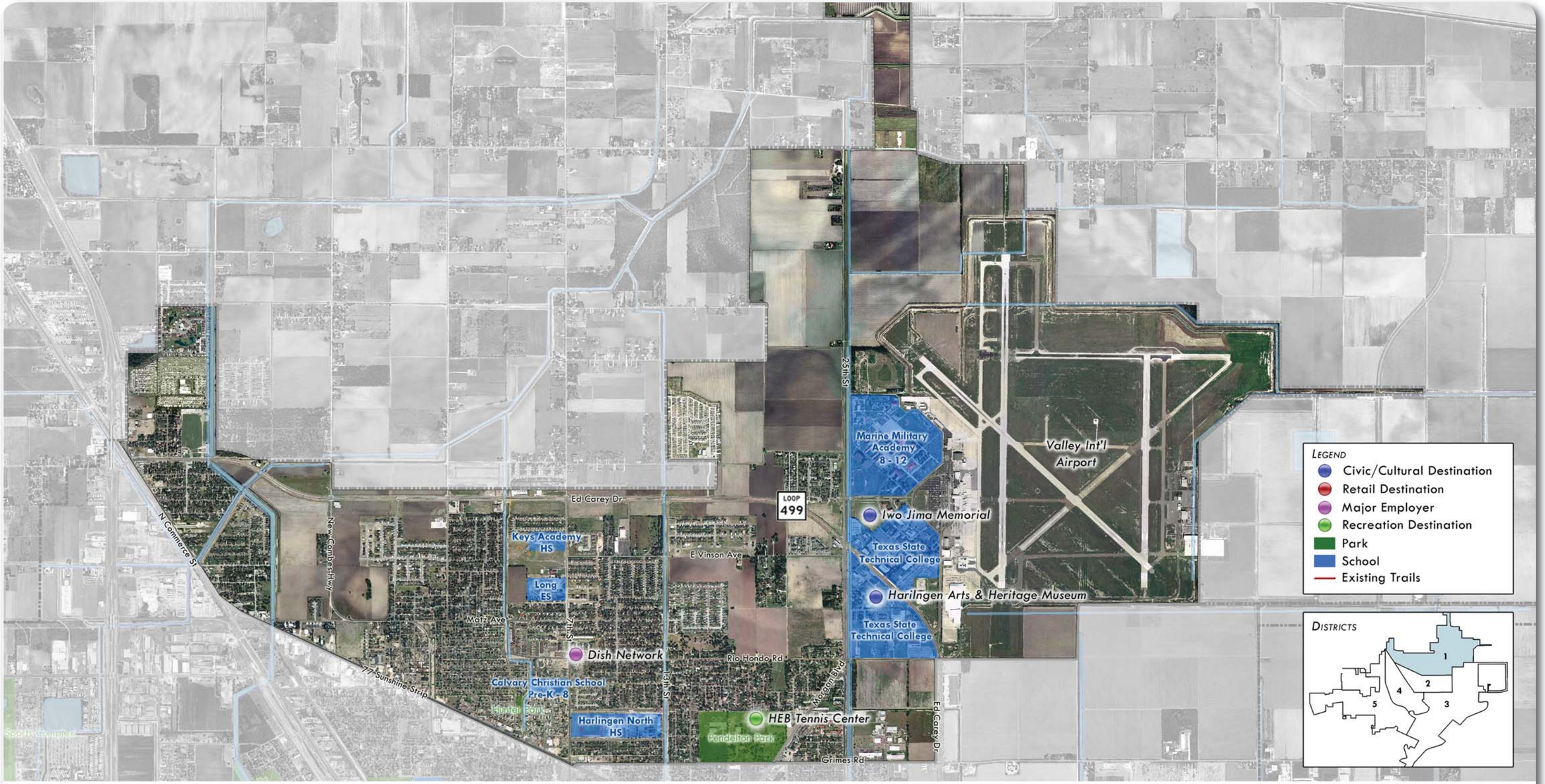
- Harlingen Arts & Heritage Museum
- Iwo Jima Memorial

Employment Destinations

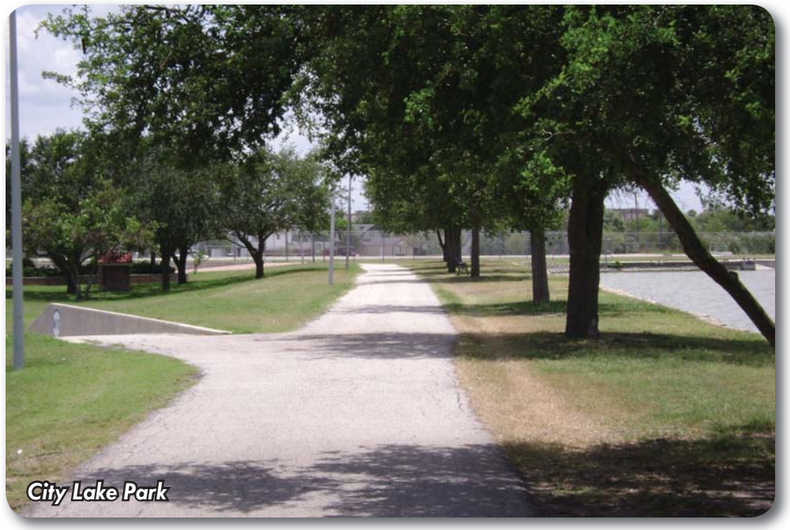
- Dish Network

Commercial Destinations

- Valley International Airport



DISTRICT 1
EXISTING TRAILS AND DESTINATIONS


City Lake Park


Harlingen Public Library


Downtown Harlingen

District 2 Planning Sector

District 2 is centrally located and encompasses the traditional downtown area of Harlingen. The northern boundaries of this district are 77 Sunshine Strip and Grimes Rd. It is bound to the east by Ed Care Dr./Loop 499 and to the west by Commerce St., and Harrison Ave is the southern boundary. In 2000, District 2 Planning Sector was home to approximately 11,769 persons. This planning sector is densely populated, with approximately 4,267 persons per square mile (compared to the average density of the City of 1,587 persons per square mile). This high level of density promotes easy access to schools, parks, commercial areas, and other non-residential uses and promotes walking, bicycling, and other trail activities.

Table 2.5
Existing Trails in District 2

Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
4	City Lake Park Trail	2	0.7	8'	Asphalt
8	Liberty Gardens Trail	2	0.25		Asphalt
Total			**0.95**		

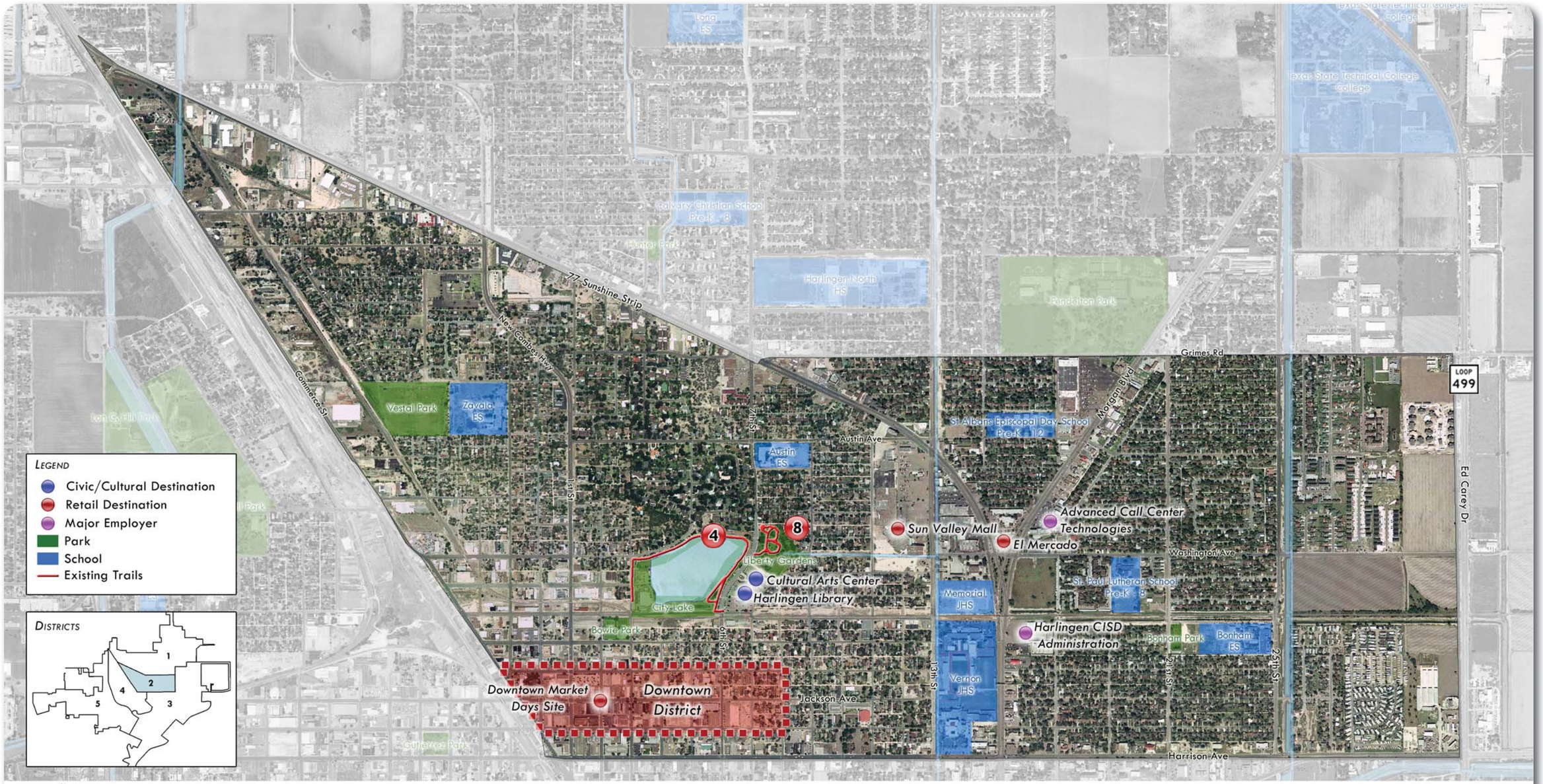
School Destinations
- Austin Elementary
- Bonham Elementary
- Zavala Elementary
- Memorial Jr. High
- Vernon Jr. High
- St. Albans Episcopal Day School
- St. Paul Lutheran School

Park & Recreation Destinations
- Bonham Park
- Bowie Park
- City Lake Park & Trail
- Liberty Gardens & Trail
- Vestal Park

Civic/Cultural Destinations
- Harlingen Cultural Arts Center
- Harlingen Public Library
- Historic Downtown District

Employment Destinations
- Advanced Call Center Technologies
- Harlingen Consolidated ISD Administrative Offices

Commercial Destinations
- Downtown Market Days
- Historic Downtown District
- El Mercado Shopping Center
- Sun Valley Mall



DISTRICT 2
EXISTING TRAILS AND DESTINATIONS


Trailhead for Arroyo Colorado Trail


Hugh Ramsey Nature Park & Trail


Valley Baptist Medical Hospital

District 3 Planning Sector

District 3 encompasses the southeastern portion of Harlingen. The south and east boundary of the sector is the city limits between Harlingen and San Benito. In 2000, the District 3 Planning Sector was home to approximately 12,495 persons. Like District 1, this planning sector includes a significant amount of land that is undeveloped or used for agricultural purposes. A majority of he residential areas and destinations are located north of Commerce, or along the US Hwy 77/83 corridor.

Table 2.6
Existing Trails in District 3

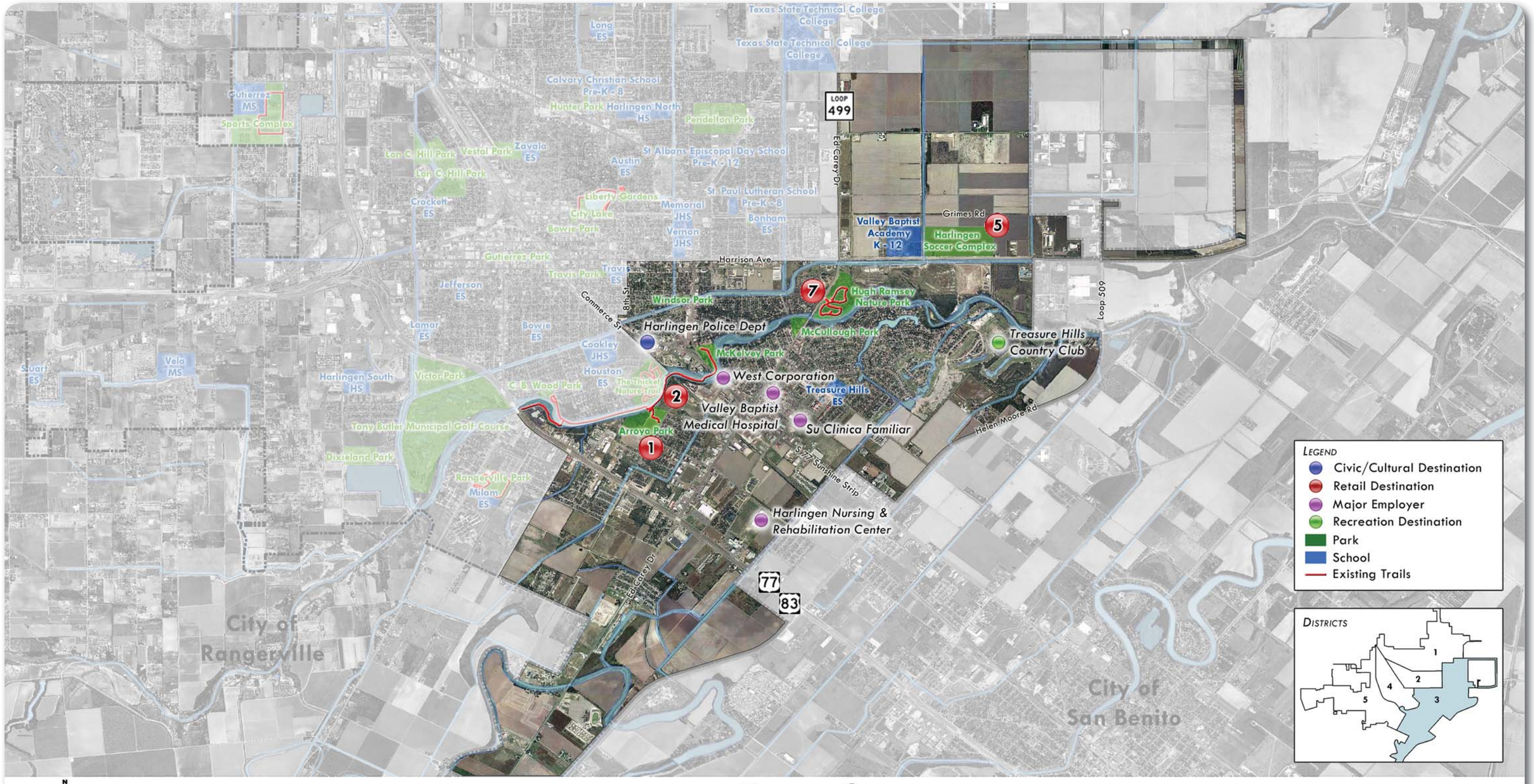
Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
1	Arroyo Park Trail	3	0.25	8'	Asphalt
2	Arroyo Trail	3/4	2.2	10'	Asphalt
5	Harlingen Soccer Complex	3	1.5		
7	Hugh Ramsey Nature Trails	3	1.5	5-8'	Natural
Total			**5.45**		

School Destinations
- Treasure Hills Elementary
- Valley Baptist Academy (K-12)

Park & Recreation Destinations
- Arroyo Park & Trail
- Arroyo Colorado Trail (portion)
- Harlingen Soccer Complex
- Hugh Ramsey Nature Park & Trail
- McCullough Park
- McKelvey Park
- Windsor Park
- Treasure Hills Country Club (private)

Civic/Cultural Destinations
- Harlingen Police Department
- Valley Baptist Medical Hospital

Employment Destinations
- Harlingen Nursing & Rehabilitation Center
- Su Clinica Familiar
- Valley Baptist Medical Hospital
- West Corporation



District 3

Existing Trails and Destinations

Harlingen Field at Lon C. Hill Park


Lon C. Hill Park


Harlingen City Hall

District 4 Planning Sector

District 4 is centrally located to the west of District 2, between US Hwy 77 and Commerce St. On the south, the district is bound by the Arroyo Colorado. In 2000, the District 4 Planning Sector was home to approximately 12,639 persons. Like District 2, this planning sector is densely populated, with a average population density of 3,294 persons per square mile. Most of the residential and attractors are located in the southern portion of the district, with industrial uses covering much of the land in the northern portion. This density improves connectivity and has the potential to promote trail use.

Table 2.7
Existing Trails in District 4

Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
2	Arroyo Trail	3/4	2.2	10'	Asphalt
3	CB Wood Park Trail	4	0.1		Asphalt
10	Thicket Nature Trails	4	0.75		Crushed Rock & Natural
Total			**3.05**		

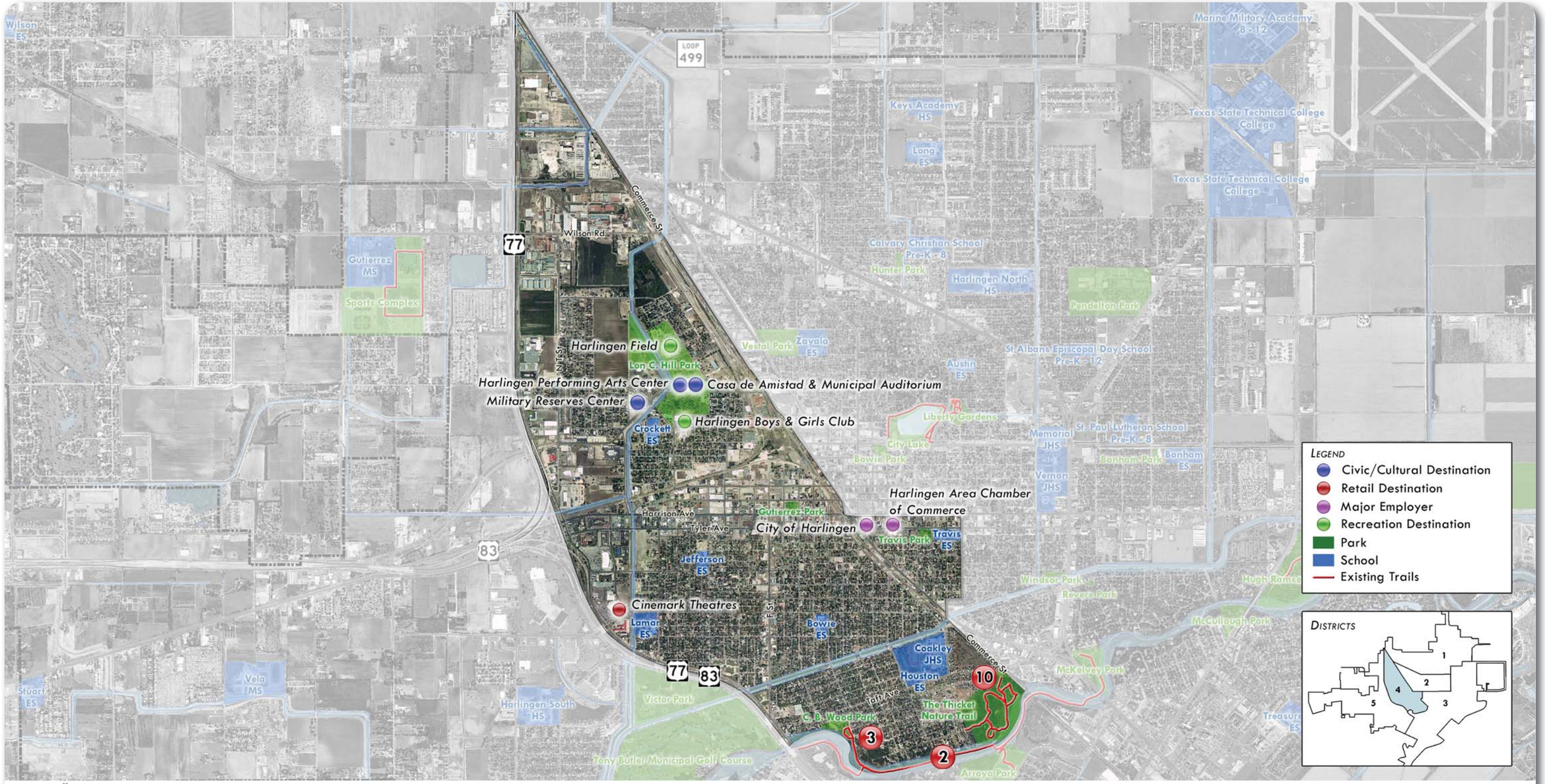
School Destinations
- Bowie Elementary
- Crockett Elementary
- Houston Elementary
- Jefferson Elementary
- Lamar Elementary
- Travis Elementary
- Coakley Jr. High

Park & Recreation Destinations
- C.B. Wood Park
- Gutierrez Park
- Lon C. Hill Park
- Thicket Nature Trail
- Travis Park
- Arroyo Colorado Trail (portion)
- Harlingen Field
- Boys & Girls Club

Civic/Cultural Destinations
- Casa de Amistad & Municipal Auditorium
- Harlingen Performing Arts Center
- Military Reserves Center

Employment Destinations
- City of Harlingen, City Hall
- Harlingen Area Chamber of Commerce

Commercial Destinations
- Cinemark Theatres



District 4

Existing Trails and Destinations


Dixieland Park and Reservoir

Harlingen Corners Shopping Center


Harlingen Sports Complex

District 5 Planning Sector

District 5 encompasses the western part of Harlingen, including areas west of US Hwy 77 to the city limit. It is separated from District 3 by Louisiana St. In 2000, the District 5 Planning Sector was home to approximately 11,583 persons. District 5 extends along US Hwy 83, where a significant amount of growth has occurred. Unlike other planning sectors, growth has not clustered close to the city core and has "leap-frogged" to the outskirts. However, much of the supporting commercial uses are located more centrally at the interchange of US Hwy 83 and US Hwy 77. This presents a challenge in connecting residences to non-residential destination, which will be discussed in more detail in Chapter 4, Trail Opportunities.

Table 2.8
Existing Trails in District 5

Trail ID	Name	Planning District	Length (miles)	Trail Width	Surface Material
6	Harlingen Sports Complex	5	1.0	6'	Crushed Rock
9	Rangerville Park Trail	5	0.9	8'	Asphalt
Total			**1.9**		

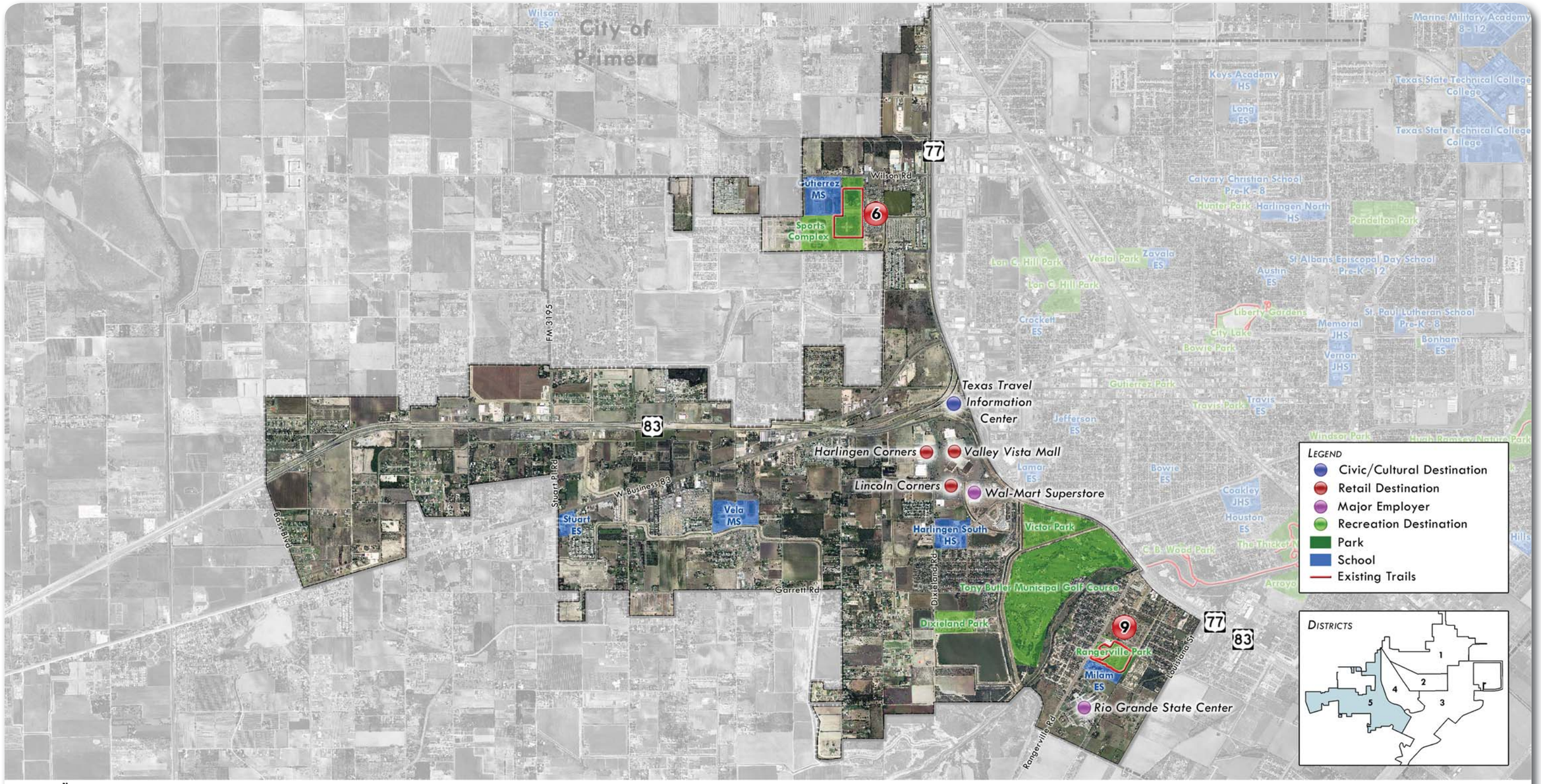
School Destinations
- Milam Elementary
- Stuart Elementary
- Gutierrez Middle School
- Vela Middle School
- Harlingen South High School

Park & Recreation Destinations
- Dixieland Park
- Harlingen Sports Complex
- Rangerville Park & Trail
- Tony Butler Municipal Golf Course
- Victor Park

Civic/Cultural Destinations
- Texas Travel Information Center

Employment Destinations
- Wal-Mart Superstore
- Rio Grande State Center

Commercial Destinations
- Valley Vista Mall
- Harlingen Corners
- Lincoln Corners



District 5

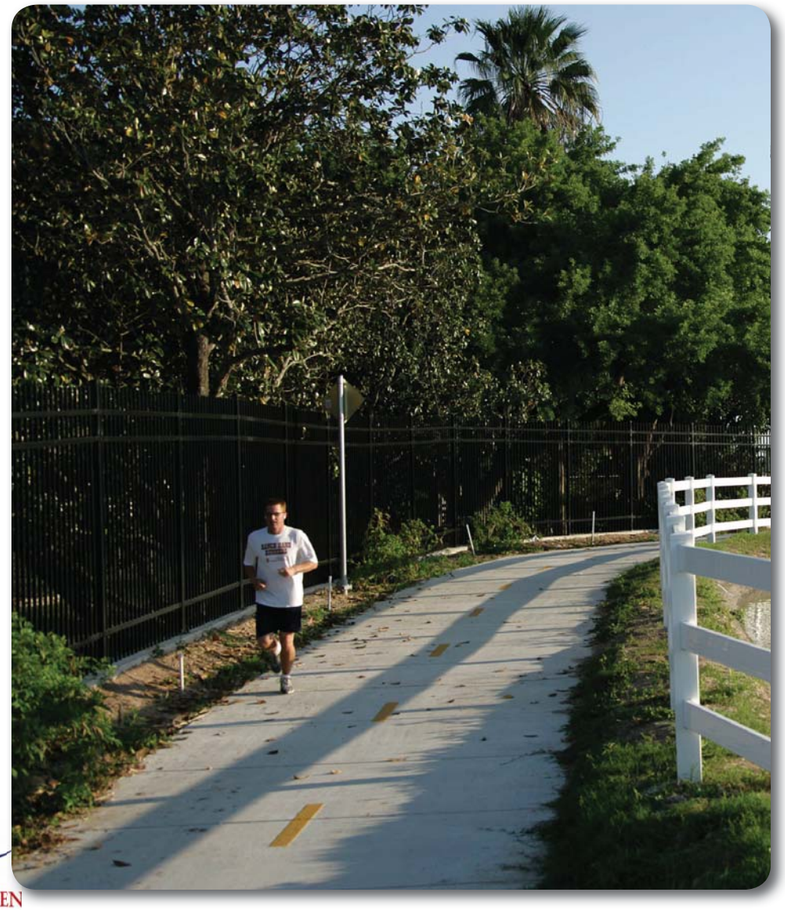
Existing Trails and Destinations

CITY OF HARLINGEN TEXAS

Chapter 3

TRAIL DESIGN STANDARDS

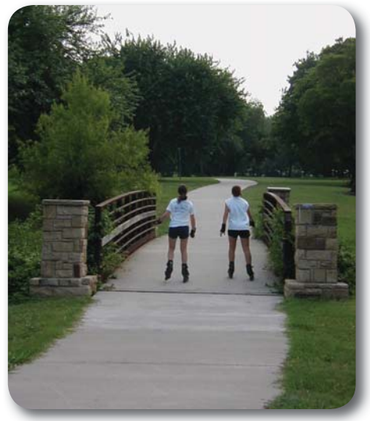
Trails appeal to everyone. Whether young or old, active or wanting no more than a few minutes out in a beautiful area, all of us can find something to do on a trail. This plan recommends a variety of trail types in all areas of Harlingen, so that everyone can easily access and use a trail that appeals to them. This section lays the foundation for trail types to be built in Harlingen so that a clear picture of what the entire system will be like in the future can be created, and everyone can work towards putting the pieces to that picture in place.



Trail Users

Trails should be designed to accommodate a variety of users. Activity on a trail lends a sense of safety and comfort to a trail, and encourages others who are not as active to use the trail. Users of trails may include:

- **Walkers seeking exercise and recreation** are typically relaxed, walking along a pleasant corridor. These users may include senior citizens, parents with children, or someone walking their dog. Walkers may occupy a significant portion of the trail due to walking side-by-side.
- **Joggers and runners** use trail corridors for exercise and activity. The higher speed of these users may conflict with slower users of the trails. Softer trail surfaces, such as decomposed granite, are preferred.
- **In-line skaters** require more space of the trail because of the swinging motion of their arms to increase momentum. Like joggers and runners, the speed of in-line skaters may conflict with slower users of the trails.
- **Recreational and inexperienced cyclists** use trails for exercise and activity. These users are interested in scenic appeal and connectivity of the trail system and prefer more interesting trail alignments rather than trails that favor high speeds. This group may also include children going to school.
- **Mountain biking** users can travel on crushed rock or more natural trail surfaces and prefer trails with challenging terrain.
- **Higher speed, experienced cyclists and commuters** are typically more interested in higher speeds. These riders often favor roadways over off-street trails for the speed, as well as connectivity to employment centers among commuters. For off-street trails, alignments with shallower curves are favored by these users, and because of the higher speeds, increased trail widths are recommended to reduce conflicts with other trail users.



Categories of Trails

Trails in Harlingen should encompass several key types of facilities, each with its own size and character requirements. The Harlingen Trails Master Plan is based on a core system of regional and community trails, supported by neighborhood trails and street enhancements. This trail system will link community destinations with an integrated network of trails designed for users of all ages, skill levels, and environments.

Design standards are an important component for a working trail system because they outline the recommended minimum requirements and additional support items for all types of trails. Recommended trail types are discussed in greater detail below. At a minimum, trails should follow the standards established by the American Association of State Highway Transportation Officials (AASHTO). These standards have been developed and refined over a significant period of time and offer the most comprehensive safety standards.

Where feasible, though, those standards should be exceeded. This is especially true for multi-use trails, signage, lighting, and traffic signals and detectors. In some specific cases, variations from AASHTO may be acceptable to respect the character or special conditions of an area.

Listed below are some sources for the most commonly used standards for trail design. This plan shall comply with current and up to date standards:

- AASHTO (American Association of State Highway and Transportation Officials)
- ADAAG (Americans with Disabilities Act Accessibility Guidelines)
- TTI (Texas Transportation Institute)
- TMUTCD (Texas Manual on Uniform Traffic Control Devices)
- TxDOT (Texas Department of Transportation)
- TAS (Texas Accessibility Standards)
- ITE (Institution of Transportation Engineers)

Many necessary trail-related improvements can be incorporated into the regular maintenance schedule of the existing road system, such as the upgrade of traffic lights, widening of roads and shoulders or addition of lighting with needed repairs.

To facilitate the future development of Harlingen, it is recommended to develop customized design standards in written and graphic format and make these accessible to all applicable builders and developers. The illustrations that follow indicate typical preferred trail section characteristics and clearances.

Table 5.1
Trail Type Standards

	Recommended Width	Surface Material	Access Points	Minimum Corridor Width	Other Amenities
Community Arterial Trails	10' - 12'	Concrete or asphalt (concrete preferred)	Every 1/4 to 1/2 mile (Minimum 1/2 mile walk or ride to access point)	Varies - 50' width minimum	Parking, locator maps, water fountains, shade shelters, bicycle racks, interpretive / historic signage
Neighborhood Trails	6' to 10' (8' preferred)	Concrete, asphalt, crushed granite	From neighborhood streets, parks, or schools	20' width	
Parkway Trails	6' to 8' (8' preferred)	Concrete, crushed granite (concrete typical)	Adjacent to major arterials and collector streets, parks	15' width (6' from back of curb, 1' to property line)	Streetscaping elements, including trees, benches, lighting
Sidewalks	4' to 6' (5' preferred)	Concrete	Adjacent to neighborhood streets and collectors, schools, parks		Crosswalks, signage
Natural Corridor and Greenway Trails	6' to 10' (12' to 15' for better visibility)	Natural surface, crushed granite	Varies	8' to 20' width	Interpretive / historic signage, bridges as necessary to pass drainage corridors, creeks, and other natural features

Typical Trail Type Cost Estimates

Trail costs vary considerably based on the type of material used for the trail, the number of bridges or drainage crossings that are required, and the type of amenities that are included in each trail segment. Cost projections for a typical one mile length of trail, using different materials, are shown on the following pages. Each projection also includes a contingency amount, since all trails in this plan are at an order of magnitude stage. Projections also include an allowance for surveying, design, and construction administration associated with the design of each trail, but do not include property acquisition.

Table 5.2
Summary of Trail Costs per Linear Foot

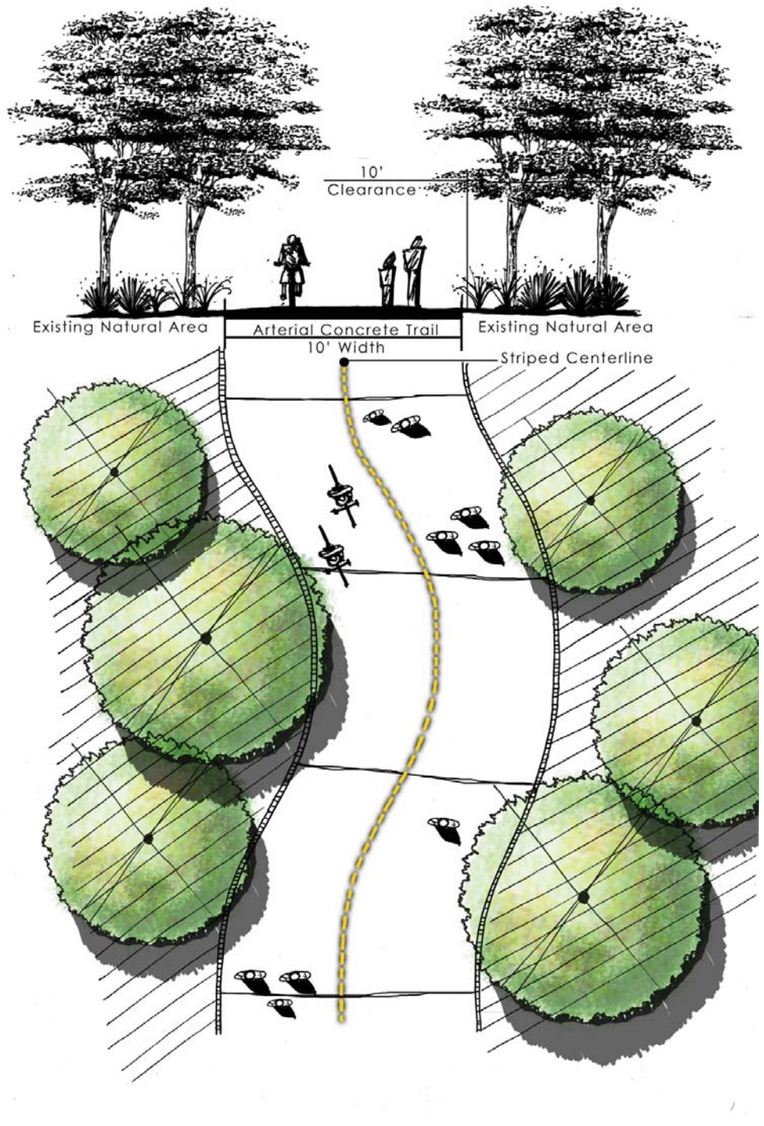
Trail Type	Cost per Linear Foot
10' to 12' community wide trail, concrete	$150 to $175 / linear foot
8' wide neighborhood trail, concrete	$140 to $152 / linear foot
8' wide parkway trail, concrete	$110 to $135 / linear foot
6' wide sidewalk	$80 to $90 / linear foot
8' wide decomposed granite trail	$70 to $140 / linear foot
8' wide natural trail	$65 to $110 / linear foot

Community Arterial Trails

These community-wide trails are intended to provide access from one part of the city to another. In essence, these trails become the "spine" system for the city, providing an easy route to travel longer distances. This connectivity typically makes them a high priority. Additionally, because they provide connectivity, multiple types of users are expected.

To accommodate the large volume and multiple users expected, community trails typically are designed to accommodate two-way bicycle and pedestrian traffic, have their own right-of-way, and can accommodate maintenance and emergency vehicles. These trails are at least 10' in width, but in some cases may be up to 12' in width where a significant volume of users is anticipated. These trails should be constructed using concrete or asphalt, but can also be a surface that provides a smooth surface, as long as it meets ADA requirements. To serve the multiple types of users expected to use a regional trail, a popular option is to provide a soft-surface running trail along one side of the concrete trail.

Access points to the trail should be located every ¼ to ½ mile along the trail, with a minimum ½ mile distance to the access point to the trail. Other facilities offered at or along a regional trail include parking, locator maps, water fountains, shade shelters, bicycle racks, and interpretive / historic signage. While vegetation is encouraged to enhance the trail experience, complete blocking out of the trail by vegetation from neighborhood view is discouraged. This results in a "tunnel" effect on the trail, creating the impression of decreased safety.



Potential Development Cost per Mile of Trail
Community Arterial Trail (Concrete, 10' width)

Description - Planned as major trail connecting sectors of the City. Ten-foot wide concrete all weather trail, centerline stripe, straight to curvilinear alignment as corridor permits. Four to 6' thick concrete to allow for some use as maintenance track. Includes some amenities at key intersection or access point nodes. Additional amenities such as shade structures and benches can be added in the future.

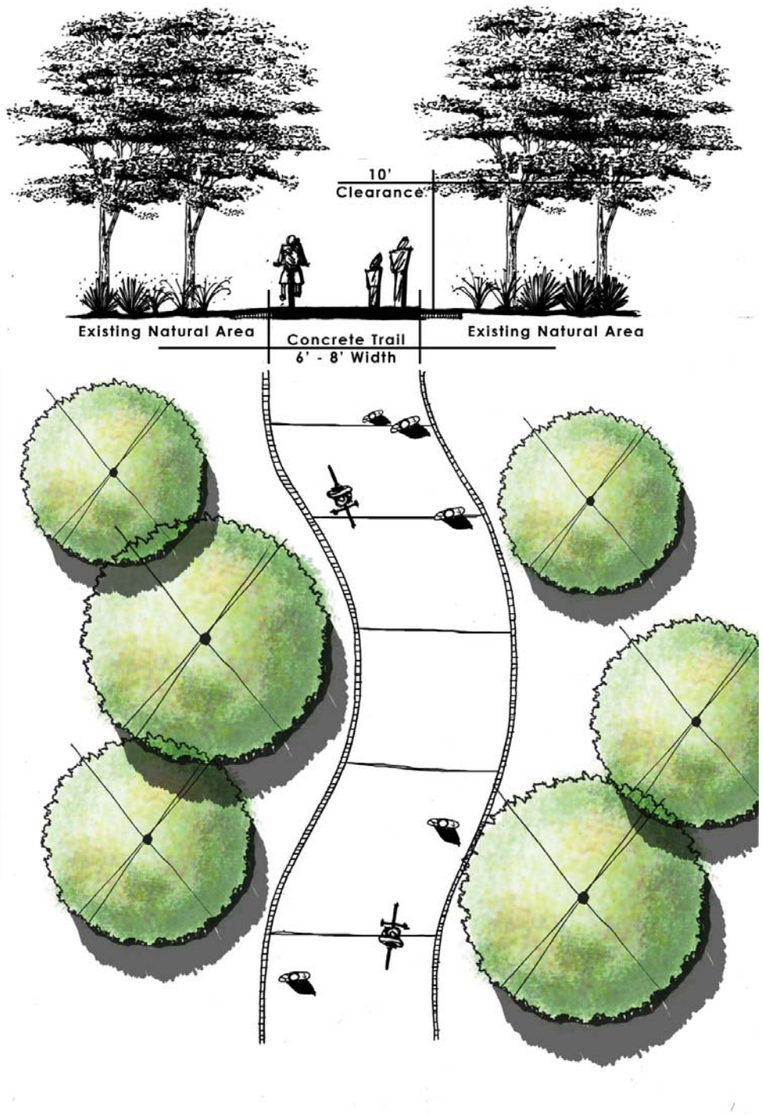
	Item	Quantity	Unit	Unit Price	Amount
Base Cost					
1	Grading Allowance (per linear foot)	5,280	LF	$12	$63,360
2	Concrete Trail, 4 to 6 inch depth, 10' width, includes base material	5,280	LF	$75	$396,000
3	Trail Striping	5,280	LF	$4	$21,120
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	21	EA	$1,000	$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 2000 linear feet)	3	EA	$20,000	$60,000
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	$500	$5,000
7	Intersection crosswalk striping	4	EA	$1,000	$4,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	$1,000	$8,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52,800	SF	$0.5	$26,400
				Subtotal Base Cost	**$604,880**
Amenity Cost					
10	Drinking fountain (one per mile)	1	EA	$5,000	$5,000
11	Information kiosk (assume ratio of one per mile)	1	EA	$5,000	$5,000
12	Major trail access point sign (1 every 2500 linear feet)	2	EA	$3,000	$6,000
13	Security lighting at access point (1 pole per access point)	4	EA	$2,500	$10,000
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	2	EA	$15,000	$30,000
				Subtotal Amenity Cost	**$56,000**
				Subtotal Construction Cost	$660,880
				Design, Testing, Administration, Misc. Costs (15%)	$99,132
				Contingency at Pre-Design Level (20%)	$152,002
				Total	**$912,014**
				Estimated Overall Cost per Linear Foot	$173
				Estimated Base Cost per Linear Foot	$158

Note: *Order of Magnitude estimate only, with out detailed design*
This estimate is intended only to establish a range of potential costs for this construction effort. Cost shown are in 2009 dollars.

Neighborhood Trails

Like neighborhood streets that connect to larger arterials and boulevard streets, neighborhood trails provide access to and from a regional trail. Neighborhood trails connect the neighborhoods of Harlingen to the larger "arterial" trails. Access points to these trails are from neighborhoods, streets, parks, or schools.

Neighborhood trails are typically only 6' to 10' in width and should be constructed with concrete for long range durability. Tighter curves are allowed to introduce interest into the trail segments. As in the case of arterial trails, some neighborhood trails can have a crushed granite component for runners directly adjacent to the concrete trail; if no danger of excessive flooding occurs, neighborhood trails may also be built out of decomposed granite.

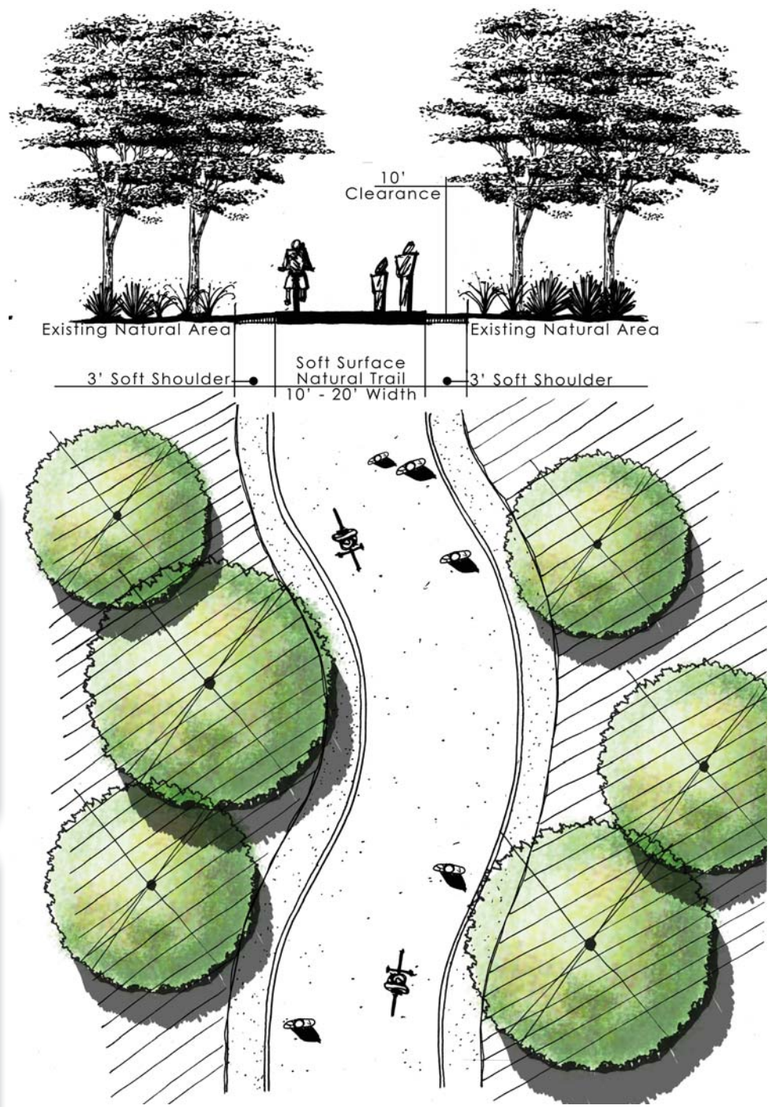


Potential Development Cost per Mile of Trail Neighborhood Trail (Concrete, 8' width)					
Description - Planned as neighborhood trail segments connecting to major arterial trails. 8' wide concrete all weather trail, centerline stripe, straight to curvilinear alignment as corridor permits. 4 to 6" thick concrete to allow for some use as maintenance track. Includes some amenities at key intersection or access point nodes. Additional amenities such as shade structures and benches can be added in future.					
	Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Base Cost					
1	Grading Allowance (per linear foot)	5,280	LF	$9	$47,520
2	Concrete Trail, 4 to 6 inch depth, 8' width, includes base material	5,280	LF	$65	$343,200
3	Trail Striping	5,280	LF	$4	$21,120
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	21	EA	$1,000	$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 5000 linear feet)	2	EA	$20,000	$40,000
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	$500	$5,000
7	Intersection crosswalk striping	4	EA	$1,000	$4,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	$1,000	$8,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52800	SF	$0.5	$26,400
				Subtotal Base Cost	**$516,240**
Amenity Cost					
10	Drinking fountain (one per mile)	1	EA	$5,000	$5,000
11	Information kiosk (assume ratio of one per mile)	1	EA	$5,000	$5,000
12	Major trail access point sign (1 every 2500 linear feet)	2	EA	$3,000	$6,000
13	Security lighting at access point (1 pole per access point)	4	EA	$5,00	$20,000
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	2	EA	$3,000	$6,000
				Subtotal Amenity Cost	**$42,000**
				Subtotal Construction Cost	$558,240
				Design, Testing, Administration, Misc. Costs (15%)	$83,736
				Contingency at Pre-Design Level (20%)	$128,395
				Total	**$770,371**
				Estimated Overall Cost per Linear Foot	$146
				Estimated Base Cost per Linear Foot	$135
Note: *Order of Magnitude estimate only, with out detailed design* *This estimate is intended only to establish a range of potential costs for this construction effort. Cost shown are in 2009 dollars.*					

Natural Corridor & Greenway Trails

Natural trails are located mainly in rural or natural resources areas where the natural environment can be emphasized. The surface is typically a compacted earth surface with normal obstructions, such as roots, rocks, and understory vegetation, cleared from the walking pathway. They should be at least 6' to 10' in width but in some cases may be 12' to 15' to allow for greater visibility within the understory. An additional 2' to 4' shoulder zone is desired on either side. Bridges and drainage crossings should be constructed using wood and timber materials and should be rustic in appearance.

Potential natural corridors exist along many of the creeks, rivers, and drainage corridors in Harlingen. In some cases, these corridors may incorporate walking trails, but with only minimal improvements to address street crossings. Like natural corridor trails, trail surfaces should create an atmosphere that is compatible with the natural beauty of the corridor and that results in a very pleasant trail environment.



Potential Development Cost per Mile of Trail
Nature Trail (Natural Surface, 8' width)

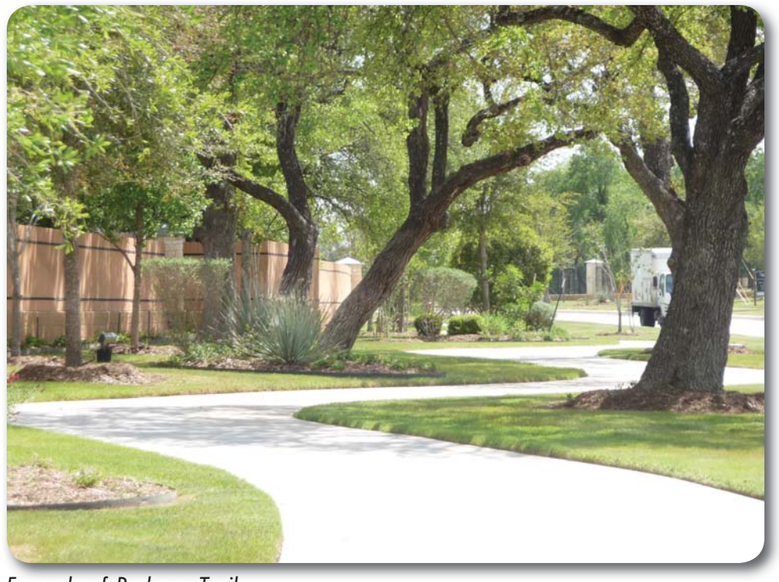
Description - natural surface trail through river corridor and along some levee corridors. Includes concrete landings and allowance for some fully accessible areas. Includes small bridges to cross drainage swales, and one major bridge every three miles.

	Item	Quantity	Unit	Unit Price	Amount
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	$3	$15,840
2	Concrete Trail, 4 to 6 inch depth, 8' width, includes base material	520	LF	$65	$33,800
3	Natural trail - includes clearing of 15 to 20' wide corridor, fine grading, construction of some steps to improve access	5,000	LF	$15	$75,000
4	Trail Striping (not required for this type of trail)	0	LF	$4	$-
5	Culverts (12" diam. Max. for local drainage only). Maximum of 10 per mile assumed	10	EA	$1,500	$15,000
6	Major drainage culverts or small bridges (36" to 48" box culvert, assume two every 2000 linear feet)	2.5	EA	$25,000	$62,500
7	Major pedestrian bridge - assumes one every three miles	0.33	EA	$150,000	$49,500
8	Trail directional/safety signs (assume 1 every 500 linear feet)	5	EA	$500	$2,500
9	Intersection and access point accessible ramps (assumes 8 at every intersection)	2	EA	$1,500	$3,000
				Subtotal Base Cost	**$257,140**
Amenity Cost					
10	Landscape allowance at entrances	5,280	LF	$8	$42,240
11	Bench nodes (4 per mile, includes stone benches, table flagstones set in concrete, seating wall	4	LF	$15,000	$60,000
12	Drinking fountain (one per entrance area)	1	EA	$5,000	$5,000
13	Information kiosk (assume ratio of one per mile)	1	EA	$10,000	$10,000
14	Major trail access point sign (1 every 5000 linear feet)	1	EA	$5,000	$5,000
15	Emergency call box - solar powered, one per 1/2 mile	2	EA	$15,000	$30,000
16	Security lighting at access point (1 pole per access point)	1	EA	$5,000	$5,000
				Subtotal Amenity Cost	**$157,240**
				Subtotal Construction Cost	$414,380
				Design, Testing, Administration, Misc. Costs (15%)	$62,157
				Contingency at Pre-Design Level (20%)	$95,307
				Total	**$571,844**
				Estimated Overall Cost per Linear Foot	$108
				Estimated Base Cost per Linear Foot	$67

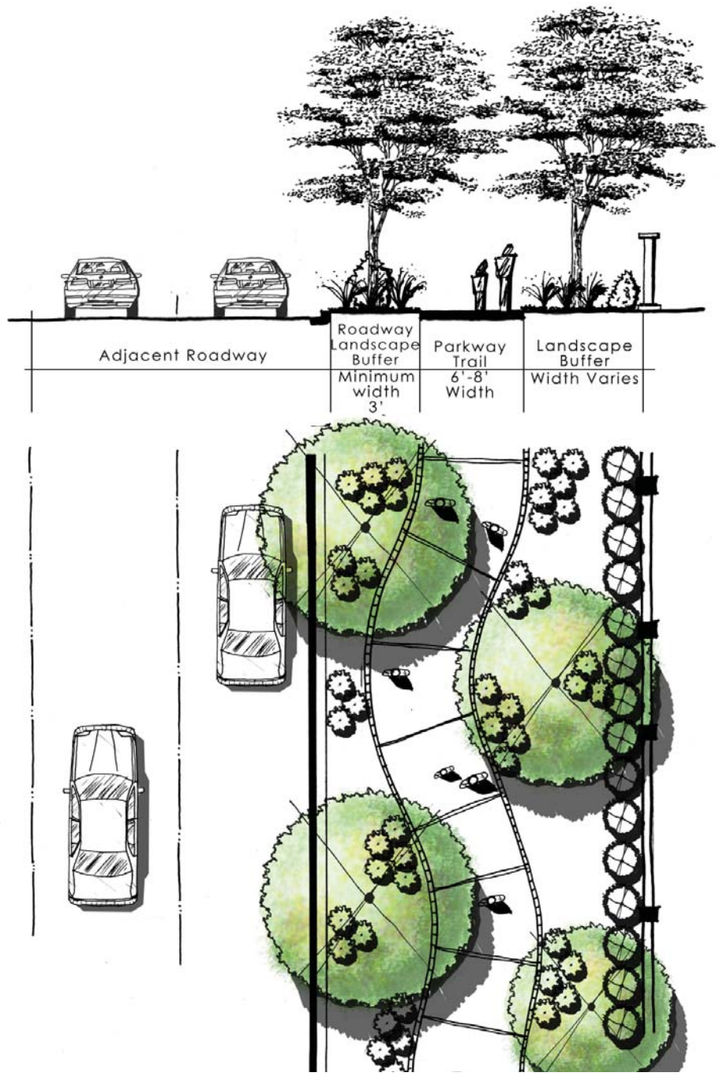
Note: *Order of Magnitude estimate only, with out detailed design*
This estimate is intended only to establish a range of potential costs for this construction effort. Cost shown are in 2009 dollars.

Parkway Trails

Often times the best trail corridors are adjacent to major collector or boulevard streets. Unlike sidewalks, these trails are wider, and a minimum width of 6' to 8' is preferred. A surface of concrete is preferred for durability; however, crushed granite can also be used. Amenities are important to enhance the pedestrian environment along auto-centric streets. Amenities can include decorative light fixtures, landscaping and ground cover, and varying surface treatments at intersections and crosswalks. The overall parkway width should be at least 15' to 20', to allow for at least 6' of clearance between the street curb and the walkway and another 4' +/- between the walkway and the adjacent property line. In many cases additional width may be required to accommodate drainage or other utilities. The picture to the left shows a parkway trail along a roadway. Parkway trails typically include landscaping that beautifies the road corridor such as a row of large, mature trees in this case. Access to the trail should be adjacent to major arterials and collector streets as well as parks.



Example of Parkway Trail



Potential Development Cost per Mile of Trail
Parkway Trail (Concrete, 8' width)

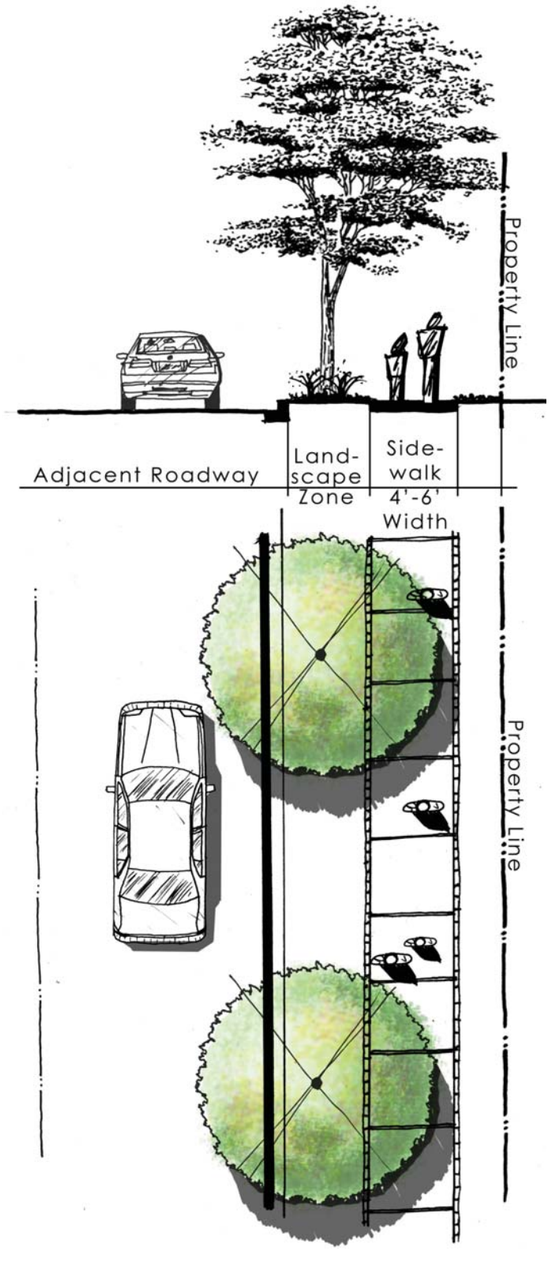
Description - Straight to semi-curved alignment where possible, constructed adjacent to major boulevards. 8' width, 4'+ thickness. Because these trails are in highly visible locations, they must include landscaping and decorative features such as benches, groundcover, and signs at key node areas.

	Item	Quantity	Unit	Unit Price	Amount
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	$3	$15,840
2	Concrete Trail, 4 to 6 inch depth, 10' width, includes base material	5,280	LF	$65	$343,200
3	Trail Striping (not required)	0	LF	$4	$-
4	Culverts (not required)	21	EA	$1,000	$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 2000 linear feet)	0	EA	$20,000	$-
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	$500	$5,000
7	Intersection crosswalk striping	4	EA	$3,000	$12,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	$1,500	$12,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	40,000	SF	$0.5	$20,000
				Subtotal Base Cost	**$429,040**
Amenity Cost					
10	Landscape allowance	5,280	LF	$10	$52,800
11	Benches (8 per mile)	8	LF	$1,200	$9,600
12	Drinking fountain (one per mile - not provided with this type of trail)	0	EA	$5,000	$-
13	Information kiosk (assume ratio of one per mile)	1	EA	$5,000	$5,000
14	Major trail access point sign (1 every 2500 linear feet)	2	EA	$3,000	$6,000
15	Security lighting at access point (1 pole per access point - assumed to be already in place along streets)	0	EA	$2,500	$-
				Subtotal Amenity Cost	**$73,400**
				Subtotal Construction Cost	$502,440
				Design, Testing, Administration, Misc. Costs (15%)	$75,366
				Contingency at Pre-Design Level (20%)	$115,561
				Total	**$693,367**
				Estimated Overall Cost per Linear Foot	$131
				Estimated Base Cost per Linear Foot	$112

Note: *Order of Magnitude estimate only, with out detailed design*
This estimate is intended only to establish a range of potential costs for this construction effort. Cost shown are in 2009 dollars.

SIDEWALKS

Sidewalks are an important component of an overall plan to improve walk ability. Sidewalks that are a minimum of 5' wide are recommended along collectors and arterial roads. Sidewalks invite walking, and wider sidewalks tell pedestrians that they can walk side by side and that the walkway can accommodate significant volumes of walkers. Similarly, streets with no sidewalks convey the message very clearly "don't walk here." Sidewalks also provide safe routes for children to travel to school.



Potential Development Cost per Mile of Trail Sidewalk (Concrete, 6' width)					
Description - Major sidewalk connection through neighborhoods and commercial areas.					
	Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Base Cost					
1	Grading Allowance (per linear foot)	5,280	LF	$9	$47,520
2	Concrete Trail, 4 to 6 inch depth, 8' width, includes base material	5,280	LF	$50	$264,000
3	Trail Striping	0	LF	$4	$-
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	0	EA	$1,000	$-
5	Major drainage culverts (36" to 48" box culvert, assume two every 5000 linear feet)	0	EA	$20,000	$-
6	Trail directional/safety signs (assume 1 every 500 linear feet)	0	EA	$500	$-
7	Intersection crosswalk striping	0	EA	$1,000	$-
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	0	EA	$1,000	$-
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52,800	SF	$0.5	$26,400
				Subtotal Base Cost	**$337,920**
Amenity Cost					
10	Drinking fountain (one per mile)	0	EA	$5,000	$-
11	Information kiosk (assume ratio of one per mile)	0	EA	$5,000	$-
12	Major trail access point sign (1 every 2500 linear feet)	0	EA	$3,000	$-
13	Security lighting at access point (1 pole per access point - assumed to be already in place along streets)	0	EA	$5,000	$-
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	0	EA	$3,000	$-
				Subtotal Amenity Cost	**$-**
				Subtotal Construction Cost	$337,920
				Design, Testing, Administration, Misc. Costs (15%)	$50,688
				Contingency at Pre-Design Level (20%)	$77,722
				Total	**$466,330**
				Estimated Overall Cost per Linear Foot	$88
				Estimated Base Cost per Linear Foot	$88
Note: *Order of Magnitude estimate only, with out detailed design* *This estimate is intended only to establish a range of potential costs for this construction effort. Cost shown are in 2009 dollars.*					

Other Specialized Types of Trails

Water Trails

Water trails allow access to water features in a community that could open doors to and promote a variety of activities in Harlingen. The Arroyo Colorado is an opportunity for a water trail that can become an attraction in Harlingen. A casual trip in a canoe along the Arroyo Colorado allows a much different perspective of the water. Canoes or kayaks could be an amenity for these water trails, and marker poles with information could be added to create interest. Boat launches will be necessary for those water trails.

Equestrian Trails

Locations to ride horses are rare so close to cities and offer an opportunity for a unique recreational venue in Harlingen. Equestrian trails require additional clearance, and parking for trailers is required at the trailhead. A close permanent stabling operation could greatly increase the use of these trails.

On-Street or Striped Bike Lanes

Off street trails that are intended to accommodate bicycles are referred to as shared use paths. Most trails should be designed to readily accommodate bicycles.

On-street bicycle facilities are equally important. Neighborhood routes should be identified that permit relatively easy riding. Specific facilities for cyclists include striped bicycle lanes that are a minimum 4' (5' is preferred for inexperienced rider comfort) in width from the street edge of the gutter pan, or in some cases the use of the "sharrow" which indicates a shared use lane (SLM). The sharrow is in the final stages of approval for inclusion in the Manual of Uniform Traffic Control Devices (MUTCD), but municipalities may apply for permission to use this new symbol prior to its formal adoption.

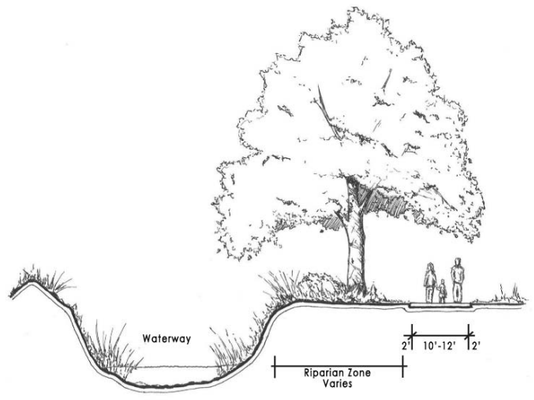
OTHER DESIGN CONSIDERATIONS

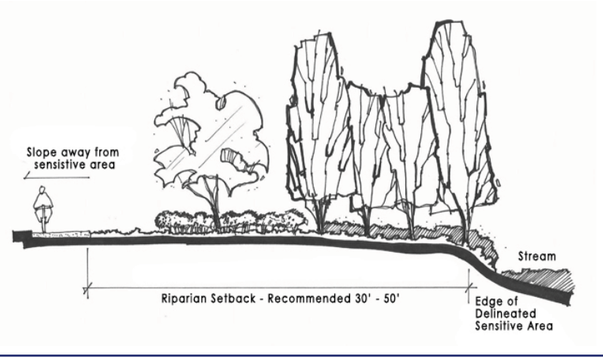
Trails in Sensitive Areas

For community trails that will be located in environmentally sensitive areas, several measures are recommended to lessen the impact of the trail and trail users on the area:

- The riparian setback should be as wide as possible: 30-50' recommended.
- Slope the trail away from the waterway or pre-treat trail run-off with a trailside swale.
- Limit vegetation removal.
- Locate the trail outside the 100-year floodplain wherever possible.
- Remove invasive plant species.

Use the trail as an opportunity to restore and enhance the waterway or environmentally sensitive area.

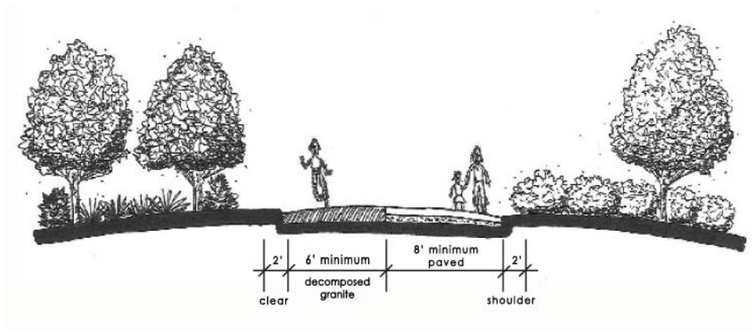




Trails with Accommodation for Runners and Joggers

For community trails designed to accommodate runners and joggers, as well as other users, several measures are recommended to ensure a quality trail experience for both runners and other community trail users:

- The hard surface community trail still needs to be designed to the standards of a community trail with no adjacent runner's trail with 10'-12' preferred widths and 10' vertical clearance
- This plan recommends decomposed granite trails along the relatively wide utility easements in order to locate them along – yet, at a distance away, from - the community trails.
- This type of trail is not recommended in sensitive stream corridors.



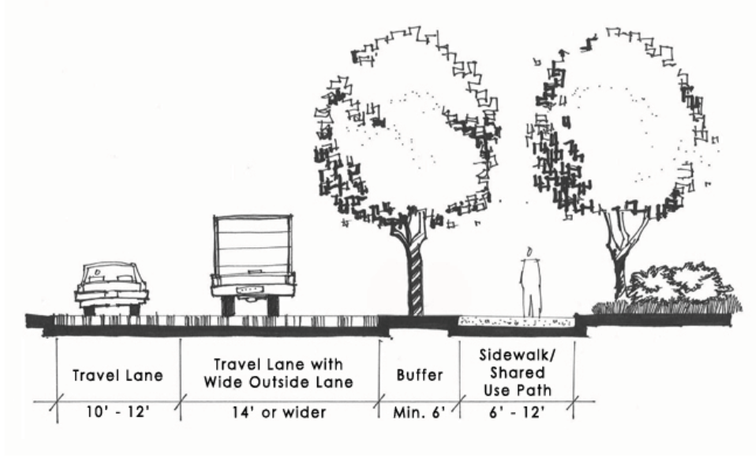
Street Enhancements

Street enhancement is appropriate for trails along roadways and thoroughfares in Harlingen to improve the pedestrian environment. These trails are adjacent to the roadway, and the setback from the roadway should be based on the classification of the adjacent roadway, as shown in Table 5.3 below. This type of trail is recommended along all scenic roads in Harlingen.

Table 5.3
Setback Recommendations

Roadway Classification	Recommended Minimum Trail Setback
Residential	Minimum 2 feet without trees
Collector	Fifteen Feet
Arterials and Highways	Twenty-five Feet

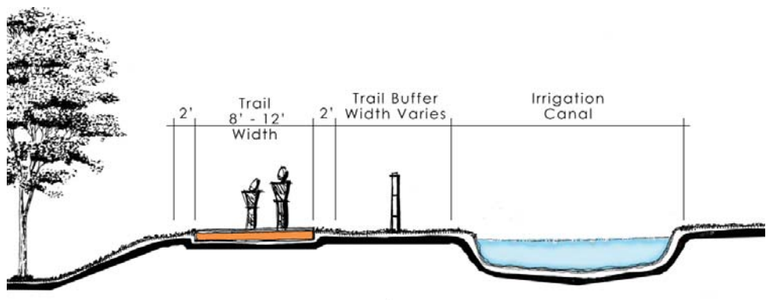
Street enhancements should be avoided on roadways with multiple intersections or driveways, as each intersection or driveway creates a conflict point between trail users and motor vehicles. Street enhancements are designed to create connections between foot trails and the community trails, as well as to connect popular destinations throughout Harlingen. Sidewalks less than 6' wide by themselves should not be designated trails.



Trails Along Irrigation Channels

Irrigation channels offer an opportunity for trail connectivity across the City. The water feature of the irrigation channel is both an attraction and a safety issue when a city considers building trails along these channels. Considerations along irrigation channels should be similar to those in sensitive areas, with regards to protecting the water source and vegetation. Additionally, the following measures should be taken to promote safety along these trails while enabling their use:

- Provide an appealing fence that is similar to the characteristic of the community to limit access to the irrigation.
- Maintain a safe distance (greater than 10' to 15') between the trail and the canal.



Pedestrian Bridges and Underpasses

Pedestrian bridges and underpasses provide access across barriers that would otherwise hinder connectivity of a trail system. Pedestrian bridges are required in locations where typical drainage channel crossings spans anywhere from 50' to 200'. These bridges may be typical pre-fabricated designs, but should always strive to be a step above the customary steel bridge design.

From a user's perspective, bridges should be at least as wide as the trail; preferably one to two feet wider on each side. This is so pedestrians can stop and view the adjacent scenery without obstructing the trail. Any bridge that is specifically designated for bicycle traffic must have appropriate railing for bicyclists. Texas has adopted the AASHTO Bridge Design Specifications requirement that railing of bridges that are designated for bicycle traffic should be a minimum of 54 inches high with the same restrictions on openings as for pedestrian railing. Pedestrian railing openings between horizontal or vertical members must be small enough that a 4-inch sphere cannot pass through them in the lower 27 inches. For the portion of pedestrian railing that is higher than 27 inches, openings may be spaced such that an 8-inch sphere cannot pass through them. Decking material should be firm and stable. Bridge approaches and span should not exceed 5% slope for ADA access.

Pedestrian bridges should accommodate maintenance vehicles if necessary. Bridge structures should be out of the 100-year floodplain. Footings should be located on the outside of the stream channel at the top of the stream bank. The bridge should not constrict the floodway. All bridges and footings in the stream corridor will need to be designed by a registered geotechnical or structural engineer. Cost, design and environmental compatibility will dictate which structure is best for the trail corridor.

Underpasses provide a more direct route to go under a busy street. From the standpoint of a user, underpasses should be well lighted and attractive, and most of all project a sense of security. Where adequate clearance is available, a minimum clearance of 8' is recommended, but 10' is preferred. All new vehicular overpass bridges added in Harlingen in the future should be designed to accommodate a "shelf" for a trail.

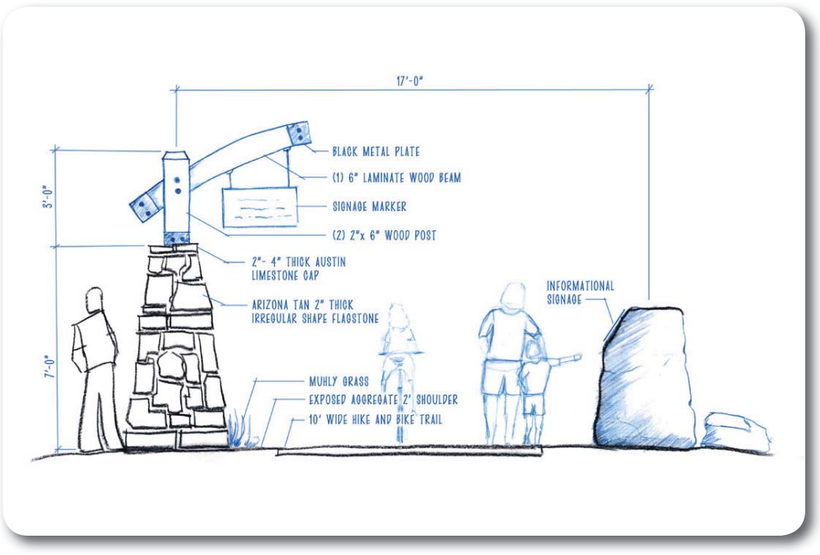
Trailheads and Access Points

A very high level of accessibility is desired for municipal trail corridors. More access points increase a sense of security, since they encourage ready use of the trail by area residents. A well used trail will most likely be at parks. Access points should be as little as 1/8th of a mile apart for neighborhood trails, and typically no more than a 1/4 mile to a 1/2 mile for all other trail types. Major trail heads may be spaced 1/2 mile or further apart. Two types of neighborhood trail access points include:

- Access from adjacent neighborhood streets
- Access from specific trailheads in parks

Typical Trailhead Features

- Parking for 10+/- cars
- Small Shade Pavilion
- Drinking Fountain
- Optional Safety Call Box
- Kiosk with Trail Map and Information
- Bicycle Parking Stand
- Optional Fitness Stations or Warm-Up Stations
- Landscaping and Optional Seasonal Color
- Major Trail Identification Sign
- Optional restrooms (in park locations)



Trail Features and Amenities

In order for the trails system to be a successful community amenity, the trails should appeal to a wide variety of users. To achieve this, the trails should be designed to provide a high level of user conveniences. The demographics of the community include both elderly and young users. These groups will use the trail more often if amenities are provided. Recommended trail amenities include:

- **Water Fountains** provide drinking water for people (and pets in some cases).
- **Bicycle Parking Racks** allow trail users to safely park their bikes if they wish to stop along the way, particularly at parks and other desirable destinations.
- **Interpretive Installations and Signs** can enhance the trail experience by providing information about the history of Harlingen. Installations can also discuss local ecology, environmental concerns, and other educational information.
- **Art Installations** make a trail system uniquely distinct. Local artists can be commissioned to provide art for the trail system. Many trail art installations are functional as well as aesthetic, as they may provide places to sit and play on.
- **Restrooms** are appropriate at major trailheads or as previously existing in City parks along the trail route.
- **Pedestrian-Scale Lighting** improves safety and enables the trail to be used year-round. It also enhances the aesthetic beauty of the trail. Lighting fixtures should be consistent with other light fixtures in the City, possibly emulating a historic theme.
- **Trail Furniture,** such as benches at key rest areas and viewpoints, encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches can be simple (e.g. wood slats) or more ornate (e.g. stone, wrought iron, concrete).
- **Maps and Directional Signage** provide information so that users can navigate the trail system. A comprehensive signing system makes a trail system stand out. Information kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the trail system with little introduction - perfect for areas with high out-of-area visitation rates as well as the local citizens. The directional signage should impart a unique theme so trail users know which trail they are following and where it goes. The theme can be conveyed in a variety of ways: engraved stone, medallions, bollards, and mile markers. A central information installation at trailheads and major crossroads also helps users find their way and acknowledge the rules of the trail. They are also useful for interpretive education about plant and animal life, ecosystems, and local history.
- **Information Kiosks** provide trail users with information and the rules and regulations of the trail. Often an overall trail system map is posted at a kiosk. Involving school children, university students and civic organizations in the research, design and construction of these kiosks would be an excellent community activity.
- **Trash Receptacles and Dog Waste Pick-up Stations** are important trail features that can help keep the trails maintained. Periodic containers at access points should be provided. Additionally, dog waste pick-up bag dispensers should be placed at trailheads and key neighborhood access points along the route. Signs should be placed along the trail notifying dog owners to pick up after their dogs.

Chapter 4

CITIZEN PARTICIPATION

CITY OF HARLINGEN TEXAS

Introduction

Public input is a critical component of any planning process. A long range plan such as this must represent the long range goals of the citizens and residents who are going to fund the planned facilities, support them, and ultimately use them.

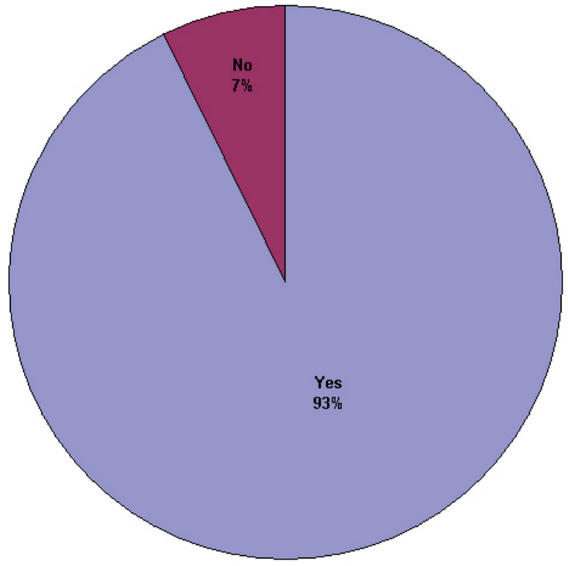
The City of Harlingen was committed to gathering citizen input in this trail planning process. Citizen feedback helped identify potential trail corridors and designate priorities. The public input process included two citywide public meetings to discuss potential corridors and citizens' concerns. A questionnaire was distributed at the public meetings to identify residents' desires and concerns regarding trails in Harlingen. Results are discussed on the following pages.

Who Responded to the Survey?

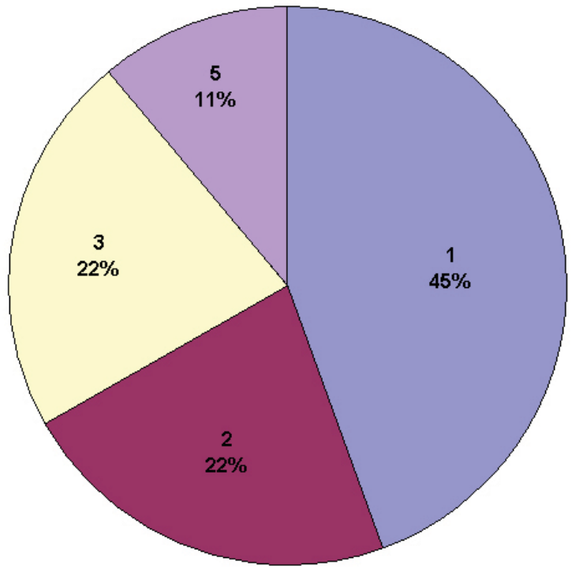
This intent of these questions is to identify who attended the meetings. It asked whether they were residents of the City or ETJ; how long they had lived in Harlingen; and whether they had children at home.

Of the respondents, all but 1 lived in the City of Harlingen or its ETJ. Many of the respondents were also long-time residents. Eighty-six (86%) percent, or 12 of the respondents, have lived in Harlingen or its ETJ for over 10 years. Three of the survey respondents, or 21%, indicated that they have children under the age of 18 living at home.

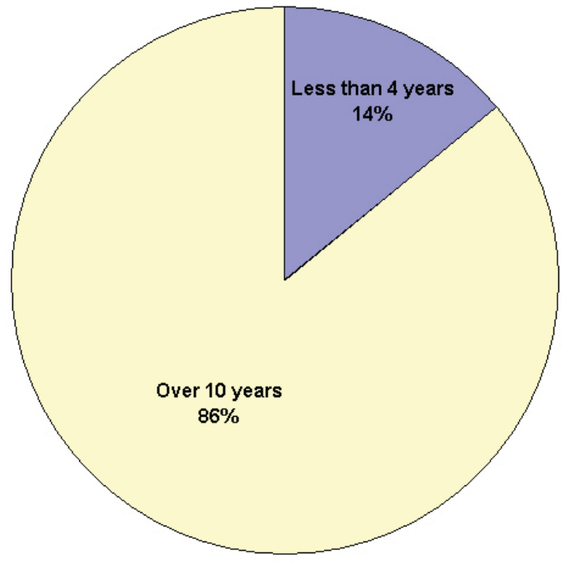
Do You Live in Harlingen or its ETJ?



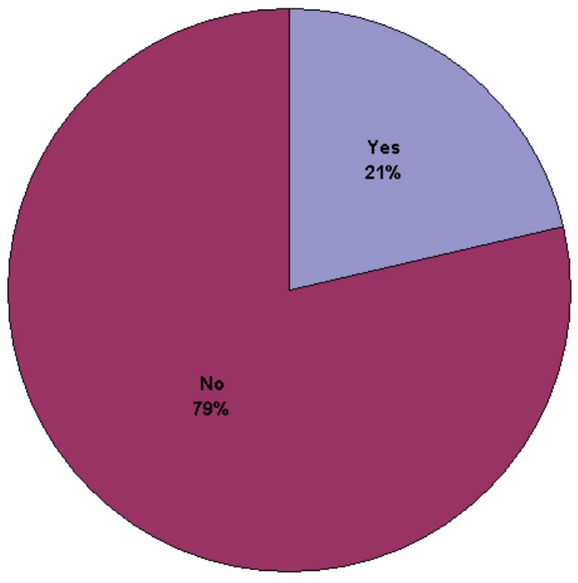
What Council District Do You Live In?



How Long Have You Lived In Harlingen?



Children under the age of 18?



Who Uses Trails, and Why?

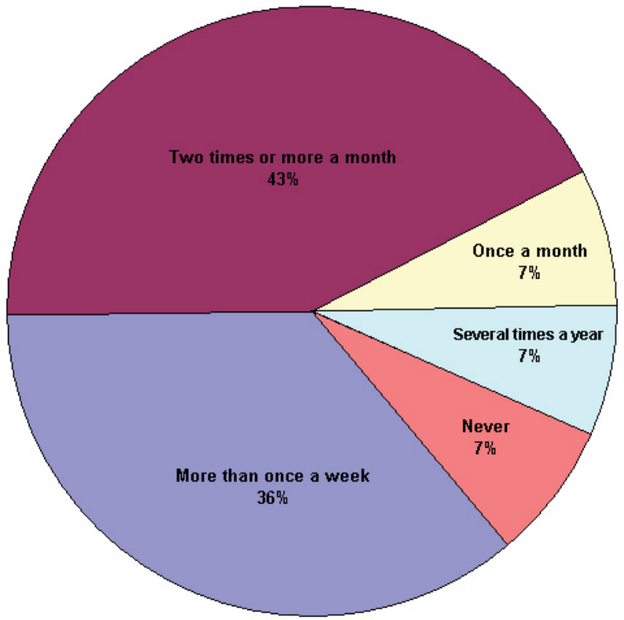
This intent of these questions is to identify who is using trails in Harlingen and the surrounding area, and for what purposes they use the trails or would like to use the trails.

The survey asked whether or not they have utilized a trail in Harlingen, Cameron County, or nearby cities within the past 12 months. A majority of respondents have used a trail in Harlingen and another nearby city, and half of the respondents have used a trail in Cameron County.

Utilized a Trail Within the Past 12 Months:	
Harlingen	85.7%
Cameron County	50.0%
Other City	57.1%
• McAllen	21.4%
• Brownsville	21.4%
• San Benito	14.3%
• Edinburg	7.1%

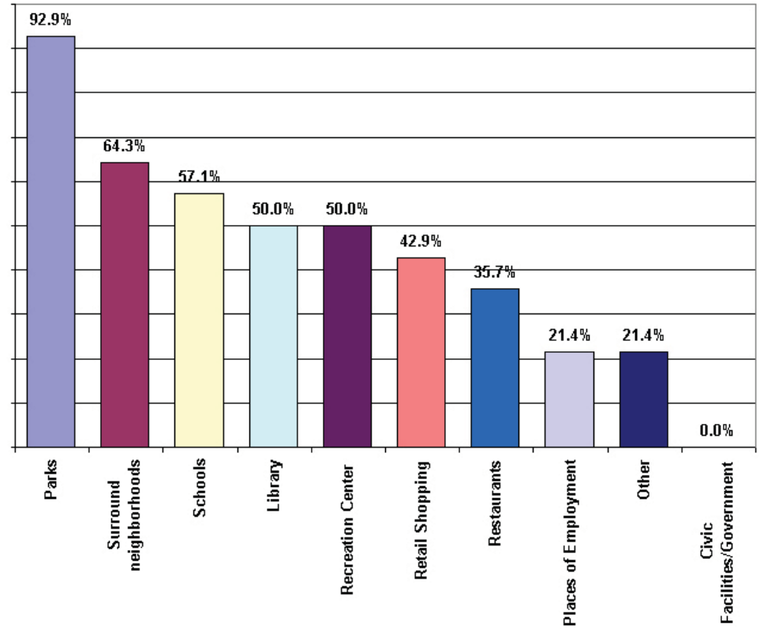
Residents were also asked how often they used trails. Most people (42.9%) use them at least couple times a month, and 35.7% use them more than once a week.

How Often Do You Use Trails?



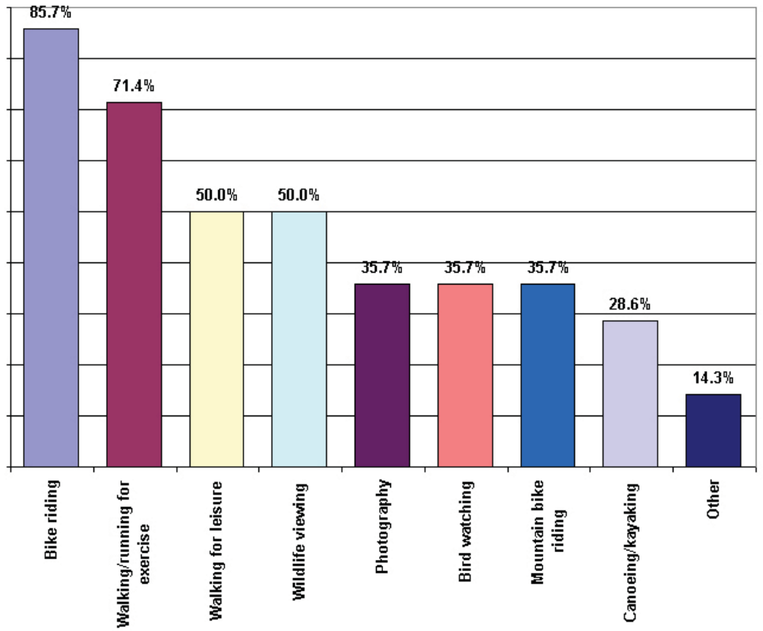
Trails have the potential to serve as a connector among various destinations. Residents were asked what they would like trails in Harlingen to connect to. Choices ranged from civic destinations, recreational opportunities, parks, schools, as well as shopping areas, restaurants, and employment centers. The number one response was parks, followed by surrounding neighborhoods.

What Do You Want Trails to Connect to?



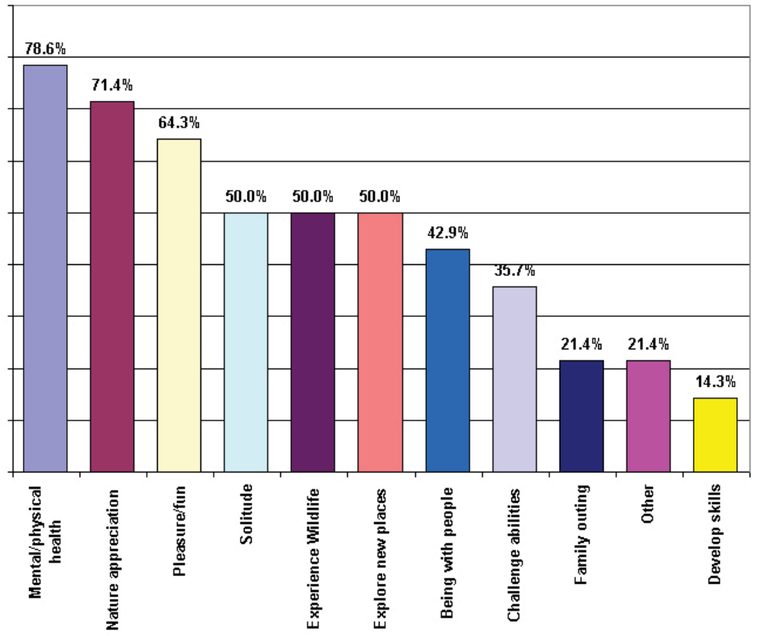
Residents were asked what activities they use trails for. It is important to know what activities people use trails for so that those types of activities can be accommodated in future trails. **The majority of survey respondents use trails for bike riding as well as for walking or running for either leisure or exercise.** The mix of users indicates a need for major trails to be built wide enough to accommodate a variety of activities.

What Activities Do You Use Trails For?



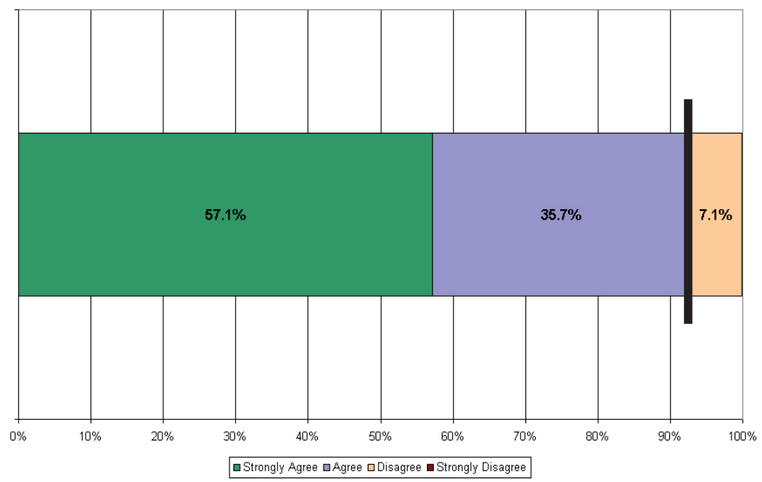
Similarly, residents were asked what type of experience they seek when using a trail. The results reinforce that trails are used for a wide variety of reasons, indicating that a variety of trails should be provided throughout the City of Harlingen to serve the various experiences.

What Kind of Experience Do You Seek When Using Trails?



Trails are now being recognized across the country as an alternative form of transportation. An interconnected trail system can provide people with the choice to commute from one side of the city to another either by foot or on a bicycle. Residents in Harlingen were asked if they would like to see trails developed as an alternative way to commute. **All but one of the respondents agreed that they would like to see trails developed as an alternative way to commute or get around Harlingen.**

"I would like to see trails developed as an alternative way to commute or get around Harlingen"

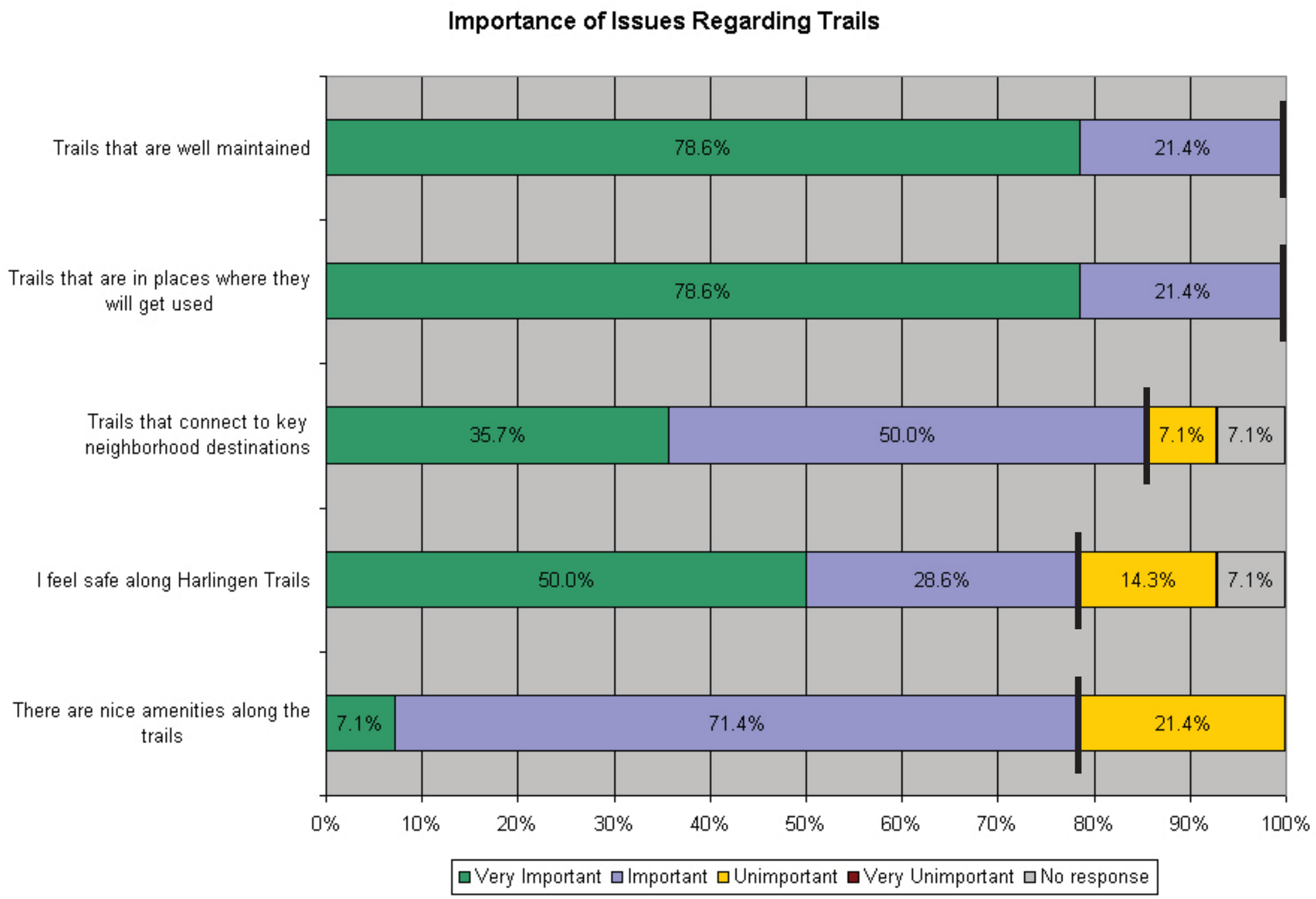


Trail Issues

Residents were given a list of different issues that could arise from developing trails and were asked how important or unimportant each issue was to them. Based on the number of people who indicated very important and important for the issues, **the most important issues for trails are that they are well maintained and that they are in places where they will get used.** All respondents indicated that trail maintenance and trail location are either very important or important.

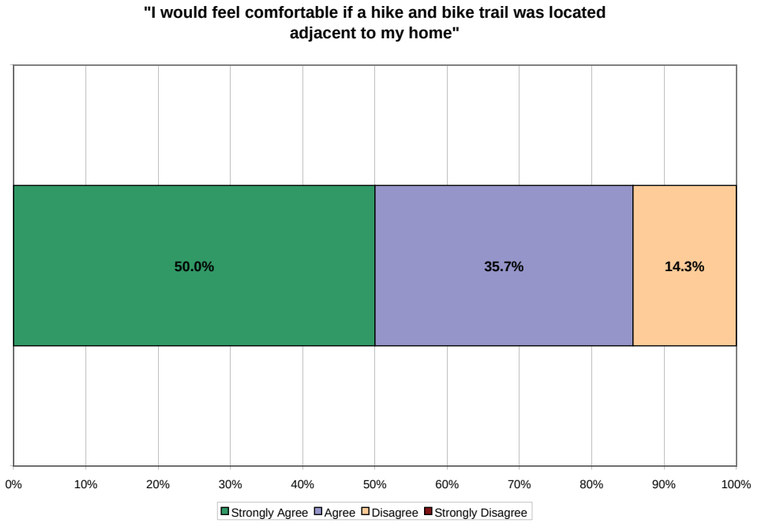
This was followed by trails connecting to neighborhood destinations. A total of 12 respondents indicated that this was either a very important or important issue.

Finally, 78.6% of those who filled out the survey responded that safety and trail amenities are important or very important issues. It should be noted, however, that of the eleven who responded that safety is at least important, seven felt it is very important.



Trail Adjacency Issues

As shown previously in this report, there are opportunities available for trail development along the Arroyo Colorado and along irrigation channels. It is important to know whether or not the residents of Harlingen would feel comfortable having a trail built adjacent to their home. **Of those who responded to the survey, 85.7% said they would be comfortable with this.**



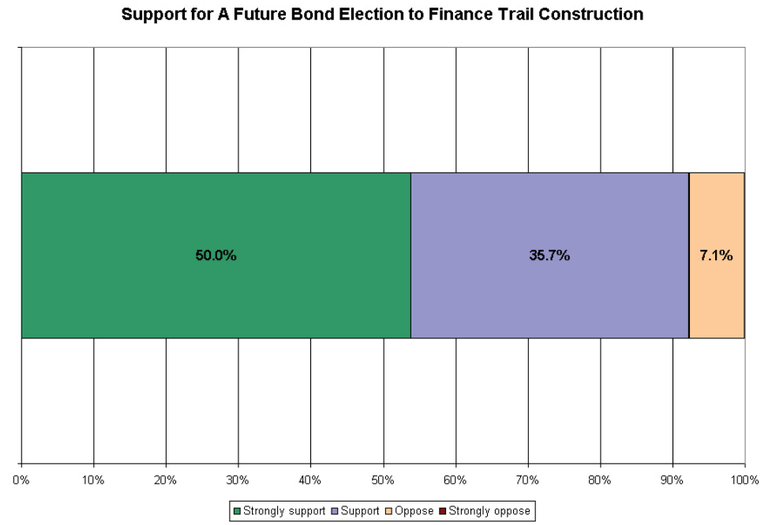
The survey then asked what would be their primary concern with placing a trail adjacent to their home. If they had no issue with the trail, then they were asked to write "No Issue." These results are not to be seen as contradicting the previous question regarding whether residents would be comfortable with a trail adjacent to their home. Rather, it identifies the primary concerns that should be addressed or mitigated if a trail were to be built adjacent to homes.

What would be your primary concern with trails adjacent to your home?

No issue	57.1%
Miscellaneous (lighting, late users)	21.4%
Litter/Maintenance	14.3%
Loss of Privacy	14.3%
Crime/Safety	7.1%

Trail Funding

The most probably form of funding for the construction of trails is through bonds. The survey asked how strongly they would support or oppose a future bond election. **Of those who responded, 85.7% indicated they would support a bond for trails.** Without knowing exact details of how much a bond would be for and where the trails would be constructed, there is still a great deal of support for financing the construction of trails through a bond election.



Additional Comments from the Public Meeting

Finally, meeting attendees were invited to include any other comments they wished to add regarding trails. The comments submitted are below.

- As trail proponents "sell" the hike and bike trail development, please mention the multi-purpose aspects and multiple benefits for residents, visitors, tourists, Winter Texans and businesses. Health, travel options (local), leisure, scenery, quality of life, eco-tourism (special events="bike-a-thons"), business recruitment attraction, family outings, wildlife and environment (education, too, like history).
- Please try to use native vegetation - especially no "fan palms" or other anemic palms.
- May a few water fountains please - for drinking purposes.
- Trail big enough for 3 abreast minimum - how about 4-5 wide.
- Some seating along the trail please.
- If lighting is present, please have it be subtle - not a big glaring parking lot type.
- Connections between parks is of utmost importance.
- Having hike/bike trails and sidewalks will: get people out of their homes/apartments to exercise; decrease road traffic if people can walk to restaurants, library, stores, parks, etc (walkability); bring Harlingen up with other cities like Brownsville and McAllen regarding trail development; be safer for runners and walkers.
- I would prefer grant money and in-kind donations as opposed to bonds or city funds.
- I live off Rangerville Road where a large number of poor, working-class Hispanic residents live and suffer from high-blood pressure, heart disease and diabetes. We need more recreation opportunities and exercise opportunities.
- I advocate connecting/extending the Arroyo Trail to the neighborhood and the Bonita Park project.
- Dixieland should connect to McKelvey via Arroyo Trail
- I'm training for a marathon and have to travel to Brownsville, McAllen, and Mission to get double-digit mileage. Having a longer trail in Harlingen would be very beneficial to runners and make it a destination like the Second Street Trail in McAllen.
- This is why we supported the 4B Corp.
- A sample trail would be a great way to introduce and inspire more healthy habits till we could reach the goal of a park to park citywide trail system.
- Strongly agree with plan.
- Need combined use trails - walkers/runners/bikers - but also some or at least one primary off-road/bike trail. Many go to Brownsville (and McAllen) trail, Monte Bella (Brownsville City Park) bike trail on Alton Gloor Rd.
- Organized rider/races - another improved quality of life, outdoors, physical fitness.

CITY OF HARLINGEN TEXAS

Chapter 5
PROPOSED TRAIL NETWORK

Goals and Objectives

The goals and objectives are reflective of the City's vision to "improve and enhance the Quality of Life and Economic Vitality of the City of Harlingen."[1] They serve as the policy framework for the Trails Master Plan and should be used to guide the planning, design, and continual improvement of the City's trail system, even as elected officials and staff change over time.

The purposes of this Trail Master Plan are to:

- Provide a framework coordinated and consistent planning, development, and improvement of the trails throughout Harlingen.
- Establish priorities based on community needs analysis.

Trails Master Plan Goals and Objectives

GOAL 1: Create a trail system that provides for recreation and alternative modes of transportation between various destinations throughout Harlingen.

Objectives

1.1 Locate a trail within a quarter-mile (1/4-mile) of 90% of every residence in Harlingen.

1.2 Provide access to every public and private elementary and middle school.

1.3 Provide access to civic destinations, including, but not limited to, parks and open spaces, libraries, places of worship, museums, and cultural centers.

1.4 Provide access to key destinations such as major employers or employment centers, retail centers, Texas State Technical College, etc

1.5 Design trails to be accessible and accommodate a variety of users.

GOAL 2: Create and maintain a high-quality trail system that promotes a sense of place and identity in Harlingen.

Objectives

2.1 Incorporate trail amenities and interpretive features to give the trails and the City of Harlingen an identity.

2.2 Develop a trail wayfinding system to promote the ease of using trails as a viable transportation option.

GOAL 3: Maintain a safe environment on the Harlingen Trail System.

Objectives

3.1 Create programs to educate and inform pedestrians, joggers, cyclists, and motorists about trail safety and routes.

3.2 Design trails with appropriate trail widths to safely accommodate various trail user types and concurrent use among the multiple user types.

GOAL 4: Develop tools to facilitate the development of trails and implementation of the Harlingen Trails Master Plan

Objectives

4.1 Coordinate among City entities (Planning, Public Works, Parks and Recreation) to maximize trail opportunities and funding dollars.

4.2 Coordinate with other City projects to ensure efficient implementation of the Harlingen Trail System and to provide a superior transportation system for all modes of transportation and all age groups.

4.3 Coordinate with other agencies to recognize and maximize feasible trail opportunities, including:
- *Harlingen Irrigation District Cameron County #1, along irrigation channels;*
- *RAILROAD, along railroad corridors; and*
- *Utility providers, along utility easements and corridors.*

4.4 Coordinate multi-jurisdictional efforts with TxDOT, Cameron County, Harlingen MPO, Harlingen Consolidated Independent School District, and adjacent cities to provide a regional comprehensive trail system.

4.5 Establish an incentive program for private development of trails and/or land dedication for the for the implementation of the Harlingen Trail System.

1 *Harlingen, City of. 2007. City of Harlingen Texas Harlingen 100 Objectives & Strategies. http://www.myharlingen.us/docs/24-Harlingen100.plan2_120407.pdf. p. 2*

GOAL 5: Develop funding sources on a continuous basis to supplement the City's resources for trail development.

Objectives

5.1 Identify annual funding sources.

5.2 Identify local, State, and Federal grant opportunities.

5.3 Identify trails as Harlingen Capital Improvement Projects to receive CIP funds.

5.4 Work closely with the Harlingen Consolidated Independent School District to coordinate projects and leverage funds to pursue grant funding from local, State, and Federal sources such as the Safe Routes to School Program.

5.5 Improve the park land dedication ordinance to acquire appropriate rights-of-way for trail development in Harlingen.

5.6 Develop a trail dedication ordinance to acquire appropriate rights-of-way land for effective trail development.

5.7 Establish a program where community groups such neighborhood associations, PTA groups, or business communities can help improve and maintain trails and associated open space areas.

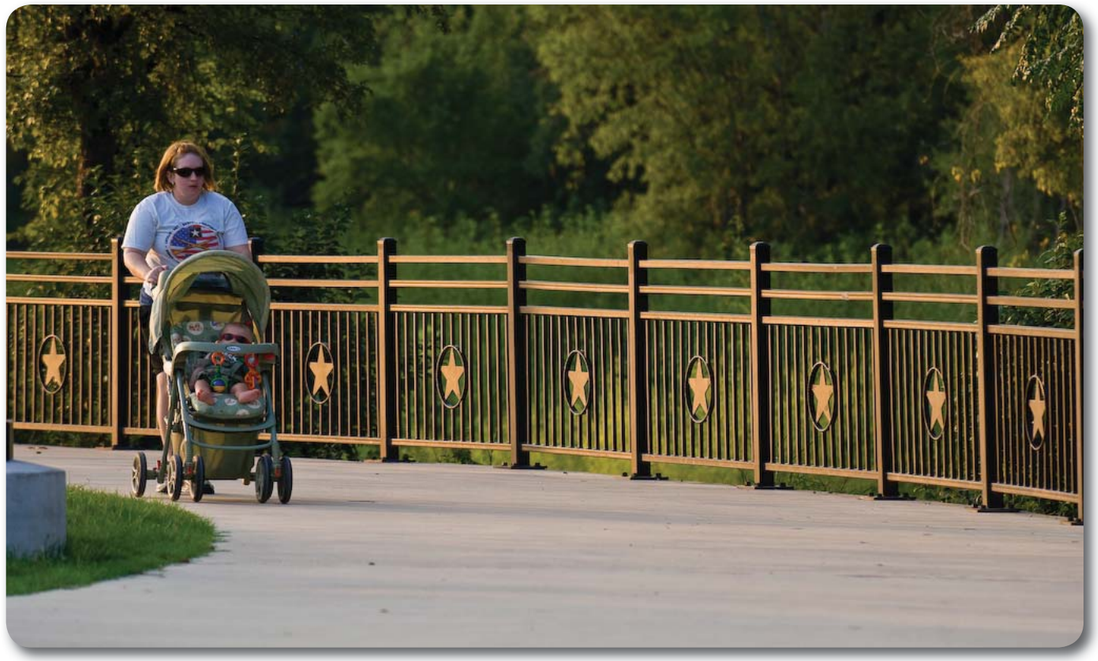
5.8 Encourage the establishment of "Adopt a Trail" or "Friends of the ... Trail" organizations to participate in the maintenance of sections of the Harlingen Trail System.

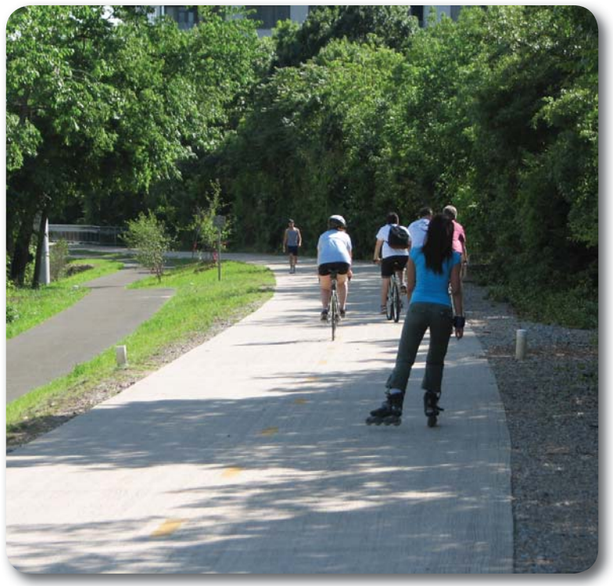
GOAL 6: Incorporate a citizen participation process in all trail planning and design.

Objectives

6.1 Provide multiple opportunities for citizen input in all phases of implementing the Harlingen Trail System, including planning, design, development, maintenance, and operation.

6.2 Utilize a variety of tools to elicit citizen input, including, but not limited to, surveys, user group meetings, public meetings, workshops, regular meetings of the Parks and Recreation Board, the Planning Commission, and City Commission.





Trail Opportunities

Four areas of opportunities for trail development were identified during the planning process: arroyo trails, irrigation trails, rail trails, and street trails. Each of these trails have inherent opportunities and constraints, as discussed below. The constraints do not render the trail impossible. Rather, constraints identify areas where extra attention or detail should be given to minimize the constraint. The map on the following page illustrates this network of trails based on these types.

Arroyo Trails

Arroyo trails are those trails along the Arroyo Colorado. This type of trail offers regional connectivity as there are few intersections with streets or other barriers that the trail will need to cross. Additionally, Arroyo Trails provide an opportunity to access the Arroyo and appreciate the natural amenity in Harlingen.

One constraint to arroyo trails is the terrain, which in some areas is very steep and may not accommodate a trail. Steep terrain will require crossing the arroyo to an area that can accommodate a trail.

Proximity to homes may also present a constraint as residents along the trail may feel an invasion of privacy. Efforts to illustrate the benefits of trail proximity may alleviate these concerns. Along the same lines, it is important to maintain a sense of security along these trails.

Finally, development limitations in the floodplain will hinder developing amenities such as benches and lighting along the arroyo trail.

Irrigation Channel Trails

Irrigation trails are those that follow the irrigation channels throughout Harlingen. Like Arroyo Trails, these trails offer more regional connectivity, but have more accessibility to the street network than the Arroyo Trails.

Safety along and maintenance of the irrigation channels are constraints of Irrigation Trails. While the irrigation channels in Harlingen can be considered an amenity, attracting people to these un-policed areas can present safety hazards. Moreover, bringing people to the irrigation channels also has the potential to bring pollution of the channels.

And like Arroyo Trails, the proximity of some of the irrigation channels to residences can lead to potential privacy invasion.

Coordination with the Harlingen Irrigation District Cameron County #1 is important to consider these constraints when identifying, planning, and designing Irrigation Trails.

Rail Trails

Rail trails are trails that follow the rail corridors. They are similar to Irrigation Trails in that they have the potential to offer regional connectivity, but offer even more access to the street network and destinations than Irrigation Trails.

Generally, the railroads don't allow trails on the rail right-of-way, but with careful planning and design, it has been done successfully throughout the country. The most significant challenges to implementing rail trails is safety. As with Irrigation Trails, there are potential safety risks when attracting trail users to rail corridors. A buffer or safety barrier should be placed between the trail and rail to discourage trespassing.

Moreover, the railroads in Harlingen are heavily integrated with the roadway network. While this presents an opportunity to connect to the more urban Street Trails network and destinations, the roadway intersections also present a safety constraint.

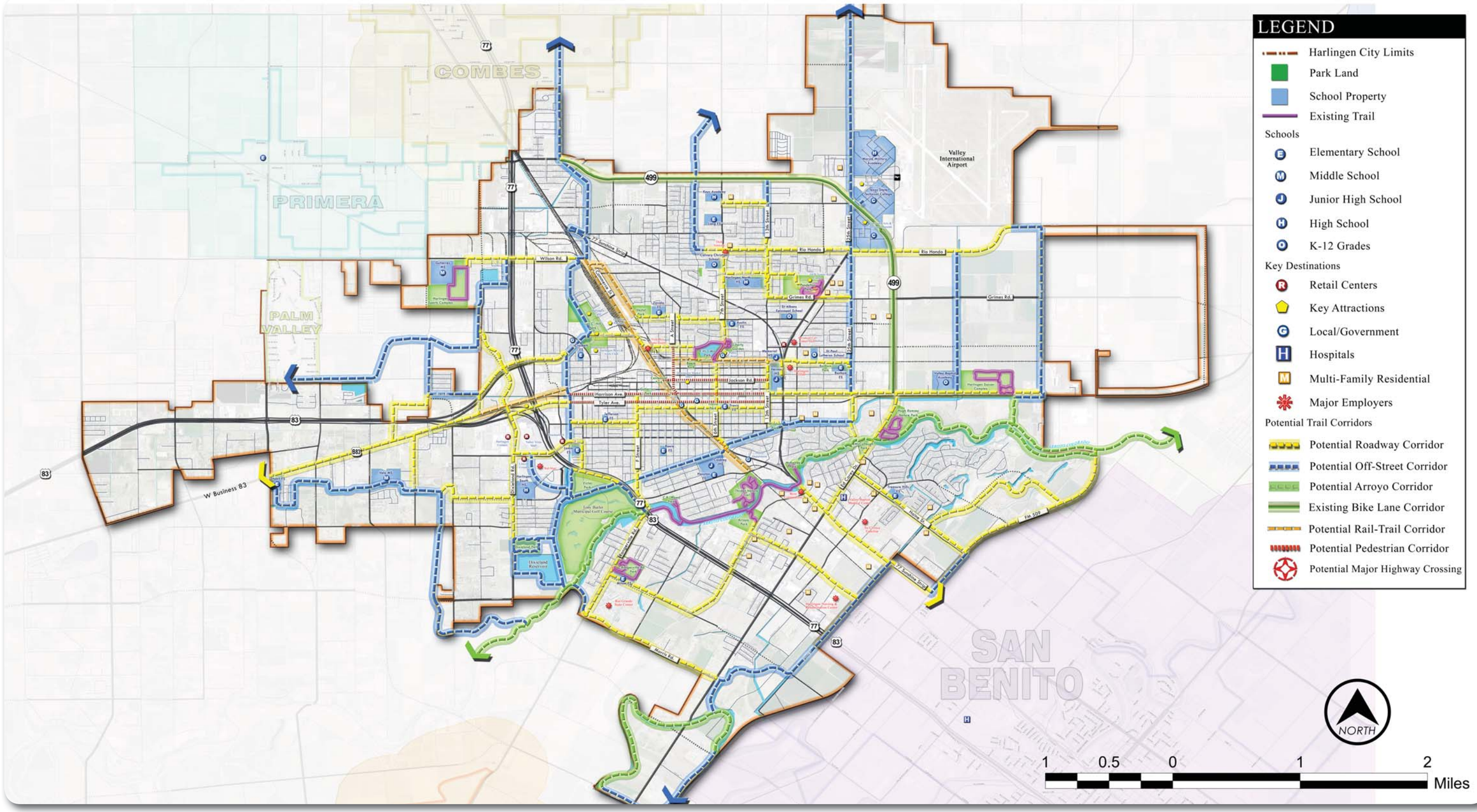
It is important that the City coordinate planning and design with the railroad to ensure safety along these trails.

Street Trails

Street trails are major trails that are along street corridors. These trails are more than just sidewalks. These trails offer significant connectivity opportunities, as they offer the most direct connection to destinations such as schools, major employers, shopping areas, and parks.

Possibly the most significant constraint to this type of trail is the safety issue when mixing pedestrian/bicycle and automobile travel. The multiple driveways and curb cuts that are along streets could hinder pedestrian/bicycle travel, in addition to the issue of the speed of traffic parallel to street trails. Attention to ensuring safety will be necessary, such as improved roadway crossings, signage along the roadway, and buffer areas between the automobile and pedestrian zones. Also, if bicycle facilities such as bicycle lanes, are incorporated into the street, design of this facility will need to ensure a safe environment for both the bicyclist and automobile.

Another constraint to this type of trail is the width of the pedestrian zone. Existing property lines will often limit the width in which this zone can be developed.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LEGEND
Harlingen City Limits
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Middle School
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K-12 Grades
Key Destinations
Retail Centers
Key Attractions
Local/Government
Hospitals
Multi-Family Residential
Major Employers
Potential Trail Corridors
Potential Roadway Corridor
Potential Off-Street Corridor
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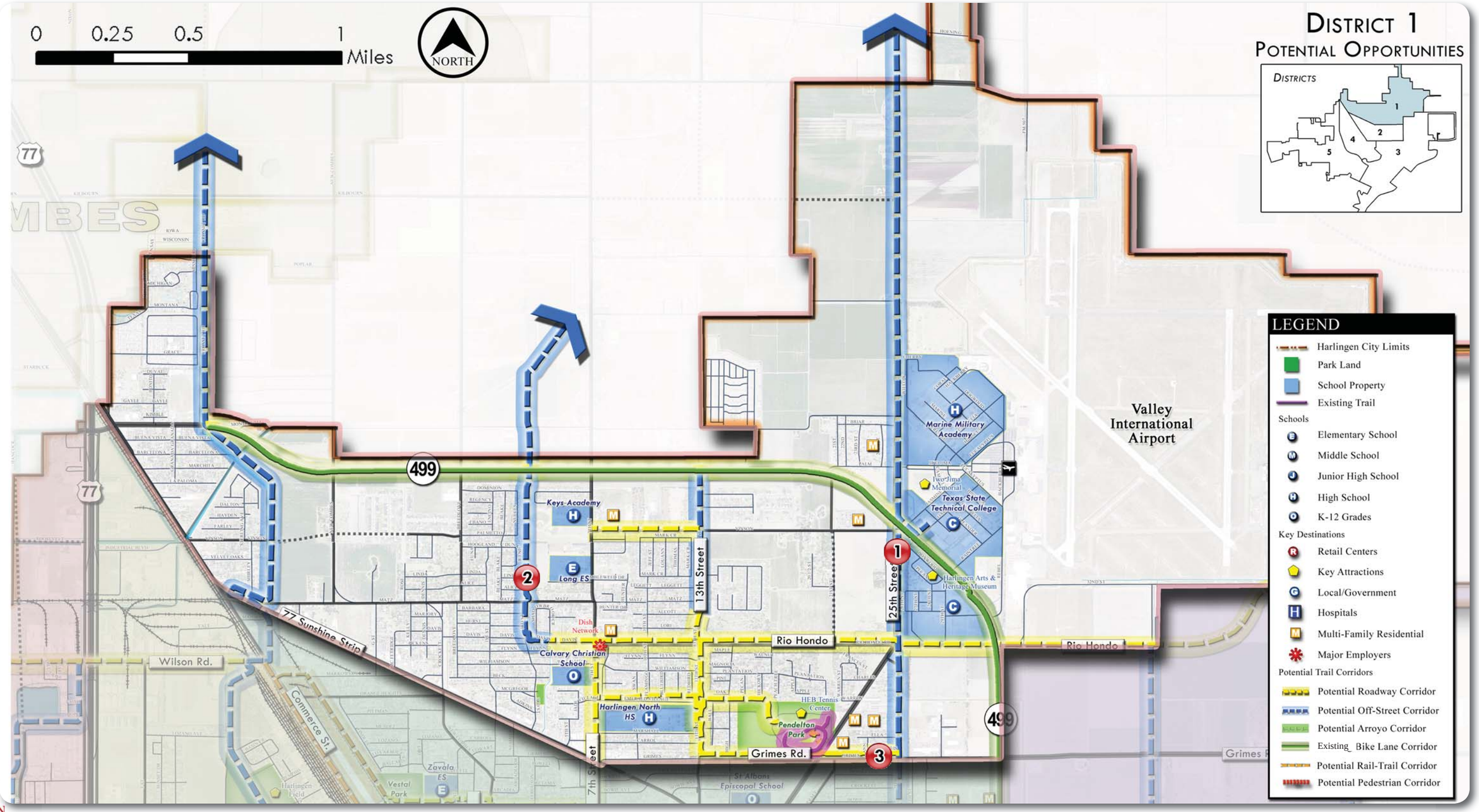
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Key Destinations
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7th Street
Keys Academy
Long ES
Dish Network
Calvary Christian School
Harlingen North HS
Zavala ES
Vestal Park
Harlingen Field
St Albans Episcopal School
Marine Military Academy
Two-Jima Memorial
Texas State Technical College
Harlingen Arts & Heritage Museum
HEB Tennis Center
Pendelton Park
Valley International Airport

District 1 Trail Opportunities

District 1 is located in the far north area of the city. It captures the northern residential areas, but is largely undeveloped. As discussed in Chapter 2, major destinations include the Marine Military Academy, Texas State Technical College, Valley International Airport, in addition to some schools, parks, and other cultural amenities.

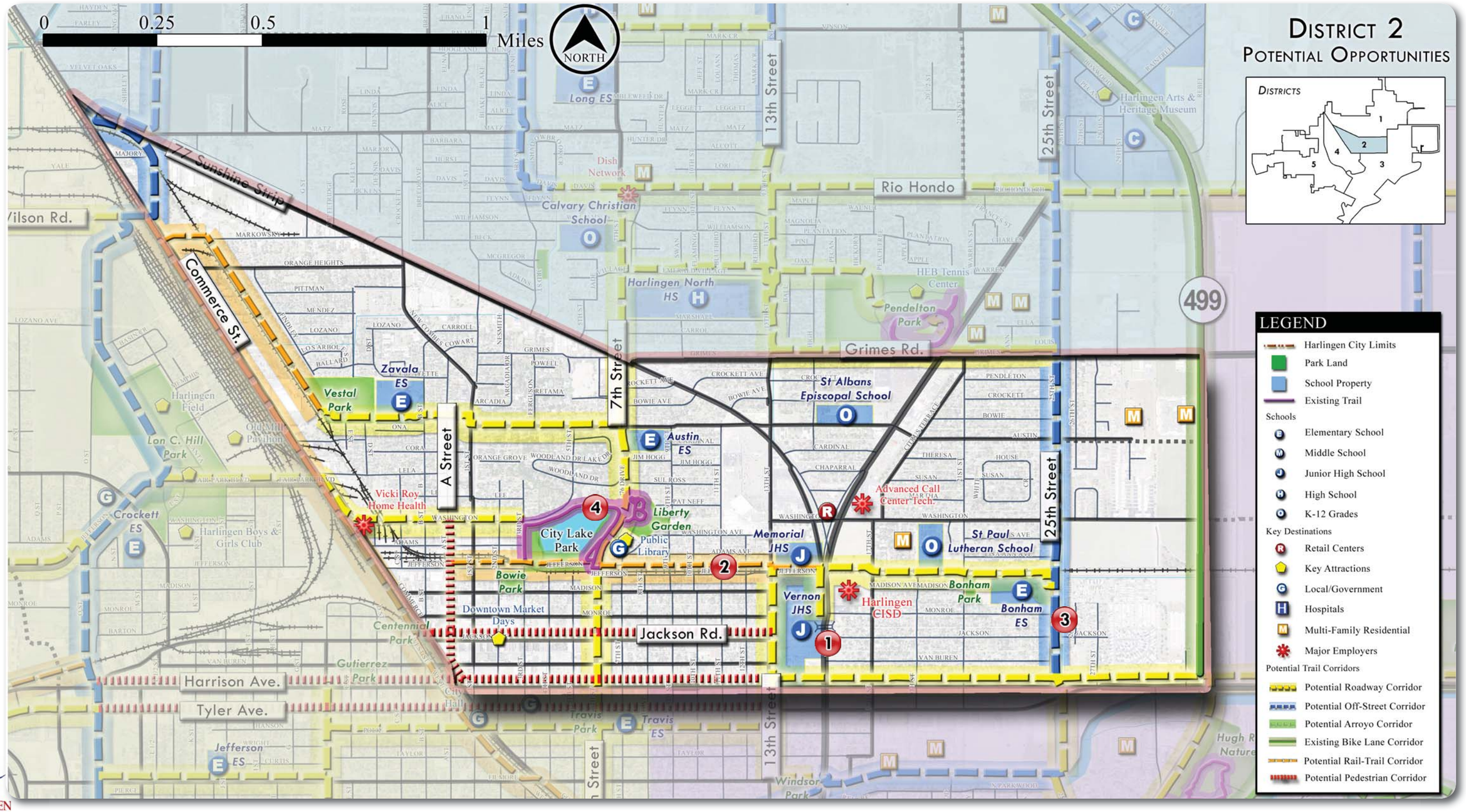
For the most part, the city is a north-south and east-west grid of interconnected streets and irrigation channels. Similarly, the proposed trail network is a gridded system of on- and off-street trails providing pedestrian and bicycle connectivity throughout the city.

Trail recommendations in this District include sidewalks along the major streets and along the irrigation channels. A significant portion of the 25th Street Corridor is located in District 1, which extends south into Districts 2 and 3. This corridor, which includes both on-street and irrigation trails, has the potential to provide significant and important north-south connectivity across the city.

25th Street

Power line & drainage corridor west of 7th Street, north of Matz

Grimes Road, west of 25th Street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Calvary Christian School
Harlingen North HS
HEB Tennis Center
Pendelton Park
Harlingen Arts & Heritage Museum
Zavala ES
Vestal Park
Harlingen Field
Lon C. Hill Park
Old Mill Pavilion
Crockett ES
Harlingen Boys & Girls Club
Vicki Roy Home Health
City Lake Park
Liberty Garden
Public Library
Bowie Park
Downtown Market Days
Centennial Park
Gutierrez Park
City Hall
Jefferson ES
Travis Park
Travis ES
Austin ES
St Albans Episcopal School
Advanced Call Center Tech.
Memorial JHS
St Paul Lutheran School
Vernon JHS
Harlingen CISD
Bonham Park
Bonham ES
Windsor Park
LEGEND
Harlingen City Limits
Park Land
School Property
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Elementary School
Middle School
Junior High School
High School
K-12 Grades
Key Destinations
Retail Centers
Key Attractions
Local/Government
Hospitals
Multi-Family Residential
Major Employers
Potential Trail Corridors
Potential Roadway Corridor
Potential Off-Street Corridor
Potential Arroyo Corridor
Existing Bike Lane Corridor
Potential Rail-Trail Corridor
Potential Pedestrian Corridor

District 2 Trail Opportunities

District 2 is centrally located and encompasses the traditional downtown area of Harlingen. The District includes the older, originally established parts of Harlingen and is close to build-out.

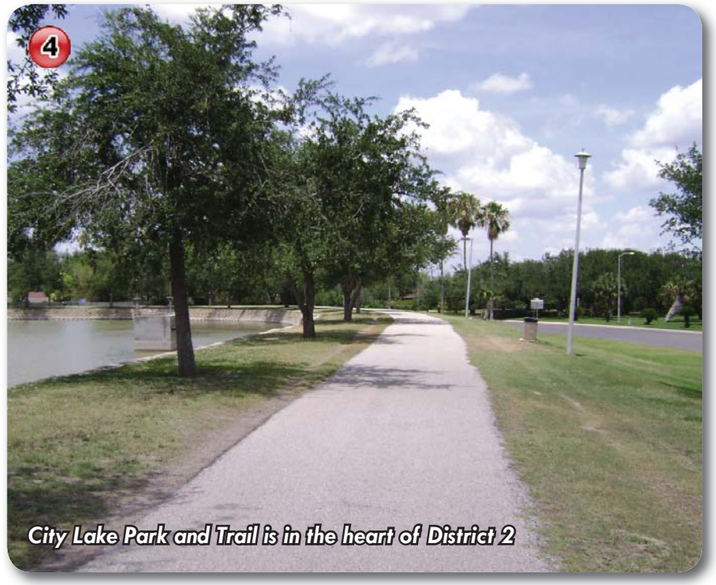
Proposed trails in this District primarily include on-street trails in the form of 8- to 10-foot sidewalks. These sidewalks connect the multiple destinations in the downtown and surrounding areas.

Additionally, a trail is proposed along the 25th Street irrigation channel in the eastern part of the district, which extents into Districts 1 and 3 (as an on street trail). The 25th Street corridor, including both on-street and irrigation trails, has the potential to provide significant and important north-south connectivity across the city.

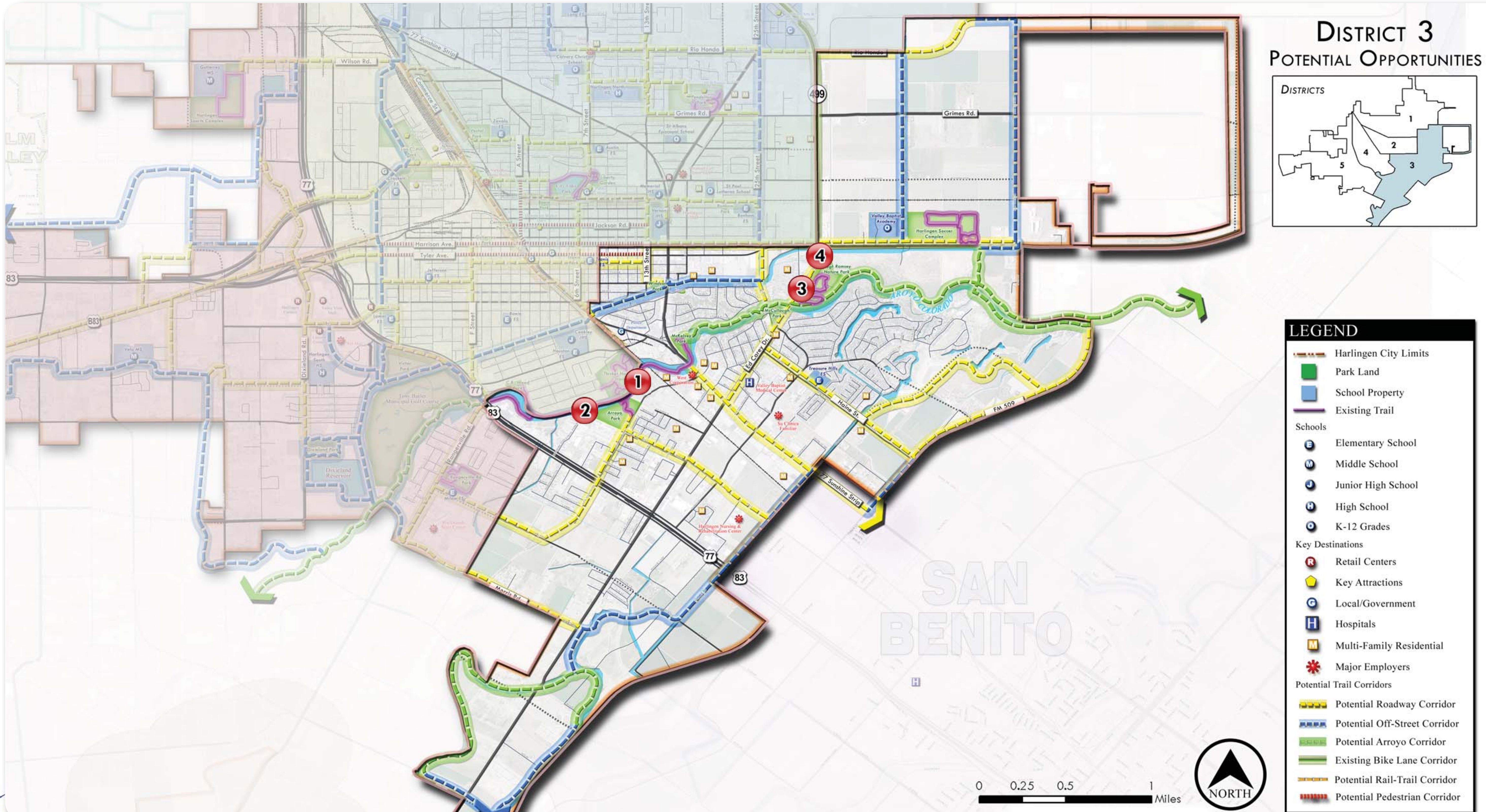
An existing pedestrian bridge crosses 77 Sunshine Strip, providing access to Vernon Junior High School.

Rails-with-Trails along railroad corridors

The 25th Street corridor and irrigation channel extend into three Districts



City Lake Park and Trail is in the heart of District 2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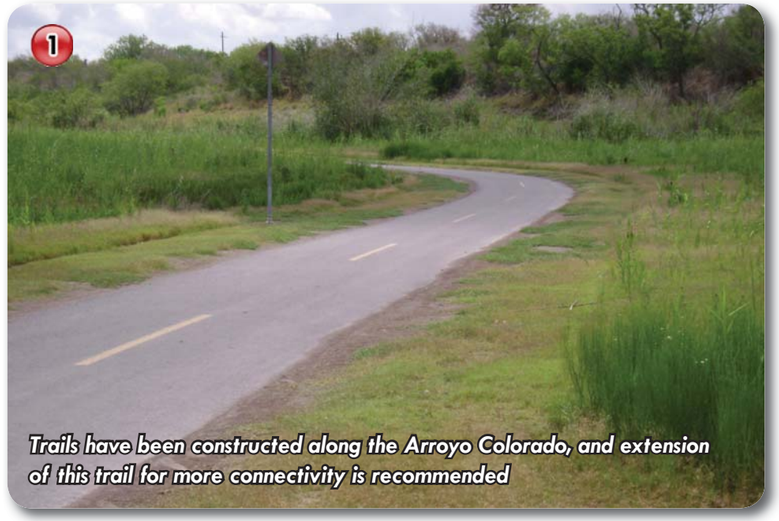
District 3 Trail Opportunities

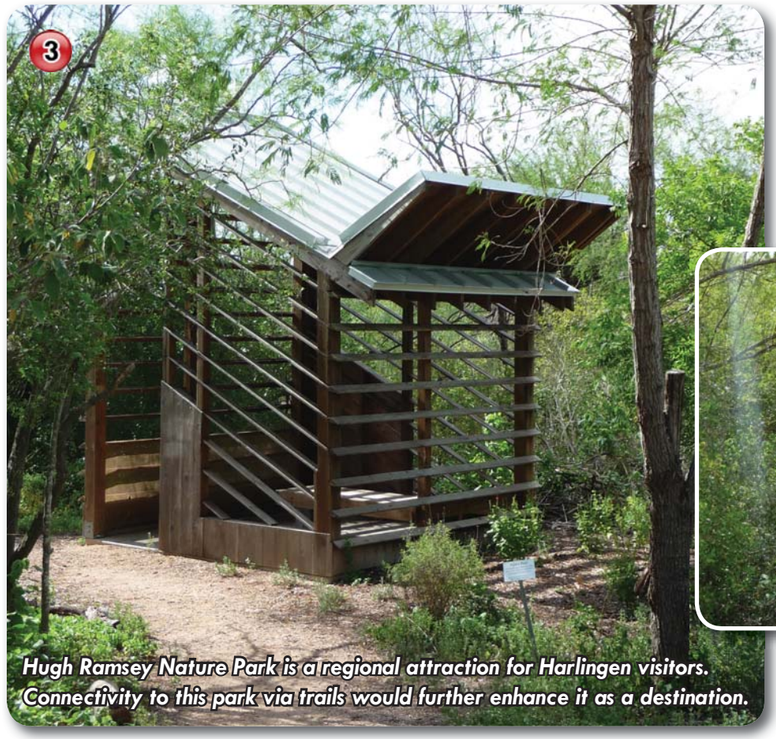
District 3 includes the south and eastern portions of Harlingen. While portions in the northeastern part - toward central Harlingen - are generally built-out, there is a significant undeveloped land in the far south and eastern areas.

In this District is the eastern reach of the Arroyo Colorado, which presents the opportunity for a strong east-west connector for pedestrians and bicyclists across the city. The Arroyo Colorado provides passage through major barriers such as US 77/US 83 and the railroad. Not only would this corridor connect to several parks and other trails, linking north-south street and irrigation corridors to the Arroyo Colorado corridor will provide excellent citywide connectivity via trails.

Other trail opportunities in District 3 include on-street trails along street corridors that provide connectivity among destinations and neighborhoods.

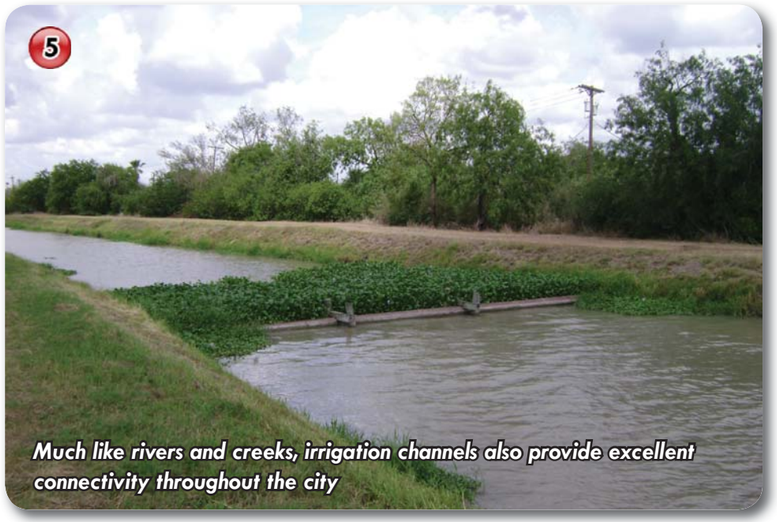


Trails have been constructed along the Arroyo Colorado, and extension of this trail for more connectivity is recommended

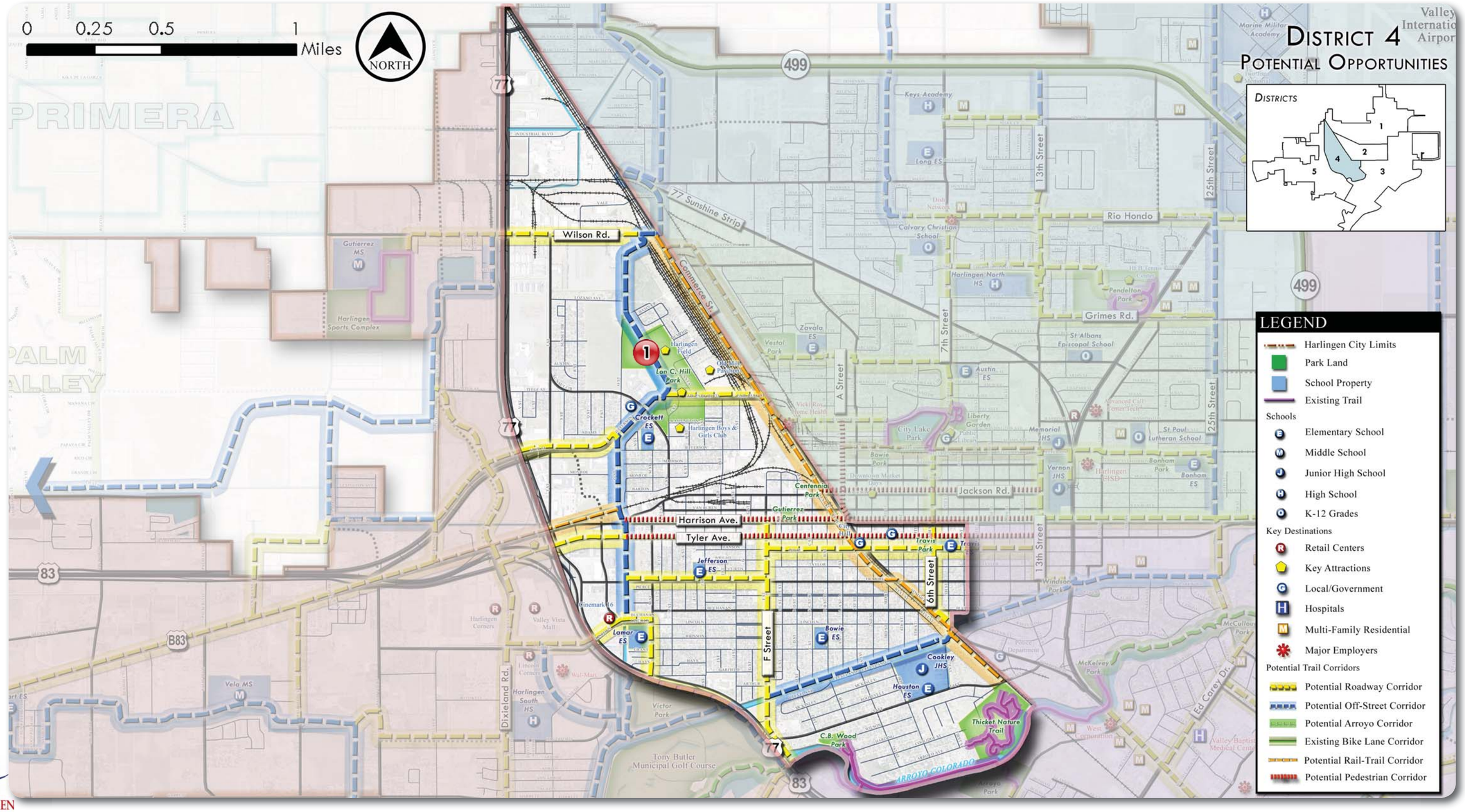


Hugh Ramsey Nature Park is a regional attraction for Harlingen visitors. Connectivity to this park via trails would further enhance it as a destination.

Ed Carey Drive



Much like rivers and creeks, irrigation channels also provide excellent connectivity throughout the city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F Street
Dixieland Rd.
Ed Carey Dr.
Lon C. Hill Park
Harlingen Field
Old Mill Pavilion
Harlingen Boys & Girls Club
Centennial Park
Gutierrez Park
Travis Park
Pendleton Park
City Lake Park
Bowie Park
Bonham Park
Windsor Park
McKelvey Park
McCullough Park
Thicket Nature Trail
C.B. Wood Park
Victor Park
Tony Butler Municipal Golf Course
ARROYO COLORADO
Gutierrez MS
Harlingen Sports Complex
Vela MS
Crockett ES
Jefferson ES
Lamar ES
Bowie ES
Houston ES
Zavala ES
Austin ES
Long ES
Bonham ES
Cookley JHS
Memorial JHS
Vernon JHS
Harlingen North HS
Harlingen South HS
Harlingen CISD
Keys Academy
Marine Military Academy
Calvary Christian School
St Albans Episcopal School
St Paul Lutheran School
Valley International Airport
Cinemark 16
Valley Vista Mall
Harlingen Corners
Lincoln Corners
Wal-Mart
Police Department
West Corporation
Valley Baptist Medical Center
77
83
B83
499

District 4 Trail Opportunities

District 4 is centrally located, to the west of District 2. Like District 2, it is mostly built out, with few undeveloped areas.

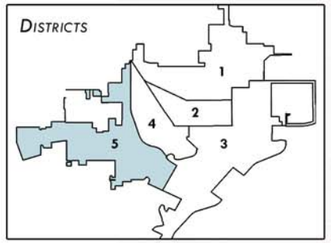
Trail recommendations in this District include on-street facilities in the downtown area, extend from the east. This would include long urban corridors along Harrison Avenue and Taylor Avenue that extend into the Historic Downtown. These corridors provide a pleasing pedestrian environment where visitors could easily and safely shop in stores along this corridor.

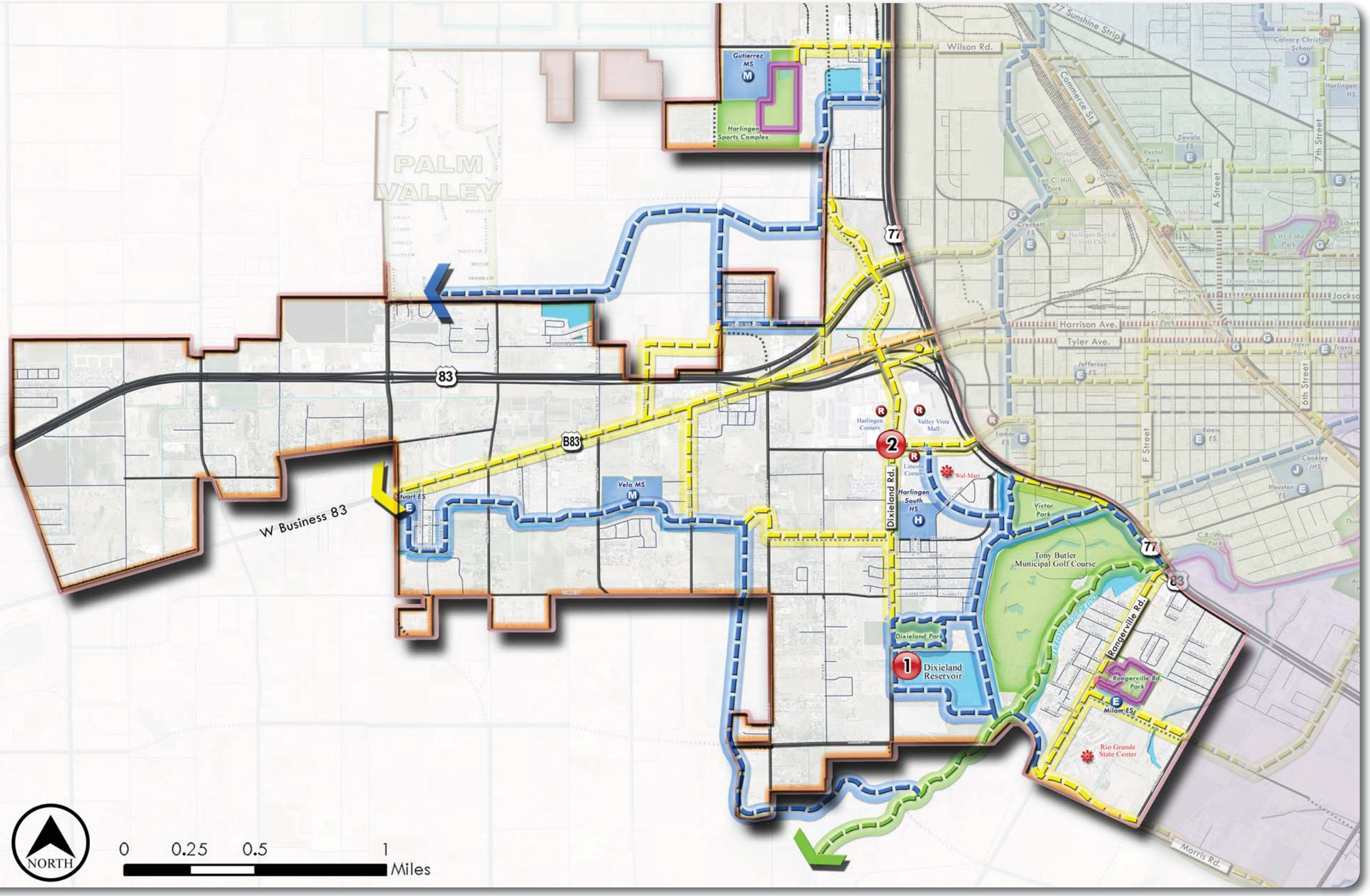
It is recommended that other major streets that serve as connectors to other parts of the city have wide sidewalks to accommodate pedestrian and bicycle connectivity, such as along Wilson Road.

Additionally, an irrigation channel bisects the sector and extends into Districts 1 and 5. The proposed trail along this irrigation channel could connect destinations in these three districts, including several parks and cultural amenities and extend toward the Arroyo Colorado trail where other trail connections could be made in District 5.

An irrigation channel bisects District 4, connecting Lon C. Hill Park, Harlingen Field, downtown, and Crockett and Lamar elementary schools.

District 5
Potential Opportunities





District 5 Trail Opportunities

District 5 encompasses the western part of Harlingen. Most of the growth in Harlingen is toward this direction, but much of the area is still undeveloped. The prime concern for this area is connecting the outlying neighborhoods to the various school and park destinations and into the central city.

A wide sidewalk would be recommended along Business US 83 to connect into the central area. An irrigation channel also connects to the Arroyo Colorado, an opportunity to connect a future westward expansion of the Arroyo Colorado to areas further west in this District.

Dixieland Road is a strong north-south corridor that bypasses US 83 and could connect the two areas otherwise divided by this barrier.

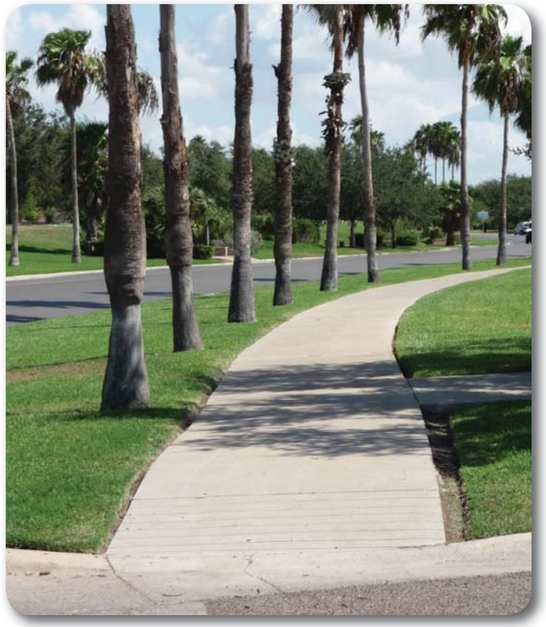
Dixieland Park and Reservoir

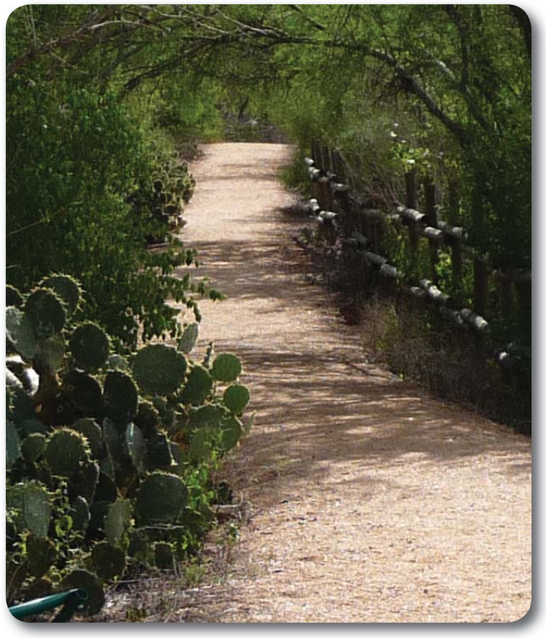
Extending sidewalks along Dixieland Road will provide connectivity to major shopping areas at Dixieland Road and W Lincoln Street

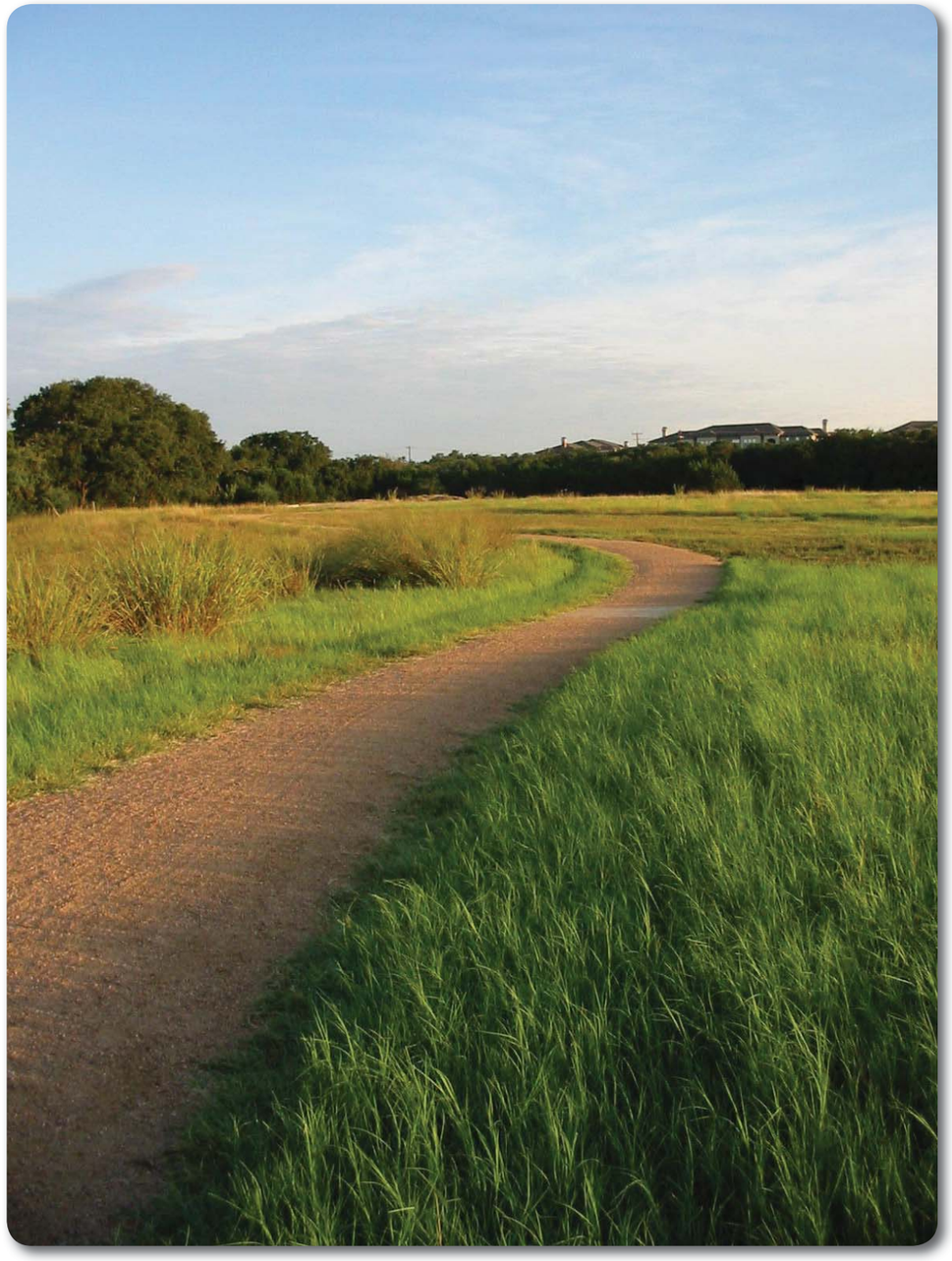
Chapter 6

IMPLEMENTATION PLAN

CITY OF HARLINGEN TEXAS







Key Trail Corridor Recommendations

As shown in the previous chapter, there are many opportunities for trails in Harlingen. Over the next two to three decades, it is anticipated that many of those opportunities can actually be converted into trails. However, the City's efforts should be focused on those corridors that provide the most significant beneficial impact, and that truly begin to create a major citywide network.

In effect, the City's efforts should be focused on creating the "spine" network first. This chapter presents a citywide network of trails, representing the most important trails to be built using prioritization criteria developed for Harlingen. Cost projections were prepared for each of the recommended trail corridors, allowing for the preparation of an action plan for trail implementation.

These corridors were selected to meet the goals established by the planning effort, and to reflect citizen comments and desires received during the extensive public input process. Those goals included:

- Linking all parts of the City
- Providing a variety of trail types
- Being compatible with adjacent private properties
- Creating multiple neighborhood access points
- Including interpretive facilities
- Considering trails as both transportation and recreation uses
- Creating aesthetically pleasing trail corridors that enhance Harlingen

The high priority proposed trails system network is shown the following pages.

Evaluation of Priority Trail Opportunities

Opportunities for pedestrian and bicycle facilities are abundant in Harlingen. The City has initiated excellent trails in City Parks, and other opportunities exist along irrigation canals, street right-of-ways, rail corridors, and the Arroyo Colorado and other natural corridors.

Corridors in the five planning sectors were evaluated using compatibility and accessibility criteria. These criteria are based on:

Citizen Input

Neighborhood desires for trails or concerns over specific trail corridors were considered as a key component of the evaluation.

Relationship to Residences

Many of the preferred corridors are along easements adjacent to residential back yards. Preference was given to corridors that allowed greater separation from fences and where the trail would be level with backyards to maintain the existing degree of privacy.

Connectivity to Destinations

Potential corridors were evaluated as to their potential to connect to schools, area parks, employers, retail or civic uses, and to other trails.

Corridor Availability

Most of the corridors are controlled by either city, state, or flood control district entities, ensuring that acquisition or permission to use the corridor was at least possible. Corridors owned privately may require trail dedication when the land is developed, or acquisition, and corridors with multiple owners may make trail development more difficult.

Scenic Qualities

Scenic qualities may improve the feasibility of a trail being used as they become an attraction to the trail and give a trail a sense of destination. Therefore, scenic features were considered as one of the evaluating criteria.

Potential Use

Actual current use of a corridor, even without any facilities in place, was considered as a factor determining whether to consider a corridor or not.

Privacy of residences should be preserved

Signs of use is the first indication that improvements are needed

Trails that provide connectivity to existing destinations

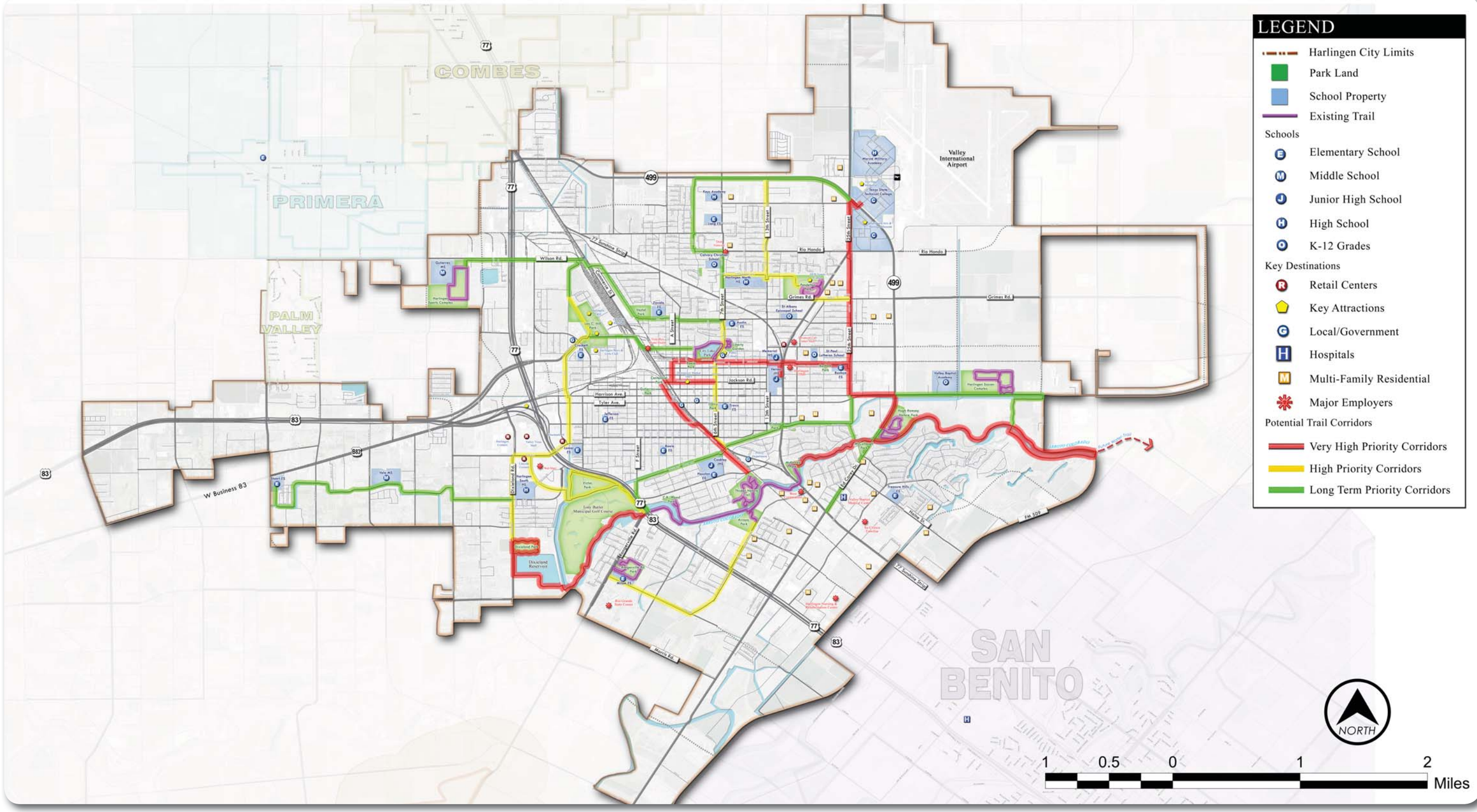
The scenic environment around a trail should be highlighted

The availability of space for a trail or sidewalk will determine its feasibility

All opportunities were evaluated based on these criteria. This evaluation also identified priority corridors, which are then established as very high priority, high priority, or long-term priority. The map on the following page illustrates these priority corridors in Harlingen, and discussion of these corridors is included on the following pages.

Table 6.1
High Priority Trails

Priority	Name	From-To	Council District	Length (mi)	Corridor Type	Responsible Party/ Potential Partners	Recommended Trail Width (ft)	Potential Cost	Timeframe
Very High	Arroyo-West	Dixieland Reservoir to Existing Trail head at Highway 77	5	1.3	Arroyo Scenic Corridor	City of Harlingen	10-12 feet	$620,000-$1,000,000	2010-2015
	Arroyo-Central	McKelvey Park to McCullough Park	3	0.9	Arroyo Scenic Corridor	City of Harlingen	10-12 feet	$430,000-$710,000	2010-2025
	Arroyo-East	Hugh Ramsey Nature Park to City Limit	3	3.6	Arroyo Scenic Corridor	City of Harlingen	10-12 feet	$1,700,000-$2,900,000	2010-2020
	25th Street-North	TSTC Campus to Grimes Road	1	1.2	Along Street/Irrigation Channel	City of Harlingen / Irrigation District	10-12 feet	$570,000-$950,000	2010-2012
	25th Street-South	Grimes Road to Hugh Ramsey Nature Park	2, 3	1.8	Along Street/Irrigation Channel	City of Harlingen / Irrigation District	10-12 feet	$860,000-$1,400,000	2010-2012
	City Park-West	City Lake Park to Jackson St	2	0.6	Along Street/Rail-Trail	City of Harlingen / Union Pacific	10-12 feet	$290,000-$480,000	2010-2020
	City Park-Central	Vernon Junior High to City Lake Park	2	0.6	Rail-Trail	City of Harlingen / Union Pacific	10-12 feet	$290,000-$480,000	2010-2020
	City Park-East	Bonham Elementary to Vernon Junior High	2	0.85	Drainage Corridor	City of Harlingen	10-12 feet	$400,000-$670,000	2010-2012
	Centennial/Thicket Rail-Trail-North	Centennial Park to Coakley Junior High	4	0.95	Along Street/Rail Trail	City of Harlingen / Union Pacific	10-12 feet	$450,000-$750,000	2010-2025
	Centennial/Thicket Rail-Trail-South	Coakley Junior High to Thicket Nature Park	4	0.3	Along Private Undeveloped Parcel	City of Harlingen / Property Owner, Developer	10-12 feet	$140,000-$240,000	2010-2025
	Jackson Street Urban Pedestrian Corridor	Centennial Park to 6th Street	2	0.5	Along Street	City of Harlingen	6-12 feet (as appropriate)	$240,000-$400,000	2010-2025
	Dixieland Park/Reservoir	Arroyo Colorado to Dixieland Park	5	1.5	Within Park/Along Reservoir	City of Harlingen	10-12 feet	$710,000-$1,200,000	2010-2020
High	6th Street Corridor	Coakley Junior HS to City Lake Park	2,4	1	Along Street	City of Harlingen	6-10 feet	$480,000-$790,000	2020-2035
	76' Drive	City Lake Park to 77 Sunshine Strip	2	0.65	Along Street	City of Harlingen	6-10 feet	$310,000-$510,000	2015-2025
	13th Street	Loop 499 to Harlingen North HS	1	1.0	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	6-10 feet	$480,000-$790,000	2015-2025
	Pendleton Park Corridor	7th Street to 25th Street	1	1.25	Along Street/School Property	City of Harlingen/HISD	8-12 feet	$590,000-$990,000	2015-2025
	Arroyo Park Corridor	US Highway 77 to Arroyo Park	3	0.5	Along Street	City of Harlingen	6-10 feet	$240,000-$400,000	2020-2035
	Rangerville Corridor	Rangerville Park to US Highway 77	3,5	1.5	Along Street	City of Harlingen	6-10 feet	$710,000-$1,200,000	2015-2030
	Valley Vista Mall Corridor	Valley Vista Mall to Victor Park	5	1.2	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$570,000-$950,000	2015-2025
	Victor Park Corridor	Victor Park to Arroyo Colorado	5	1.7	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$810,000-$1,300,000	2015-2025
	Dixieland Road	Lincoln Rd. to Dixieland Park	5	0.9	Along Street	City of Harlingen	6-10 feet	$430,000-$710,000	2015-2025
	Lon C. Hill Irrigation Corridor	Lon C. Hill Park to Lamar Elementary School	4	1.7	Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$810,000-$1,300,000	2020-2035
Long Term	Stuart/Vela Corridor	Dixieland Rd. to Stuart Elementary School	5	3	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$1,400,000-$2,400,000	Future Trail
	Harlingen Sports Complex (NW)	Harlingen Sports Complex to Lon C. Hill Park	4,5	1.6	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$760,000-$1,300,000	Future Trail
	Central Irrigation-West	Coakley Junior HS to Arroyo Colorado	4	1.3	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$620,000-$1,000,000	Future Trail
	Central Irrigation-East	Coakley Junior HS to 25th Street	3	1.3	Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$620,000-$1,000,000	Future Trail
	25th Street/McCullough Park	Harrison Ave. to Arroyo Colorado	3	0.5	Irrigation Channel	City of Harlingen/Irrigation District	10-12 feet	$240,000-$400,000	Future Trail
	7th Street	77 Sunshine Strip to Rio Hondo Rd.	1	0.5	Along Street	City of Harlingen	6-10 feet	$240,000-$400,000	Future Trail
	North Central Irrigation	Loop 499 to 7th Street	1	1.1	Along Street/Irrigation Channel	City of Harlingen/Irrigation District	6-10 feet	$520,000-$870,000	Future Trail
	Loop 499	Keys Academy to 25th Street	1	1.5	Along Street	City of Harlingen	10-12 feet	$710,000-$1,200,000	Future Trail
	FM 106/Harlingen Soccer Complex	Loop 499 to Harlingen Soccer to Arroyo Colorado	3	2	Along Street	City of Harlingen	10-12 feet	$950,000-$1,600,000	Future Trail
	Lon C. Hill/City Lake Park	Lon C. Hill Park to City Lake Park	2,4	1.1	Along Street	City of Harlingen	6-10 feet	$520,000-$870,000	Future Trail
	Vestal Park Corridor	City Lake Park to Vestal Park	2	0.9	Along Street	City of Harlingen	6-10 feet	$430,000-$710,000	Future Trail
	Commerce Rail-trail	Vestal Park to Wilson Rd.	2	0.9	Along Street/Rail-Trail	City of Harlingen/Union Pacific	10-12 feet	$430,000-$710,000	Future Trail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Major Employers
Potential Trail Corridors
Very High Priority Corridors
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Arroyo Colorado Corridor

Portions of the Arroyo Colorado Trail have already been constructed between US 83/US 77 and Hugh Ramsey Nature Park. The existing 2+ mile trail is the beginnings of what could be a strong citywide trail, connecting the east side of the city to the west side via this natural corridor. The Arroyo Colorado Corridor is expected to be completed in three phases: extension to the west of US 83/US 77 to Dixieland Park; completion of the central section to Ed Carey Dr.; and extension to the east of Ed Carey Dr. to the city limit.

Generally, constraints along this natural corridor are typical of most natural corridors. Topography or slopes have a strong impact on the feasibility of a trail being constructed. If the terrain is too steep, then a trail would only worsen erosion and compromise bank stabilization along the Arroyo Colorado.

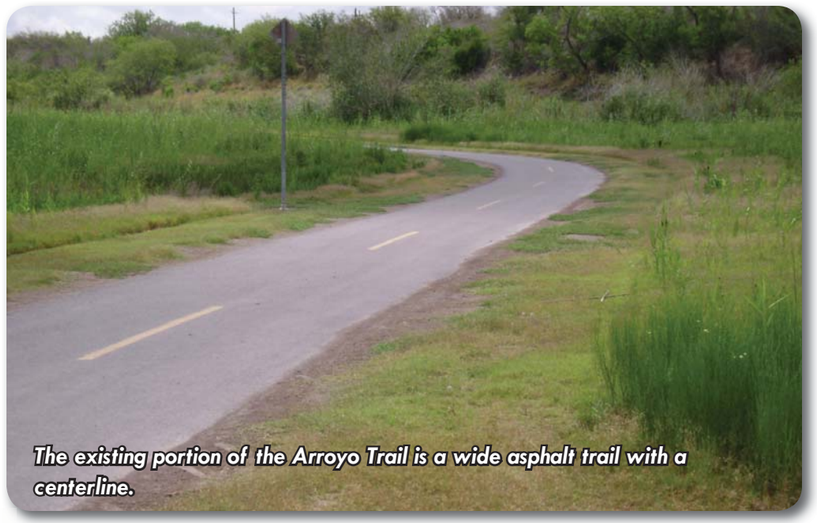
The western extension of the trail would provide connectivity across US 83/US 77, a major barrier to pedestrian and bicycle mobility in Harlingen. In addition to providing access to the Arroyo Colorado trail by residential areas on this side of the freeway, the trail would connect to the Tony Butler Golf Course, Dixieland Park, and future developments in the southwestern areas of the city.

The unbuilt central section of this corridor has many constraint that would possibly impede or preclude its development. Banks along this part of the arroyo are steep, and residential development has occurred close to the creek, leaving little room for trail development. The limited space would push the trail closer to residential homes that are adjacent to the creek, potentially compromising residents' privacy along this stretch of the corridor. If pursued, it is necessary that the City work closely with the adjacent and nearby property owners to find common ground and a solution to promote connectivity.

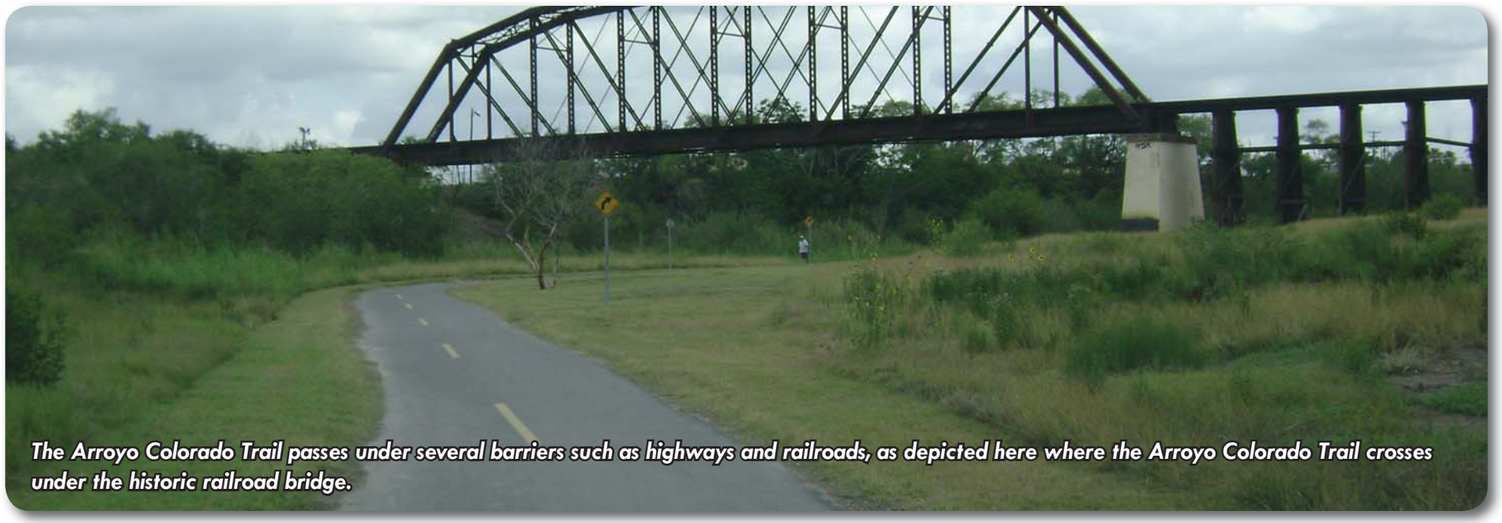
Finally, the eastern extension of the Arroyo Colorado corridor would connect to the Hugh Ramsey Nature Area, existing residential areas to the south of the Arroyo Colorado, and currently undeveloped properties of the far east areas of the city.

In its ability to bypass major barriers such as major roads, and its extensive reach from west to east, the Arroyo Colorado may be the strongest regional corridor across the city, providing connectivity to existing destinations, existing residential neighborhoods, and future developable areas.

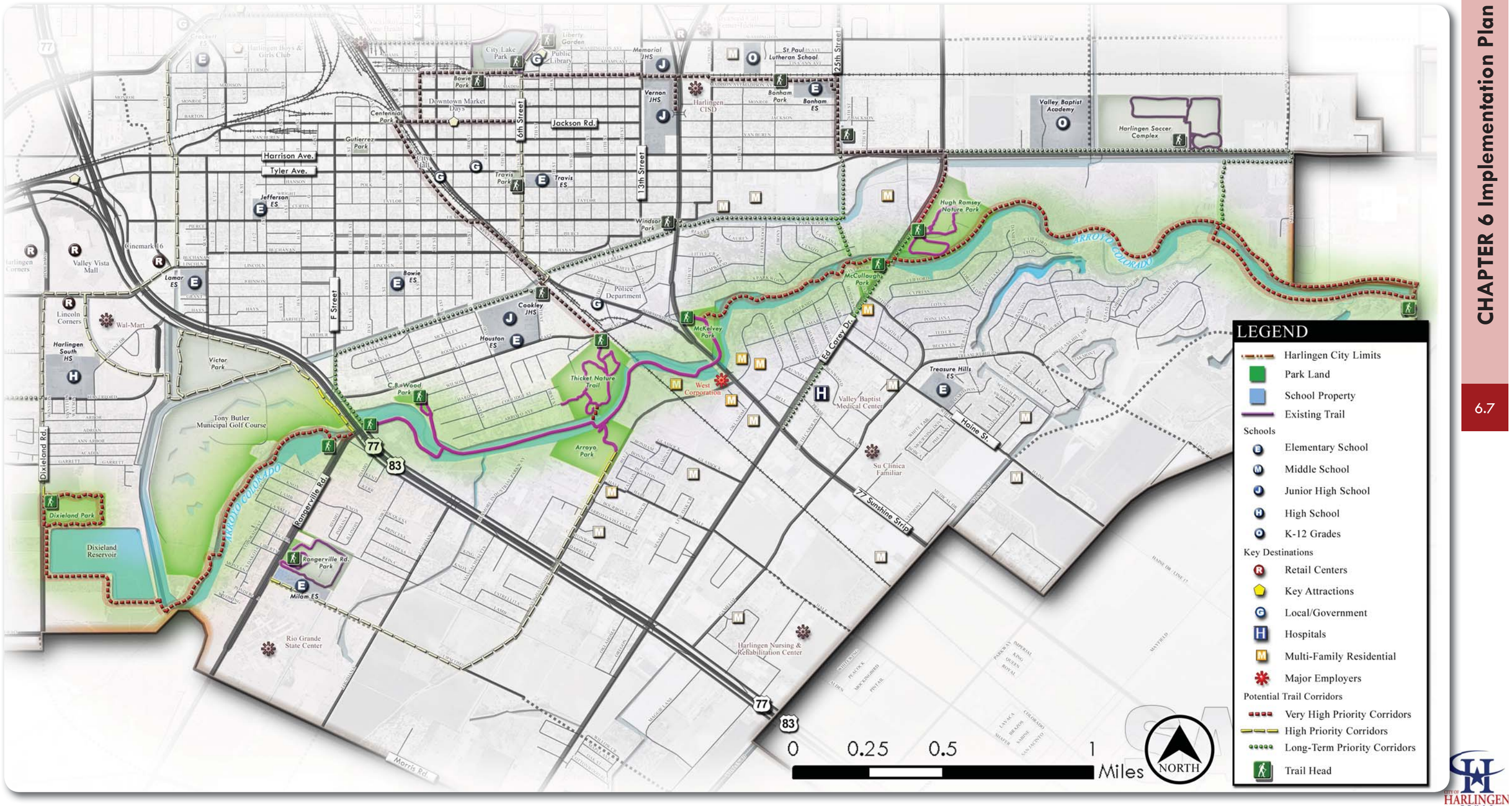
Access to scenic amenities in Harlingen enhance the city as a destination.



The existing portion of the Arroyo Trail is a wide asphalt trail with a centerline.



The Arroyo Colorado Trail passes under several barriers such as highways and railroads, as depicted here where the Arroyo Colorado Trail crosses under the historic railroad bridge.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Valley Vista Mall
Wal-Mart
Tony Butler Municipal Golf Course
Dixieland Park
Dixieland Reservoir
Rangerville Rd. Park
Rio Grande State Center
Harlingen Nursing & Rehabilitation Center
Su Clinica Familiar
Valley Baptist Medical Center
Harlingen Soccer Complex
Hugh Ramsey Nature Park
Thicket Nature Trail
Arroyo Park
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Harlingen Boys & Girls Club
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Liberty Garden
Harlingen Corners
Lincoln Corners
Harlingen South HS
Valley Baptist Academy
St Paul Lutheran School
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City Hall
Travis Park
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25th Street Corridor

The 25th Street Corridor is located in the eastern portion of the city, extending from Loop 499 near Texas State Technical College to Harrison Avenue/FM 106, and then jogging to Ed Carey Drive to head south to Hugh Ramsey Nature Park.

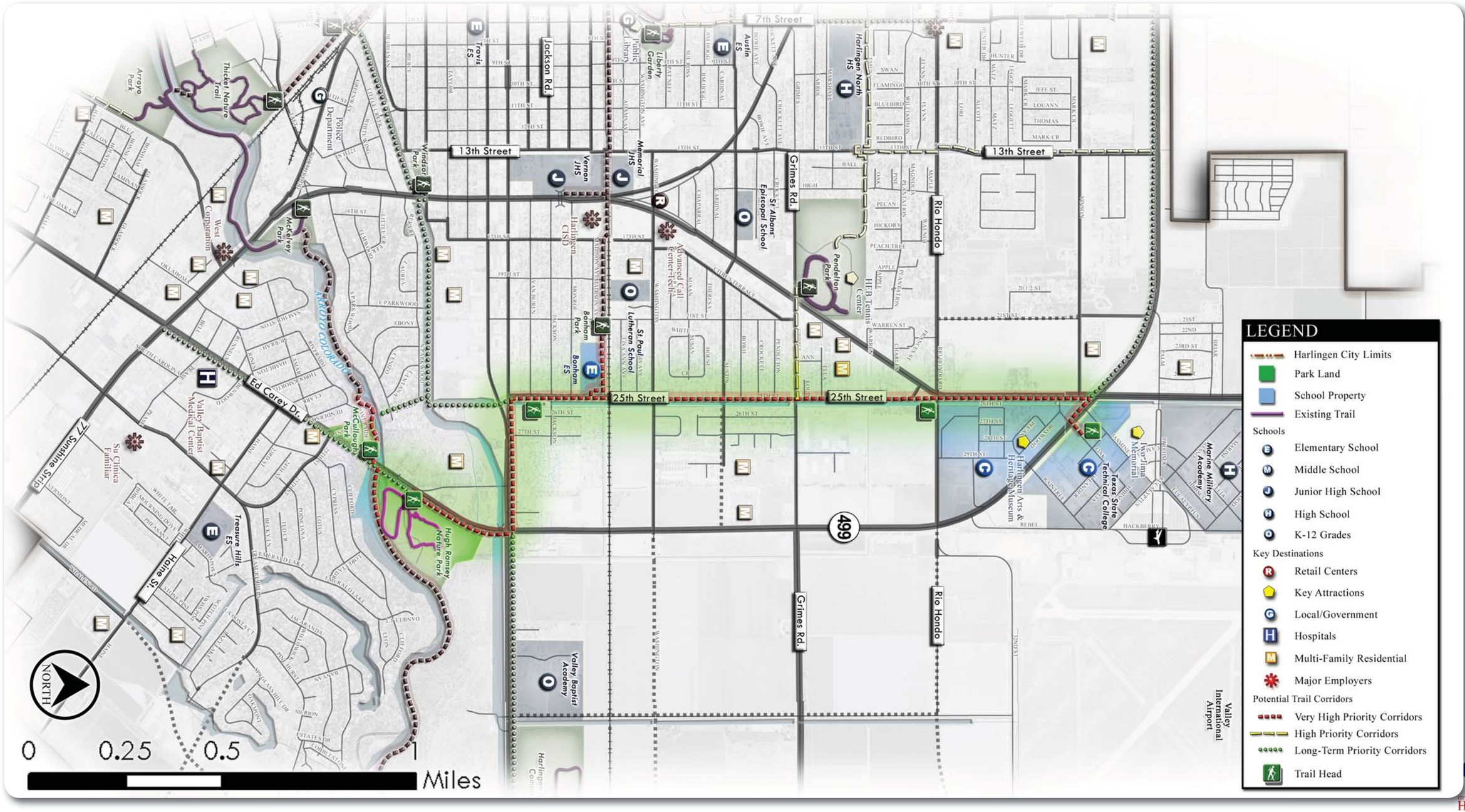
Approximately 3 miles long, the corridor connects to three major destinations: Texas State Technical College, Bonham Elementary, and Hugh Ramsey Nature Park. In addition to direct connection to these places, the corridor is accessible to several residential areas including multi-family complexes, is proximate to the Marine Military Academy and St. Paul Lutheran School, and will provide connectivity to the Arroyo Colorado trail. Not only are pedestrian and bicycle facilities needed along this heavily travelled roadway, but the corridor would provide excellent north-south mobility and connectivity for walking and bicycle travel.

The corridor is primarily along streets, but the irrigation channel comes close to the roadway for part of the corridor. Therefore, working with the irrigation district will be necessary to implement this corridor.

A potential trail along Harrison St / FM 106, between 25th Street and Loop 499.

Potential trail location along 25th Street and an irrigation channel, just north of Rio Hondo Road.

A sidewalk along Loop 499/Ed Carey Drive would provide connectivity to Hugh Ramsey Nature Park.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St. Albans' Episcopal School
Bonham Park
Bonham ES
St. Paul Lutheran School
Harlingen North HS
Pendleton Park
HEB Tennis Center
Valley Baptist Academy
Harlingen Arts & Heritage Museum
Iwo Jima Memorial
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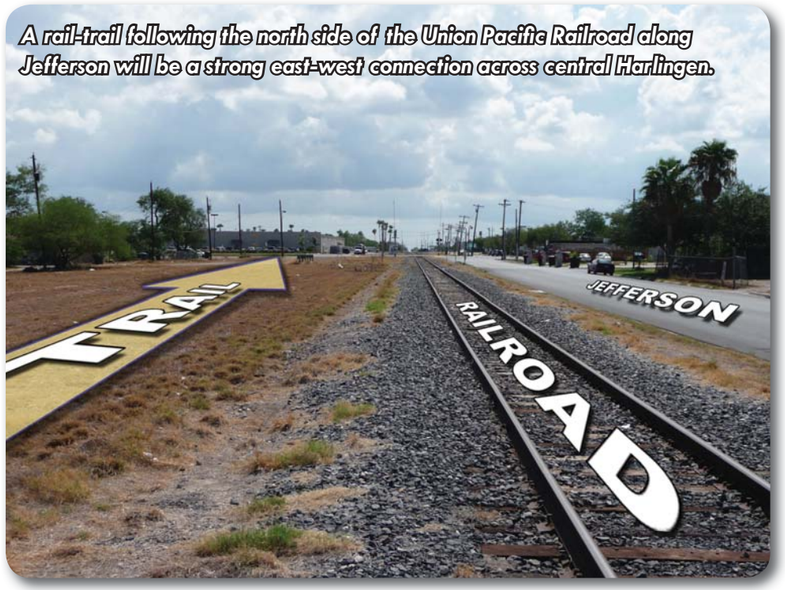
Long-Term Priority Corridors
Trail Head

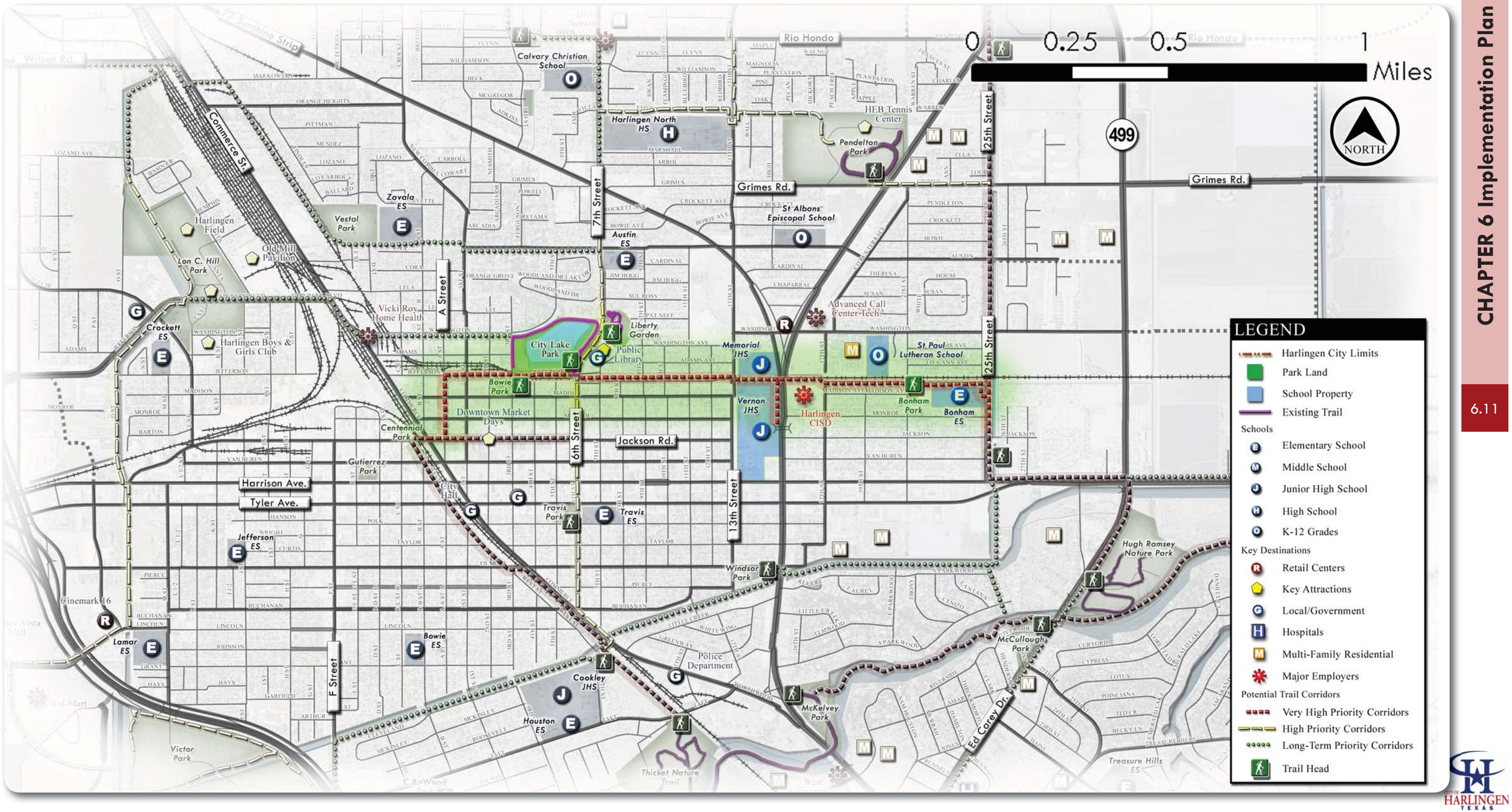
City Park Corridor

The City Park Corridor runs through he central area of Harlingen, connecting the 25th Street Corridor to the Centennial-Thicket Rail-Trail on the west side of downtown Harlingen. This corridor provides connectivity to downtown Harlingen and other destinations in the central area, including several schools; the Harlingen Public Library; several parks including City Lake Park; and the Historic Downtown Area and Downtown Market Days. It also connects to other priority trails such as the Liberty Park Trail and 6th Street Corridor that runs north-south through the center of the city.

The corridor will be a mix of on-street sidewalks, rail-trail, and along a drainage corridor. The western portion of the corridor, along A Street, will be an on-street sidewalk to Jefferson Street. Along Jefferson Street, the Union Pacific railroad runs parallel to Jefferson Street, and space limitations will require parts of the trail to be located in railroad right-of-way. This will continue into and through the central sector of the City Park Corridor. On the east side of 77 Sunshine Strip, a drainage corridor buffers the railroad, so the trail could be located in this drainage corridor and not encroach on the railroad right-of-way.



A rail-trail following the north side of the Union Pacific Railroad along Jefferson will be a strong east-west connection across central Harlingen.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Old Mill Pavilion
Lon C. Hill Park
A Street
St Albans Episcopal School
Austin ES
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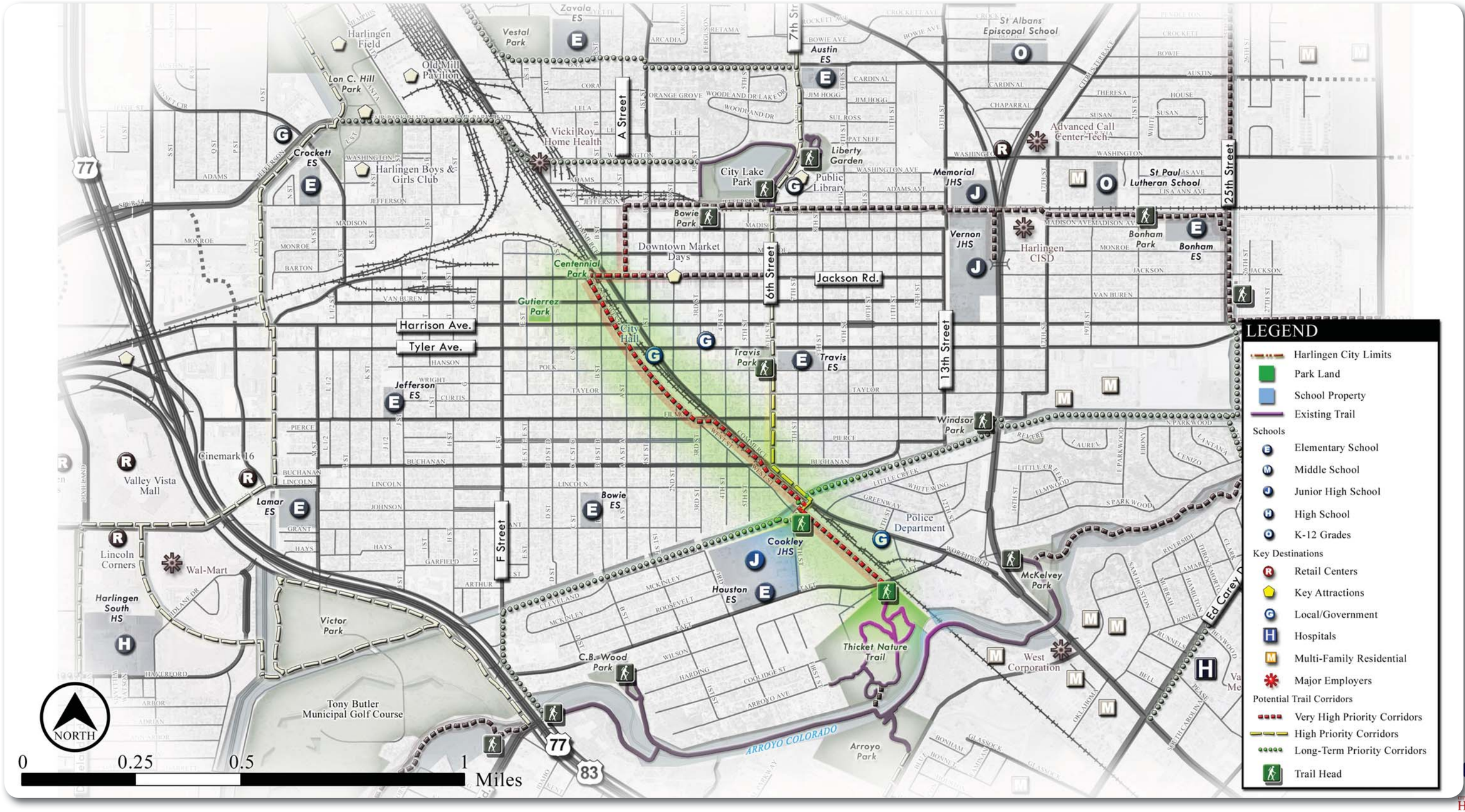
Centennial/Thicket Rail-Trail Corridor

The Centennial/Thicket Corridor runs along the Union Pacific Railroad from the new Centennial Park near downtown Harlingen to Thicket Nature Area near the Arroyo Colorado. This corridor would provide a strong connection between downtown Harlingen and the Arroyo Colorado Trail (via trails in the Thicket Nature Area), improving access between the areas. The challenge in implementing this trail, as will all rail-trails, would be working with Union Pacific Railroad to design a trail that would safely accommodate pedestrians and bicyclists in the railroad right-of-way.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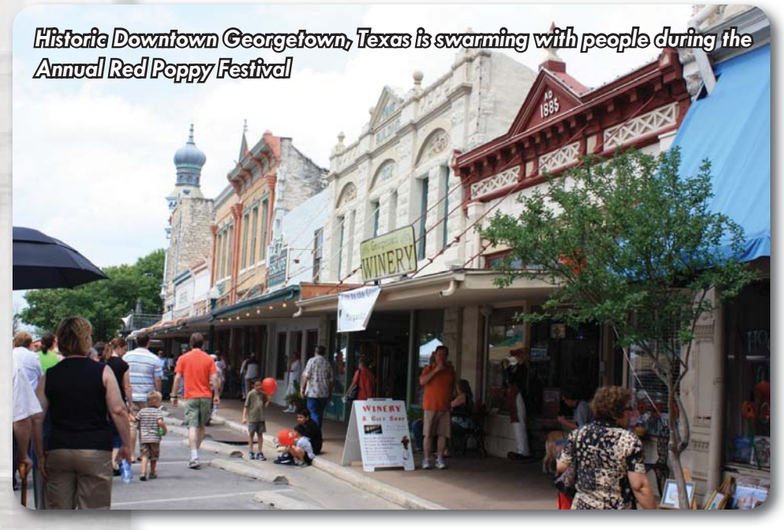
Jackson Street Corridor

Jackson Street was historically known as Main Street and was a major corridor in downtown Harlingen. The City has taken the initiative to revive downtown and this major street through improvements such as an urban pedestrian corridor along Jackson Street.

The urban pedestrian corridor should be wide enough to accommodate high levels pedestrian traffic in this urban area, typically 6 to 8 feet in width where space allows. Additionally, streetscaping elements such as street trees, benches, waste receptacles, and lighting will enhance the pedestrian environment to promote walking rather than driving.

A challenge anticipated along this corridor is the limited space between the street and building for a sidewalk to accommodate both people and streetscaping. Shade is probably the most critical necessity in Harlingen, with temperatures easily reaching triple-digits in the summer. Street trees would require space that in many stretches along the street isn't available and would take away from the walking path. An alternative to street trees would be awnings attached to buildings, as depicted in the photo to the right of downtown Georgetown.

Creating this environment is especially important since Jackson Street is lined with shops and restaurants and anchored by the Downtown Market Days that occurs on the first Saturday of every month. Downtown Harlingen is also associated with the Texas Main Street Program to help revitalize and strengthen downtown Harlingen as a destination. Efforts to make Jackson Street a strong pedestrian-friendly corridor, carrying shoppers store to store and buzzing with activity, could bring back the "main street" atmosphere of historic Jackson Street.



Historic Downtown Georgetown, Texas is swarming with people during the Annual Red Poppy Festival

Downtown Market Days in Harlingen

Photo Source: City of Harlingen, Downtown Harlingen, http://www.myharlingen.us/

Pioneer's Building (or Lozanos Building) on Jackson Street at A Street

Photo Source: Cameron County Historical Commission, www.cameroncountyhistoricalcommission.org

If we can develop and design streets so that they are wonderful, fulfilling places to be, community-building places, attractive public spaces for all people of cities and neighborhoods, then we will have successfully designed about one-third of the city directly and will have had an immense impact on the rest.

-Allan B. Jacobs, in *Great Streets*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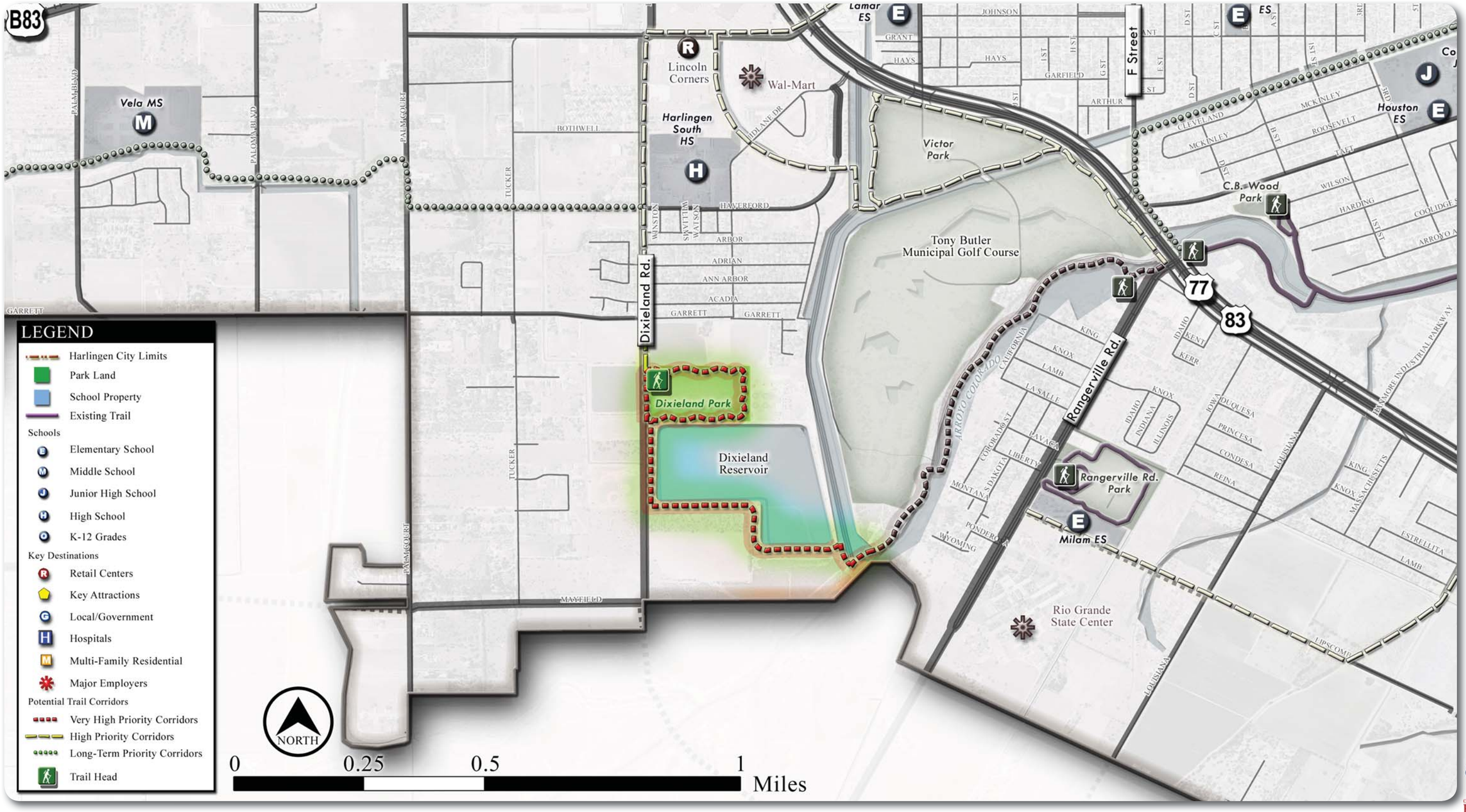
Dixieland Park/Reservoir Corridor

A connection from the end of the Arroyo Colorado Trail at Tony Butler Park to the Dixieland Reservoir and Park would provide access between the two destinations. Trails within Dixieland Park would also improve this park as a destination and serve future residential areas with a local trail for recreational use.

Enhancing the park and connecting Dixieland Road to the Arroyo Colorado would also support future development of trail or sidewalk facilities along Dixieland Road, linking to the commercial centers at W Lincoln Avenue and areas north of the reservoir.

Dixieland Reservoir

A sidewalk along Dixieland Road would provide connectivity to shopping centers along the road.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LIPSCOMB
COLORADO
CALIFORNIA
ARROYO COLORADO
MONTANA
DAKOTA
LIBERTY
WYOMING
PONDEROSA
HAVANA

Implementation Process

An action plan designated for the implementation of each specific trail corridor should coordinate all of the following steps:

- **Preliminary items** - Environmental analysis, property easement or right of way needs analysis, preliminary concept design, possible feasibility study, allocation of general budget - all these should be obtained before proceeding.
- **Permits** - By City of Harlingen, possibly Cameron County, and all involved trail corridor owners, e.g. TxDOT, utility companies and irrigation boards. Responsibility for the project construction lies primarily with the City of Harlingen.
- **Funding** - Research for necessary grant qualification, Council approval to apply for grants or other funding sources, and ROW issues should be settled at this point.
- **Design** - Preparation of construction documents, specifications and cost estimates, followed by bid documents and bidding procedures after permits and funding are clarified.
- Physical construction of the project.

Coordination with Ongoing and Future Transportation and Drainage Improvements

Major public works improvements such as new street development or drainage facilities can provide an opportunity for trail development. The resurfacing of roads can be used to consider adding bicycle lanes. New roads can be sized to include bicycle lanes or to have side paths built as the road is built. When large new public facilities are being built, trail opportunities along their edges should be considered. Drainage channels can be planned in such a manner that they include trails along one or both sides, and can be oriented so that adjacent homes are not impacted.

Every effort in the City, whether private or public, whether funded by the City or by another agency such as Cameron County, should be considered early on as a potential bicycle facility or shared use path candidate. Adequate right of way should be acquired early so as to provide corridors for trails. It is extremely difficult to retrofit trails once development around it has occurred.

Private sector developments should be carefully reviewed to determine if key trail corridors shown in this plan can be integrated into the proposed development. In some cases, the City may consider funding portions of the recommended trails over and above the developer portion so as to expedite construction of the overall trail system.

Trail Type-Related Costs

General costs are included for use in planning for trail corridors. However, general costs are always subject to change and will vary as more detailed design occurs.

General estimated construction costs, for use in preliminary project feasibility determinations:

Construction of a new concrete trail, 10 feet wide	$400,000 to $600,000 per mile (trail and subsurface only)
On-street trails, striping and signage	$15,000 per mile
On-street trail, striping only	$3,500 per mile
Widening of ROW/shoulder (asphalt)	$220,000 per mile
Soft-surface trail (mulch, sand, gravel)	$170,000 per mile
At-grade crossing	$5,000 to $10,000 each
At-grade crossing, lighted	$20,000 to $30,000 each
At-grade crossing, traffic light modification	$20,000 to $30,000 each
Below grade crossing (underpass)	$100,000 to $130,000 each
Bridge crossing	$200,000 to $250,000 each

Issues Associated with Trail Funding

Funding for trail and greenway corridor development in Harlingen can come from a variety of sources such as generated locally, from State of Texas, and federal sources. Private development of trails will also aid in the establishment of much of the future trails throughout the City.

Each trail segment will have unique funding opportunities, based on the neighborhoods around the trail and the specific characteristics of the corridor. Key issues associated with funding are as follows:

If possible, funding should be continuous and steady. Annual designation of funds for trail development will result in a steady growth in the City's trail system, and allow the citizens of Harlingen to see a continuous flow of new trail segments every year, rather than in sporadic bursts.

Construction of major trail corridors should be the focus of public expenditures. Major "spine" segments that connect neighborhood to neighborhood should be the primary focus of public expenditures for trails. Trails within and primarily serving private developments and individual neighborhoods should be paid for with private sector funds.

Funds designated for trail development should not be taken from park development. Both parks and trails are extremely important to the future quality of life in Harlingen, and funding one should not imply that the other need not be funded.

Sources of Funding

Trails are considered by Harlingen residents as one of the things they like the most about the City, and as one of their highest priorities. Therefore, funding for trails should be treated as a key item in both annual and longer term budgeting. Regular steady funding is recommended so that the trail system is added to on a continuous basis. A broad range of funding mechanisms, from both the public and private sectors should be considered. These include:

Capital improvement or bond funds - Bond funds are typically the primary source of significant trail development efforts. Larger capacity of these funding sources allows for more development to occur.

Funding as part of other projects - Trails can be efficiently funded as part of other larger city projects, such as new roads. However, separate trail funding should not be added to road projects to help supplement roadway funding that is inadequate to begin with.

Parkland dedication funds - Funds generated by new development can be used to help develop nearby trails. These funds are accrued in lieu of parkland.

Special district funding - Funding from special districts, other new public improvement areas, or tax increment financing areas can be used to help develop trails.

4B Tax - The Development Corporation Act of 1979, as amended in 1991, allows all cities to adopt the 4B tax, a voter-approved special, dedicated tax that cities can use for economic development purposes. Voters approve the dedication of a portion of the sales tax and the creation of a 4B Corporation to administer the spending of 4B tax funds. The economic development sales tax rate may be 1/8, 1/4, 3/8, or 1/2 of 1 percent if the new total rate of all sales and use taxes would not exceed 2%. 4B Sales Tax may use funds for a wide range of uses intended to give communities an opportunity to undertake a project for quality of life improvements, including economic development that will attract and retain primary employers. Money raised by this tax may be used to acquire or pay for land, buildings, equipment, facilities, expenditures, infrastructure and improvements for purposes related to:

- Manufacturing and industrial facilities, recycling facilities, distribution centers, small warehouse facilities;
- Research and development facilities, regional or national corporate headquarters facilities, primary job training facilities for use by institutions of higher education, job training classes; telephone call centers; and career centers that are not located within a junior college taxing district;
- A general aviation business service airport that is an integral part of an industrial park;
- Certain infrastructure improvements, which promote or develop new or expanded business enterprises;
- Port-related facilities to support waterborne commerce;
- Maintenance and operating costs associated with projects;
- Projects that improve a community's quality of life, including parks, professional and amateur sport and athletic facilities, tourism and entertainment facilities, affordable housing, and other improvements or expenditures that promote new or expanded business activity that create or retain primary jobs.

Private residential or commercial development - Many of the trails noted in this master plan are located within residential communities or adjacent to commercial or business areas. As such, trail segments associated with either existing or new development can be partially or entirely built by the private development community. Specific mechanisms to require trail development which can be adopted by the City Council are further discussed in this chapter.

Grants from a variety of sources - Grants that can be used for trail development are available from a variety of sources. The existing remaining bond funds provide an ideal match for grant applications. Given the compelling local issues of traffic congestion and air quality, as well as a large local population that supports alternative transportation methods, local pursuit of grants could be successful and should be aggressively pursued. Major grant types include:

- **Texas Parks and Wildlife Department grants** - Through its outdoor recreation and community trail development grants, these matching grants can provide from $50,000 to $500,000 in grant assistance.
- **Federal Enhancement funds** - Federal transportation dollars specifically allocated to pay for transportation enhancements have led to the creation of over 100 miles of trails throughout Texas over the past 10 years, and were the primary funding source for trail development in the State of Texas. These funds are administered by the Texas Department of Transportation, and as such must conform to federal guidelines for safety and construction procurement. The locally required match is a minimum of 20%, but communities may overmatch to increase their competitive position. Funds must be reauthorized periodically by the United States Congress, and are currently waiting for re-authorization in the next few years. However, a funding round was announced in the fall of 2009, and the City of Harlingen submitted the 25th Street corridor as a candidate project.
- **Cameron County park and trail development funds** - Cameron County has participated in the development parks throughout the county. Cameron County recognizes the regional benefits of trail development and will be a significant future partner.
- **Congestion Mitigation and Air Quality (CMAQ) grant funds** - Federal dollars that assist in relieving traffic mitigation may also be used to develop trails corridors that can carry commuters to work or serve as an alternative transportation route to recreation or commercial areas.

- **Regional Surface Transportation Program (RSTP)** - This is a block grant program that makes money available statewide for roads, bridges, transit capital, bicycle and pedestrian projects. Metropolitan Planning Organizations (MPOs) can transfer money from other federal transportation funding sources to the RSTP program if they want more flexibility in how they allocate their funds. SAFETEA requires states to set aside 10% of the RSTP funds for safety construction activities and another 10% for the Transportation Enhancement Activities (TEA) Program. Applicants eligible for RSTP funds include cities, counties, metropolitan planning organizations (MPOs), transit operators, and the Texas Department of Transportation. Non-profit organizations and special districts also may apply for funds, but they must have a city, county or transit operator sponsor and in some cases administer the project.

- **Safe Routes to School Program (SR2S)** - The overall purpose of this program is to improve safety in and around school areas. While Safe Routes to School is an overall concept that includes education, enforcements and safety construction improvements, TxDOT's Safe Routes to School Program implemented by HB 2204 will only address safety construction improvements. The rules that established the SR2S Program were adopted by the TxDOT Commission and became effective on July 18, 2002. The following guidelines determine what projects can be submitted: the projects may be located on or off the state highway system, but must be located on public property; must be located within a two mile radius of a school; federal funds requested will be limited to $500,000; projects can cover multiple school sites if similar work is performed at each site; local project funding match of 20% is required unless the project is located on the state highway system in which case TxDOT will provide the match; a project on the state highway system will not be eligible if the district finds that the project interferes with or disrupts any planned improvements or existing infrastructure. The six categories of work that are eligible for the funding are: sidewalk improvements; pedestrian/bicycle crossing improvements; on-street bicycle facilities; traffic diversion improvements; off-street bicycle and pedestrian facilities; and traffic calming measures for off-system roads.

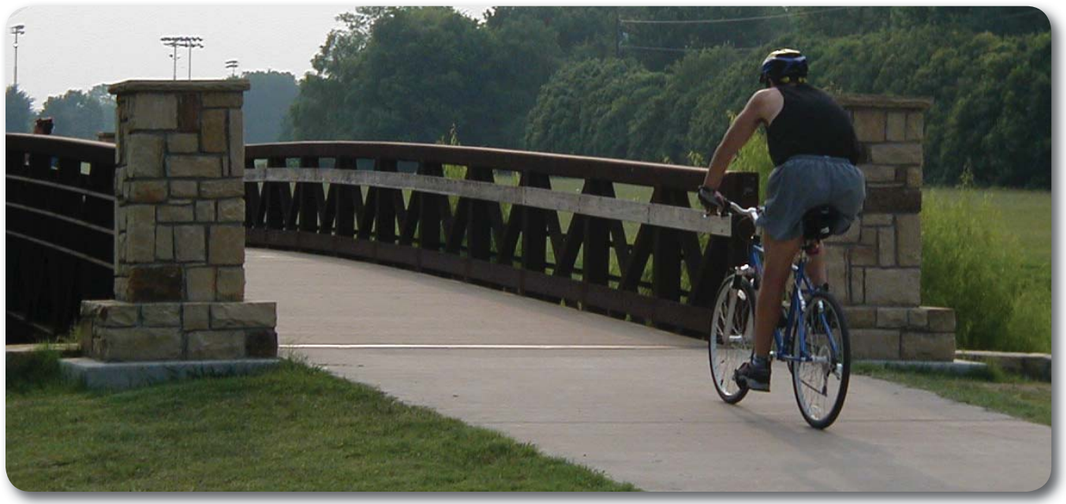
- **Hazard Elimination Safety (HES) Program** - This is a federal safety program that provides funds for safety improvements on all public roads and highways. These funds serve to eliminate or reduce the number and/or severity of traffic accidents at locations selected for improvement. The amount of funds allocated to the local HES Program each Federal Fiscal Year may range from $10 million to $16 million. Each year, local agencies compete for HES funds by submitting candidate safety projects to TxDOT for review and analysis. TxDOT prioritizes these projects, statewide, and releases an annual HES Program Plan that identifies the projects that are approved for funding.

- **Foundation and Company Grants** – Some assist in direct funding for trail projects, and some support efforts of non-profit or citizen organizations. Further info can be found at "The Foundation Directory" and at "The Foundation Grants Index" www.fdncenter.org

- **"Grants for Greenways"** is a national listing that provides descriptions and links to groups who provide technical and financial support for greenway interests.

Partnering - Partnering with regional volunteer groups can also be helpful when constructing new trail projects. Their efforts can be used as part of the required match for some grants. Partnerships with utility companies, railroads, or irrigation districts can often be established for the proposed trails along these easements or right-of-ways.

- Volunteer programs in Harlingen, for example through schools or community groups, may substantially reduce the cost of implementing some of the proposed trail segments. Local construction companies might donate or offer discounted services, or local corporations might adopt bikeways, like it is already practiced with highways throughout the area.



Trail Ordinances

Successful implementation of the Trails Master Plan will require the protection of existing trail connections and the reservation of planned trail connections throughout the City. Although many of the trail corridors are intended to utilize public lands consistent with the goals and policies of the Trails Master Plan, acquisition of trail corridors on private lands will be necessary with future development to successfully implement this plan.

The City of Harlingen's goal is to fund and build the spine of the network as outlined in Chapter 5 while working with private developers and landowners to encourage the private sector to develop and build additional parts of the trail system as Harlingen continues to grow.

Many options are available to the City, public agencies, non-profit groups, and private landowners to ensure the protection/reservation of these critical trail corridors. The objective of the Trails Master Plan is to provide a menu of available options to both public agencies and private landowners, promoting flexibility and creativity in the negotiation process. Careful crafting of transactions between private landowners and public agencies can and should produce mutually beneficial results.

Trail Development Ordinance - A survey conducted by the National Association of Realtors and National Association of Home Builders in 2002 revealed that homebuyers said that walking/jogging/biking trails were the second most important community amenity. Therefore, it only benefits residential developers to include trails in their communities. Consideration of a trail development ordinance is recommended by this Trails Master Plan. Similar ordinances have been enacted in other cities in Texas and have proven successful in helping to get trails constructed. The ordinance model used in Allen, Texas requires complete developer construction of key trail segments that fall within their property limits, without city participation. City funding in that city is used for other regional trails or for trailhead development. Often, the required trails replace adjacent sidewalks, and therefore, do not add significantly to the cost of the development. Credits for landscaping, pavement, or other infrastructure elements can be given in return for trail construction. A mandatory trail development ordinance only serves to make trails a standard and raise the quality of future residential developments.

Develop Trail Cost Sharing Ordinance - An alternative type of ordinance is patterned after sidewalk requirements, in which adjacent property owners fund a portion of the trail installation cost, with the City of Harlingen covering the remainder of the cost.

New Development Reservations and Dedications - The preservation of trail corridors in conjunction with or independent of the open space areas required to be created with new residential development could be required in the City Code. Right of way reservations for pedestrian paths, bikeways, and multiple use trials could be required of new residential developments consistent with the Engineering Standards and/or this Trails Master Plan. An offer of dedication is required when a reasonable relationship is demonstrated between the need for the dedication and the characteristics and impacts of the proposed development.

The City Code could also provide incentives to new development to encourage implementation of the Trails Master Plan. Reduction in required open space areas and fee waivers are two specific incentives for public trail reservations and dedications beyond that required of any new development. Additional flexibility could be provided for new development, promoting the highest quality development in concert with the public need and benefit derived from creative and innovative development proposals. This flexibility might come by allowing reductions in required off-street parking and flexibility in internal project circulation layout, which is justified with the reservation/dedication of lands in support of the planned recreation trail network.

Existing Development - In cases where trail corridors shown on the Trails Master Plan intersect with existing developed areas, the acquisition of lands will be necessary to create connectivity with adjoining trail corridors. Acquisition can be accomplished through a variety of forms: outright purchase of property, purchase of easements, or donations. These varieties of acquisition may be employed, while always seeking the most cost effective method to secure appropriate public interest when necessary and warranted. Public/private negotiations for outright purchase of private property will be necessary in some instances; however, the purchase of easement or partial/restricted property right at less cost to the public will be encouraged.

Greenway and Trail Setback Recommendations - The purpose of this recommendation is to address the protection and preservation of greenways, trails, and easements for future trail corridors. This will ease the implementation of the Trails Master Plan by protecting, conserving, and maintaining the abundant qualities of the lands along creeks, rivers and waterways within Harlingen while increasing transportation and recreation opportunities.

Preservation and Access to Creek Corridors

Creek and drainage corridors will be one of the major trail connections within the City, and as such should be developed with access along at least one side of the creek for small drainage tributaries and along both sides of the creek for major creeks such as Arroyo Colorado. Because they are flood prone areas, these corridors are largely undevelopable, and can preserve much of the remaining natural space in Harlingen. Steps should be taken to require that natural creek corridors be preserved and trail access be allowed. In most cases, streets paralleling the drainage or creek corridor are preferred, rather than lots that back up to the creek and that effectively seal off the creek from public view or access.

Trail Maintenance

Effective trail maintenance is critical to the overall success and safety of trails in Harlingen. Maintenance activities typically include pavement stabilization, facility upkeep, sign replacement, mowing, litter removal, and painting. A successful maintenance program requires continuity and often involves a high level of citizen participation. Routine maintenance on a year-round basis will not only improve trail safety, but will also prolong the life of the trail. The benefits of good maintenance program are far-reaching, including:

- A high standard of maintenance is an effective advertisement to promote the trail as a regional and state recreational resource.
- Good maintenance can be an effective deterrent to vandalism, litter, and encroachments.
- Good maintenance is necessary to preserve positive public relations between the adjacent land owners and managing agency.
- Good maintenance can make enforcement of regulations on the trail more efficient. Local clubs and interest groups will take pride in "their" trail and will be more apt to assist in protection of the trail.
- A proactive maintenance policy will help improve safety along the trail.

Ongoing trail maintenance likely includes some, if not all, of the following activities:

Vegetation - In general, plantings should be placed far enough apart to maintain good visibility and avoid creating the feeling of an enclosed space. This will also give trail users good, clear views of their surroundings, which enhances the aesthetic experience of the trail. Under-story vegetation within most trail right of way should not be allowed to grow higher than 36 inches, except in cases where the under-story vegetation is natural, desirable, and part of the habitat required for wildlife. Trees species selection and placement should be made that minimizes vegetative litter on the trail and root uplifting of pavement. Vertical clearance along the trail should be periodically checked, and any branches hanging over the trail should be pruned to a minimum vertical clearance of 10 feet.

Some basic measures should be taken to protect the trail investment. This includes at a minimum bi-annual mowing along both sides of the trail to prevent invasion of plants into the pavement area. The recommended times of year for minimum mowing are fall and spring. Higher levels of maintenance may be necessary.

Wherever possible, vegetation control should be accomplished by mechanical means, organic means, or hand labor. Some species may require spot application of state-approved herbicide.

Surfacing - Where concrete is the recommended surface material, cracks, ruts, and water damage will need to repaired periodically.

Where drainage problems exist along the trail, ditches and drainage structures will need to be kept clear of debris to prevent washouts along the trail and maintain positive drainage flow. Checks for erosion along the trail should be made during the wet season, and immediately after any storm that brings flooding to the local area. The use of trails with natural soft surfaces should be minimized and/or prohibited during wet conditions.

The trail surface should be kept free of debris, especially broken glass and other sharp objects, loose gravel, leaves, and stray branches. Trail surfaces should be swept periodically. Soft shoulders should be well maintained to maximize their usability.

Litter and Illegal Dumping - Staff or volunteers should remove litter along the trail. Litter receptacles should be placed at access points such as trailheads.

Illegal dumping should be controlled by vehicle barriers, regulatory signage, and fines as much as possible. When it does occur, it should be removed as soon as possible in order to prevent further dumping. Neighborhood volunteers, friends groups, alternative community service crews, and inmate labor should be considered in addition to maintenance staff.

Signage - Signage should be replaced along the trail on an as-needed basis.

The following table summarizes the recommended maintenance schedule for the proposed trails in Harlingen. These guidelines address maintenance for the off-street trails. On-street facilities such as sidewalks and bicycle lanes should be maintained per the standards of the City of Harlingen.

Table 6.1
Maintenance of Off-street Trails

Item	Frequency
Inspections	Seasonal - at both beginning and end of summer
Signage replacement	1 - 3 years
Pavement markings replacement	1 - 3 years
Major damage response (fallen trees, washouts, flooding)	Schedule based on priorities
Pavement sealing, potholes	5 - 15 years
Introduced tree and shrub plantings, trimming	Every 1 - 3 years
Culvert inspection	Before winter and after major storms
Cleaning ditches	As needed
Trash disposal/litter pick up	Weekly during high use, twice monthly during low use
Mowing (corridor parallel to trail only)	14 to 21 times per year
Lighting luminaire repair	As needed
Pavement sweeping/blowing	As needed, before high use season; weekly in fall
Maintaining culvert inlets	Inspect before the onset of the wet season, then again in early fall
Shoulder plant trimming (weeds, trees, brambles)	Twice a year, middle of growing season and early fall
Waterbar maintenance (earthen trails)	Annually
Site furnishings, replace damaged components	As needed
Graffiti removal	Weekly, as needed
Fencing repair	Inspect monthly for holes and damage, repair immediately
Shrub/tree irrigation for introduced planting areas	Weekly during summer months until plants are established

Implementation Timeframe 2010 - 2020

The overall recommendations of this Trails Master Plan are estimated to take up to 20 years to complete. The following sequence or hierarchy of actions is recommended to implement the Trails Master Plan.

Consider acquisition of trail corridors as the highest priority - Connectivity across the City remains the highest priority of the trails plan, and to accomplish that access trail corridors must be acquired. Creek corridors can be acquired through outright purchase or through access easements. Once a tract of land is developed, it is extraordinarily difficult to acquire land or easements for trail corridors.

Consider embarking on an extensive trail development schedule over the next 10 years - As Harlingen continues to grow, demand for quality of life features such as trails will only grow. It is while the City is growing that it becomes the easiest time in which to build trails.

Average the construction of one to two miles of trails per year for the next ten years - Maintain a steady funding channel so that trail development can remain a high priority over the next decade.

Develop strategies to work with private sector development - Voluntary and mandatory processes to work with private development should be put in place immediately, so as to not miss any opportunity to implement segments of trails.

Review and update the citywide Trails Master Plan annually - This Trails Master Plan is a living document, and should be reviewed and updated periodically. This review should occur at the same time that the overall Parks and Recreation Master Plan is being reviewed, so that continuity between the two plans is maintained.