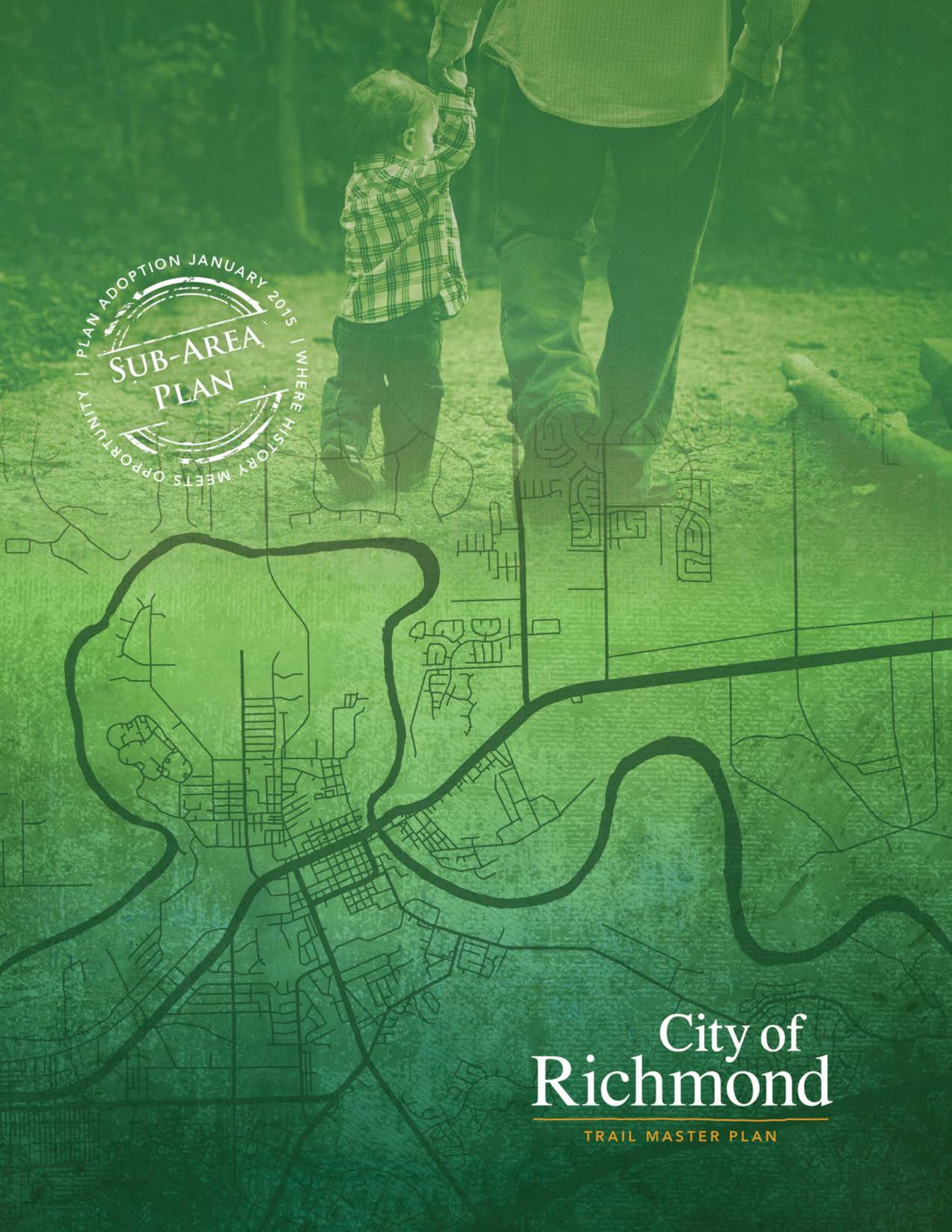


City of Richmond

TRAIL MASTER PLAN

Table of Contents

INTRODUCTION

The goal of the Richmond Trail Master Plan is to provide policy guidance and direction for the gradual, phased development of a communitywide trail network.

The projected pace and scale of Fort Bend County's rapid growth reinforces the importance of strategic planning and resource allocation. In order to be competitive and accessible throughout the Houston-Galveston region, cities have improved their connectivity across all infrastructure projects, including trail, sidewalk, and bikeway planning. Increasing the trail network can both improve Richmond's quality of life and spur economic development opportunities.

The County's success as one of the fastest growing and affluent parts of Texas has placed an increased demand for higher levels of amenities. The careful planning and implementation of a well-designed trail system is a key ingredient to this enhancement strategy. The Richmond area, consisting of the City of Richmond and its extraterritorial jurisdiction (ETJ), is expected to grow from 41,000 to 73,000 residents in the next 25 years. The addition of approximately 30,000 residents will primarily occur in what is now designated as the City's ETJ due to readily available and developable land. This projected growth area is generally defined as a one-mile radius extending from the city limits and equates to roughly 18,000 acres. Approximately 70 percent of land within the ETJ is vacant, whereas only 30 percent of the land within the city limits is vacant. This anticipated development pattern means the City must have the appropriate design guidance, and in some cases regulations, to ensure a pedestrian- and bicycle-friendly approach to transportation and recreation infrastructure.

Similar to other communities with parallel timelines, the City's original grid system of local, collector, and arterial roadways started as a highly organized and interwoven pattern, radiating outward from the City's original town site using a relatively narrow street design. City blocks within the Historic District area reflect compact development patterns and the most connected sidewalk networks within Richmond. The further one travels from the City's "center," the less rigid and discontinuous the mobility network becomes. Unfortunately, the street design within Richmond's original neighborhoods is generally too narrow for affordable reconstruction of existing roads to accommodate bike lanes or, in some cases, even sidewalks.

In recent years, new destinations such as the Justice Center have prompted the City and County to upgrade major thoroughfares like Golfview Drive, Front Street, Williams Way Boulevard, and FM 2218. These types of improvements serve as economic catalysts by providing increased access to areas that would otherwise be less developable or desirable tracts of land. They also enhance what have been traditionally automobile-only thoroughfares into more "complete streets," or roadways that accommodate all modes of travel and user types. This regional approach to mobility has extended the conversation far beyond pure transportation objectives to having a direct influence on community character and economic development.

In partnership with public and private stakeholders throughout Fort Bend County, advance transportation planning will prepare the region for future travel demands and create a more efficient system of travel to, from, and within the Richmond area. The construction of a multi-modal and interconnected trail system is ultimately a shared cost and benefit across all community members. Richmond's trail system is envisioned both for recreational use and as a transportation alternative that can reduce vehicular trips, provide a safe commuting option for individuals who live close to their workplace, and contribute to better air quality in the area.

Trail System Vision

1. Safe, inviting, and universally accessible to meet the needs of a wide range of present-day and future users.
2. Convenient local and regional linkages within the City and to surrounding communities and destinations.
3. Unique and educational outdoor experiences that celebrate Richmond's environmental and cultural assets, rural heritage, and open space landscapes.
4. Cross-functional amenities that accommodate short- and long-distance trips, on- and off-street routes, and generalized and specialized uses.
5. Equitable distribution of and access to trail system facilities, while recognizing some parts of the City are more financially feasible to develop than others.
6. Self-sustaining, meaning the system can be constructed, operated, and maintained by the City and its community partners in a cost-efficient manner.

Plan Objectives

This master plan is intended to establish sound but flexible guidelines for the location, type, and construction of individual trail and path segments. The objectives include:

- ***Community Interest.*** Verify the degree of interest and need for trail development given the limited presence of trails in Richmond at this point in the community's development history. This involves identifying the aspirations of stakeholders, including elected and appointed officials, citizens, and established groups and organizations, regarding the possibilities for and potential characteristics of a communitywide trail network.
- ***Phased Development.*** Offer strategic timing and direction for incremental investments that link the community's principal nodes – such as the Justice Center, Fort Bend Technical Center, Pink Elementary, Oak Bend Medical Center, and the Historic District - to neighborhoods, parks, schools, and commercial areas. This plan prioritizes improvements while taking into consideration readily available funds and other transportation projects that will reduce the overall cost to the City.
- ***Geographic Distribution.*** Consider geographic locations within the community where potential trail alignments would be cost effective, connect to the most frequently used destinations, and attract the most users based on population and development trends.
- ***Policy Rationale and Guidance.*** Establish the policy justification for securing land and/or easements for trail improvements, whether obtained through regulatory mechanisms, dedications, or donations. It also serves as a reference document and provides useful information for local decision makers, advisory boards, trail and recreation enthusiasts, and Richmond residents regarding key considerations in trail system development and maintenance.
- ***Funding Tools.*** Provide a strategy for using City and County funds, pursuing grants and other external funding sources, and soliciting community support from philanthropic groups and private property owners. Given Richmond's smaller tax base in comparison to several other Fort Bend County municipalities, this plan proposes a multi-faceted implementation strategy involving public expenditures, private funding, and land dedications.

Planning Process

The formation of this plan and the City's Comprehensive Master Plan occurred at a significant crossroads in Richmond's history. Approximately one year prior, the City voted to approve a Home Rule Charter and form a Planning and Zoning Commission. These tools expanded the City's ability to influence growth and provide for the needs of Richmond citizens. This plan leverages these recent milestones with other trail planning efforts to form a broad-based approach.

Community Outreach

The community outreach for this plan piggybacked on six months of advisory committee meetings, key stakeholder interviews, and listening sessions for the Comprehensive Master Plan. The project team also conducted:

- ***Online Survey Questions.*** May 2014. The City's Online Discussion Forum included focused survey questions relating to the City's trail system and other quality of life issues.
- ***Listening Sessions.*** July 2014. The project team facilitated two listening sessions with representatives from local and regional organizations to discuss opportunities and constraints to trail development.
- ***Grassroots Outreach.*** July-September 2014. City staff distributed initial trail concepts to representatives of the YMCA, Central Fort Bend Chamber Alliance, Fort Bend County, Fort Bend Green, Friends of North Richmond, Houston Wilderness, Houston-Galveston Area Council, Texas Parks and Wildlife Department, and others to receive interim feedback.
- ***Poster Display.*** September 2014. Project posters were displayed at both the George Memorial Library and Neighborhood Resource Center for multiple weeks to solicit feedback and comments.
- ***Community Meetings.*** September-October 2014. City staff presented initial concepts to community organizations to receive interim feedback. The plan was also presented at a

regularly scheduled City Commission meeting prior to the final public hearing.

Coordination with Other Plans

Of all community planning elements, mobility is one of the most partnership-driven considerations given its multijurisdictional funding sources, level of connectivity between adjoining municipalities, and regional growth influences. The following studies were incorporated into the findings of this plan:

- ***City of Richmond Comprehensive Master Plan (2014).*** The Comprehensive Master Plan provides the policy rationale and "big picture" recommendations to plan for and invest in a trail system network. Specific priorities from the plan include the following:
  - > Strengthening transportation connections and increase choices between ways to travel;
  - > Leveraging public investments to enhance the existing community and promote growth;
  - > Rehabilitating and preserving Richmond's existing neighborhoods and community assets; and
  - > Enhancing and preserving Richmond's natural amenities.
- ***H-GAC 2035 Regional Bikeway Plan (2015/2007).*** The Houston-Galveston Area Council (H-GAC) is currently working on the 2040 Regional Pedestrian and Bicycle Plan for completion after adoption of this plan. The recommendations within the plan aim to give priority funding to bikeway projects that complete gaps in the Regional Bikeway System; secure commitments to develop planned bicyclist facilities; and to add shoulders to roadways with significant bicyclist activity.
- ***H-GAC Rosenberg Livable Centers Study (2015).*** H-GAC is spearheading a livable centers study in partnership with the Rosenberg Economic Development Corporation and the West Fort Bend Management District to encourage redevelopment of its historic downtown areas. Key considerations will be studying the best way to redevelop underutilized property along the US 90A corridor, examining multi-modal forms of transportation, identifying greater housing options, and determining the unique identity and potential connections of the corridor.
- ***City of Richmond and Fort Bend County Thoroughfare Plans (2014).*** The County's ongoing Thoroughfare Plan efforts combined with the City's recently adopted Thoroughfare Plan depict the planned improvements and/or extensions of existing arterial and collector roadways and the projected need for, and potential alignment of, additional future roadways. These roadway plans have implications for the City's current and future sidewalk system, as well as trail system development.
- ***Fort Bend Green Brazos River Recreation Master Plan (2014).*** Fort Bend Green led this regional plan to facilitate the long-term development of an extensive river recreation corridor passing through Richmond, Sugar Land, Fulshear, and Missouri City.
- ***H-GAC US 90A Access Management Plan (2014).*** H-GAC, in partnership with the Texas Department of Transportation (TxDOT), the cities of Richmond and Rosenberg, and Fort Bend County, commissioned an access management study to evaluate US 90A from Bamore Road to Harlem Road; FM 1640 from Bamore Road to FM 762; and FM 762 from FM 1640 to US 90A. The study includes access management recommendations that can be implemented to improve pedestrian and bicyclist safety.
- ***H-GAC Fort Bend County Subregional Plan (2013).*** This Fort Bend County plan addresses long-range transportation needs for the cities of Rosenberg, Meadows Place, Arcola, Missouri City, Sugar Land, Richmond, and Stafford, as well as Fort Bend County. Thoroughfare, trail, and transit planning were integrated into an updated land use and transportation vision for the sub-region.
- ***City of Rosenberg Transit and Pedestrian Study (2010).*** The Rosenberg Development Corporation commissioned the Rosenberg Transit and Pedestrian Study as an outgrowth of the community's desire to develop transit, pedestrian, and bicycle linkages that expand the existing transportation network, connecting major points of interest within the community and creating a sense of place.
- ***City of Richmond Parks and Recreation Master Plan (2008).*** Provides policy direction and implementation guidance for meeting both current and future parks and recreation needs in Richmond. Adopted in 2008, this park system plan has a much broader scope and serves as an umbrella for trail planning initiatives.

TABLE 1

Public and Private Partners

The overall effort to expand Richmond's trail system will require a combination of public and private funds, including transportation, parks and recreation, and foundational grants to supplement City and County investments. Ongoing and potential partners include:

Stakeholder	Direct Funding	Land Donations	Volunteer Service and Sponsorship	Programming	Compatible Standards
Private Property Owners		X	X	X	
City of Richmond	X	X		X	X
Fort Bend County	X	X			X
Development Corporation of Richmond	X	X	X		
Texas Department of Transportation (TxDOT)	X	X			X
Texas Parks and Wildlife	X				X
Lamar Consolidated Independent School District	X	X	X	X	
Wharton County Junior College			X	X	
Texas State Technical College			X	X	
YMCA	X	X	X	X	
West Fort Bend Management District					X
Special Districts	X	X	X		
Community Foundations	X	X	X	X	
Fort Bend Museum			X	X	
Community Organizations and Places of Worship		X	X	X	
Sports Leagues			X	X	
Fort Bend Green			X	X	X
Houston-Galveston Area Council	X				

Key Considerations

Richmond has clear opportunities in front of it as well as obvious challenges to overcome in working toward a communitywide trail network:

Opportunities

- The extent of the Brazos River, Rabbs Bayou, and other linear drainageways across the Richmond area, which are highly accessible from many neighborhoods and developed areas and, if used for trail alignments, would readily connect a variety of community destinations.
- Philanthropic property owners interested in creating community destinations and recreational linkages involving their sites, which are often located in central locations.
- Discussion of the proposed Long Acres Ranch Nature Tourism Center, and how it will tie into the rest of the community.
- Recent completion of the Brazos River Recreation Master Plan (2014), a 2.5-year planning effort involving an unprecedented level of collaboration across multiple Fort Bend County jurisdictions focused on trail and recreation planning.
- The defined vision of Fort Bend County to develop greenways along two of the region's major waterways:
  - > Heritage Way Trail. The local segment runs from FM 2759/FM 762 from the Brazos River to the city limits and is estimated to be 15 miles and cost $11.9 million (as proposed in the H-GAC Fort Bend County Subregional Plan).
  - > Rabbs Bayou Trail. The local segment runs from Rabbs Bayou from FM 762 to the Brazos River and is estimated to be 10 miles and cost $7.9 million.
- A pedestrian plaza is currently under design between the Travis building and Historic Courthouse grounds, including street closures at South Fourth Street between US 90A and Liberty Street, and Liberty Street between South Fourth Street and South Third Street.
- Trail development along Lake Richmond, which will tie into Wessendorff Park, Morton Cemetery, and the Historic District.
- Private development interest in trails as site amenities (especially with the extent of master-planned development in the area) – and the desire by developers to see connectivity between trail segments they build and a broader community trail network. Pecan Grove serves as an example in the ETJ.
- Clustered community services in North Richmond centered around the Mamie George Community Center, Pink Elementary School, and the newly constructed Neighborhood Resource Center.

TABLE 2

Sports and Leisure Potential for Richmond Residents[1]

According to market research data, Fort Bend County's potential for bicycling, hiking, jogging/running, and walking is significantly higher than the national average. While this data represents the propensity for participating in these activities – versus actual survey data – factors such as increasing property values and incomes, which often leads to more recreation amenities, will increase the likelihood of participation.

1 Source: This information is based upon national propensities to use various products and services, applied to local demographic composition. Usage data were collected by GfK MRI in a nationally representative survey of U.S. households. ESRI forecasts for 2013 and 2018. The Survey's vast database of media usage, demographics, psychographics and consumer behavior makes it a powerful resource for penetrating insight into the actions and motivations of adult American consumers.

	Richmond	Fort Bend County	United States
Participated in mountain biking in the past 12 months	3.3%	4.5%	3.7%
Participated in road biking in the past 12 months	8.4%	12.1%	10.0%
Participated in hiking in the past 12 months	8.3%	11.6%	9.7%
Participated in jogging/running in past 12 months	11.0%	17.2%	12.5%
Participated in walking for exercise in past 12 months	24.3%	31.6%	28.7%

- The extent of storm water detention sites already built or planned in the area, which provides loop trail opportunities, especially where the detention basin is well designed to serve as a community amenity. Del Webb serves as an example in the ETJ.
- The extent of utility and pipeline corridors in certain areas of Richmond, which, in many cases, provide very open and unobstructed paths between neighborhoods and other nearby destinations such as schools, parks, community facilities, and commercial areas. The easements in the south side of George Park are an example of an existing corridor that could be converted to trails.
- The extent of open space around the perimeter of many residential subdivisions and commercial developments in the Richmond area, due to the scattered nature of development in certain areas, which provides an "opening" for potential trail alignments close to existing development and in advance of additional development in the vicinity.
- The flat, developable terrain found in the Richmond area that keeps trail construction costs to a minimum.

Challenges

- Limited degree of pedestrian connectivity within the current system. Like most communities, the principal connections are focused within the Historic District area.
- Narrow street design of residential roads throughout older parts of the City, particularly in North Richmond where most roadway improvements would be prohibitively expensive due to drainage channels in the rights-of-way.
- Recent construction of new major roads lacking bicycle facilities, meaning upgrades to accommodate bike lanes or shared use paths cannot be paired with other infrastructure projects in the near-term.
- Preservation of rights-of-way in rapidly developing subdivisions and growth areas within the City's ETJ.
- Existing developed areas where trail connections, or adequate trail widths, would not be feasible or cost prohibitive due to environmental constraints. This is a particular concern along the Brazos River where the stream bank is fragile, maintenance easements were never established, and the back yards of individual residences extend close to the river's edge.
- The need to cross busy arterial roadways in various locations to maintain the connectivity of the envisioned trail network.

In 2014, the League of American Bicyclists ranked Texas as the 33rd ranked state for bike friendliness, dropping 11 spots from 2013.

Source: Houston Chronicle, Dug Begley, May 1, 2014

Pedestrian and Bicyclist Indicators

- According to Fort Bend County survey respondents, more people would walk if sidewalks were available but more people would not necessarily ride a bike if the bikeway network was improved.
- 64 percent of respondents to the same survey agreed to the "importance of encouraging healthy/active travel options (walking or biking)."
- The number of people who commute to work by bicycle increased about 60% over the past decade, while the number of people walking to their jobs remained stable.[1]
- Up to a third of adults in the United States use walking as a form of exercise to meet public health recommendations for physical activity.[2]
- 62.6 percent of the homes in Richmond are 40 years or older. This is the highest among comparable communities, including Katy (32.7%), Rosenberg (52.5%), Spring (33.2%), Sugar Land (17.8%), and Tomball (29.0%), including Fort Bend County (20.4%). This means a significant proportion of Richmond residents live in homes and subdivisions that do not offer private recreation amenities and solely rely on the City's parks and recreation system.

1 *USA Today, Larry Copeland, May 9, 2014*
2 *America Walks, Walking Facts*

Existing Conditions

Like many small- and medium-sized communities, the City of Richmond has a limited trail network that requires long-term development to connect major destinations. Before turning to future opportunities, this section considers existing conditions for walking and bicycling in the community.

Public Trails

At the time this trail master planning process was initiated in Summer 2014, the City of Richmond had only a few existing trails for public use. These segments are highlighted in the existing conditions analysis and include:

- An off-street trail segment running north-south along Collins Road between George Park to the north and the Mamie George Community Center to the south;
- Numerous loop trails within George Park and Clay Park; and
- A future loop trail along Wessendorff Park and Lake Richmond.

Some of Richmond's walking paths would not meet one or more criteria necessary to be considered true "trails," particularly in terms of their width, design, and/or type or quality of surface material so they can withstand significant public use and weather impacts. For example, the Collins Road trails have a paved surface and are closer to being sidewalks, although they are in "off-street" locations unlike typical sidewalks that run alongside a street within only a few feet of distance, if any, from the street itself. Other examples are walking paths found within several of the City's parks. However, Clay Park's trails are only amenities to the park itself and do not extend outward from this site, which is the ultimate objective of a formal trail system.

Private Trails

Just as the Richmond community has reached a point of desiring greater investment in trails as a public amenity, many larger subdivisions and master-planned developments in the area have already incorporated trails as a key design feature and marketing asset. As an example, trails are a prominent and highlighted element of the Del Webb subdivision to the south of the city limits. The Pecan Grove subdivision in the northeast part of the ETJ was also designed with a trail system to provide residents a safe walking route to the neighborhood playground and other sections of the development.

Off-street walking paths and curvilinear sidewalks are also evident in many of the newer subdivisions being built in the Richmond area, such as those in the vicinity of the Grand Parkway. While these walking routes are theoretically open to any person or visitor once the development is constructed and homes and commercial buildings are occupied, there is a "private" aspect to them in that they tend to be internal to the particular development, although they may connect to public sidewalks along the perimeter of the development.

Sidewalk System

In support of this plan, a communitywide sidewalk inventory was completed in Summer 2014 to document existing locations in the city limits and ETJ where sidewalks are in place along public streets and thoroughfares. The results of this inventory are illustrated in the Existing Conditions Analysis Map.

Like many cities that had a more rural and suburban past, Richmond has extensive areas of the community where sidewalks were not installed along public roadways, including within many residential neighborhoods. The County Club Estates subdivision is the only exception among the City's mature neighborhoods. Newly-developing areas of Richmond are being built to a higher standard through the City's more recent planning and development regulations.

Guiding Principles

Many of the guiding principles within the City's Comprehensive Master Plan also apply to the Trail Master Plan. Those principles highlight such themes as community livability, promotion of recreation and leisure opportunities, environmental resource protection, connectivity, and intergovernmental and public/private cooperation and coordination.

The following underlying themes, in particular, are repeated here given their universal applicability from a planning and procedural standpoint:

- Availability of financial resources will be considered in all phases of planning, acquisition,

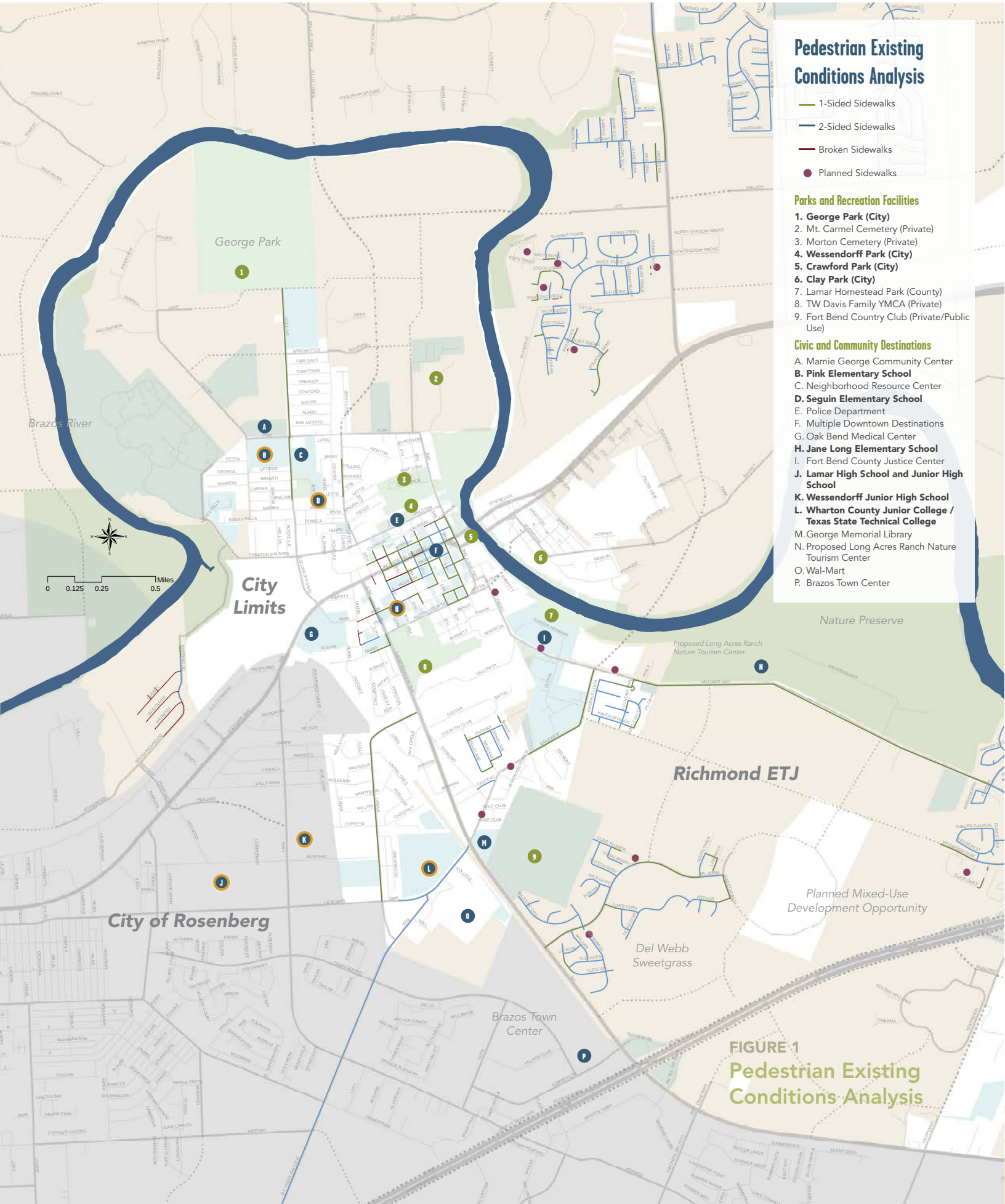


FIGURE 1
Pedestrian Existing Conditions Analysis

development, operation, and maintenance of facilities.

- The public will be involved in the planning process so that facility design considers the needs, desires, and opinions of users.
- Facilities will be planned and coordinated to allow for flexibility in adapting to future community recreation needs and requirements.
- Other existing plans that affect the community will be integrated into the final recommendations and the implementation of this plan.
- The planning and implementation process will continuously offer opportunities for incremental evaluation and review.

This plan was prepared based on a set of guiding principles that reflect community values and priorities. These principles include:

- Trail system development should be coordinated with the City's other physical planning activities (land use, transportation, parks, etc.) so that trail corridors serve a buffering role between different development intensities, help to preserve "green space" amid urban development, and offer protection to valued environmental resources such as creeks and wetlands.
- The City should begin longer term trail system development by focusing first on one or more "signature" projects that highlight good trail design and utilization and will help to build public support for a sustained improvement program. Examples of this include Lake Richmond and the pedestrian plaza near the Historic Courthouse.
- As an early initiative, the City should also expand upon the few existing trail locations in the community, such as the Historic District and the north-south segment along Collins Road.
- Another prime consideration in initial trail system development should be locations with existing utility easements. Otherwise, space for trail development may be minimal or will depend upon future property acquisition or securing of additional rights-of-way.
- The trail system should be developed similar to a community's thoroughfare network, with primary and secondary alignments identified and designed according to their anticipated system role, utilization level, and financial feasibility.
- Trail connections between various community destinations and focal points should be highlighted and promoted (including neighborhoods, schools, parks, community facilities, commercial areas, etc.).
- The City's trail network should interconnect with and build upon trail systems and projects of surrounding jurisdictions, including neighboring cities (Rosenberg, Sugar Land, Fulshear, Houston) and special districts (municipal utility districts, levee improvement districts, water conservation improvement districts).
- The City should seek linear dedications of land from new developments along Rabbs Bayou, the Brazos River, and other natural features to begin to establish a continuous trail alignment along these key corridors.
- With the extent of current and planned drainage detention areas in the Richmond area, primary trail segments should be linked to side and loop trails, recreational areas, and nature preserves associated with such sites.
- Trail system elements should be located and designed to be conveniently accessible to nearby residents as an outdoor resource for physical activity and fitness opportunities, particularly walking, jogging, and bicycling.
- The City should promote universal design that maximizes disabled access to trail paths and amenities.
- Trail segments should be developed, potentially in coordination with local schools, colleges, and community organizations, to provide "outdoor classroom" opportunities near education sites for environmental stewardship and instructional activities.
- As Richmond works to revitalize its Historic District and elevate the community's history, trails in and around this area should be designed to highlight the City's rich heritage and large collection of historical markers.

OPPORTUNITIES ANALYSIS

Based on the vision and policies established in this plan and the City's newly adopted Comprehensive Master Plan, the proposed trail network depicted in Figure 2 (see page 15) illustrates proposed alignments of a future citywide trail network in Richmond. The City has been divided into five sub-areas to describe potential projects, which are addressed by street name, segment length, and estimated cost in the Action Agenda (for the principal trails). This matrix has been organized to assist the City in grant applications, such as the Houston-Galveston Area Council's Transportation Improvement Program: Project Evaluation Criteria for Alternative Modes for Pedestrian/Bicycle Projects.

This analysis includes information on:

- Major destinations;
- Future principal and secondary trails;
- Safety considerations and barrier elimination;
- Future trailhead locations; and
- Special study areas.

Major Destinations

In keeping with the highly connected trail system vision, this section highlights the variety and sheer number of key destinations that the proposed trail network depicted in Figure 2 would connect. These include existing and proposed parks and recreation areas; schools and Wharton County Junior College / Texas State Technical College; major drainage detention areas with associated park and/or loop trail components; and major public facilities. In addition, the proposed trail system would greatly enhance walking and bicycle access to major commercial areas along US 90A, FM 1640, and throughout the City. Other possible community destinations include churches, neighborhood parks, private recreation areas, and individual subdivisions along the potential trail alignments.

Future Principal and Secondary Trails

The proposed trail network (Figure 2) indicates a set of principal trails (purple dashed lines) and secondary trail alignments (orange lines). This terminology is similar to the City's Thoroughfare Plan for the City's street system in that the primary trails are meant to be continuous over the longest distance (similar to arterial streets), connecting many destinations and linking with various other trail segments along the way. As a result, they are intended – and will be appropriately designed – to carry the most pedestrian and bicyclist "traffic" and are the highest priority. Trails labeled as secondary will operate like collector roadways, partly because they do not extend in many cases beyond a particular sub-area, but also because they will operate like "feeder" routes, providing a link for users between individual neighborhoods and destinations and the primary trail system. Separate illustrations for bicycle paths and transit loops are included to clearly underscore the transportation linkages. Specific alignments for the principal trail system are provided in the final section of this plan, ***Project Prioritization***.

As part of this hierarchy, it is important to note terminology for the purposes of this plan:

- ***On-street trails*** refer to bike lanes adjacent to automobile travel lanes (minimum 5' wide travel lane) and sidewalks (recommended 5' wide) located less than 6' from the street curb with or without landscape separation.
- ***Off-street trails*** refer to concrete shared-use paths (10' – 12' wide) and recreation trails (8' wide crushed granite surface). Sidewalks, such as the one along Collins Road connecting to George Park, count as an off-street trail since there is six feet or more of landscape separation. This particular alignment measures approximately 30' in distance from the street edge.

Safety Considerations and Barrier Elimination

Some of the most expensive trail alignments require safety improvements, ADA accessibility compliance, and barrier elimination. Several of the trail alignments require new crossings over the Brazos River, Rabbs Bayou, and other local drainage channels to maximize the connectivity of the trail network and link some strategic destinations. While the Brazos River requires

traditional bridge designs, other locations, like the one near the YMCA, would require "foot bridges" designed for pedestrian and bicycle use. Bridges may also be needed where a trail is situated along one side of a drainage channel or waterway but some users need to access it from the opposite side. Locations for major bridge crossings are indicated by an orange circle in Figure 2. Other major barriers include railroads and major thoroughfares.

Future Trailhead Locations

Trailheads are locations where trail users may conveniently and safely access the trail network. In some existing Richmond neighborhoods, residents will be able to easily access an abutting trail segment through the open, unfenced ends of cul-de-sacs and other local streets, via open and grassy pipeline and utility corridors, through unobstructed drainage swales between house lots (or, again, at the ends of cul-de-sacs in some cases), and where drainage detention areas were built at the edges of subdivisions and along the adjacent waterways.

Trailhead locations may also be helpful to nearby residents, but they are especially aimed at trail users who will drive or bike there to begin using the trail system. Therefore, vehicular parking is a key feature, with the quantity of parking spaces dependent upon the anticipated level of user demand and what the site can accommodate. Other potential trailhead elements and amenities can include

- Lighting;
- Benches (and/or picnic tables in some cases);
- Bike racks;
- Water fountains;
- Restrooms;
- Vending machines;
- Trash and/or recycling receptacles;
- Pay telephones and/or emergency phones;
- Wayfinding signage;
- Display case and/or bulletin board with trail network map and other posted flyers and advisories;
- Box or stand with rail maps/brochures;
- Exercise/stretching equipment; and
- Shade structures and/or trees and other landscaping.

Many trailhead locations might be incorporated into an existing commercial area or new or existing park, such as Wessendorff Park, which would avoid the need for dedicated trail user parking or other improvements. In some cases, the trail access point might be situated away from the park's primary use area and require some of its own facilities. Trailhead sites might also involve shared space through a cooperative effort with Lamar Consolidated Independent School District, community organizations, other government agencies, churches, etc.

Special Study Areas

This section highlights additional planning studies requiring a "finer grain" level of detail than is appropriate for a master plan. These may require on-site engineering assessments and focusing citizen participation efforts to the immediate residents and business owners.

TABLE 3

Means of Transportation to Work[1]

Given the small number of residents in the City commuting to work via walking, bicycle, or public transportation, the Census does not accurately reflect overall community trends. However, we see a gradual increase in the number of walkers in Fort Bend County, and an increase in the number of bicyclists in the United States. Interestingly, the trend in both Richmond and Fort Bend County is that females are predominantly the ones that walk to work, whereas it is much more balanced at the national level.

1 Source: 2008-2012 American Community Survey 5-Year Estimates and Journey to Work: 2000 Census 2000 Summary File 3 (SF 3) - Sample Data

	Richmond		Fort Bend County		United States	
	2000	2012	2000	2012	2000	2012
Walked	2.5%	0.6%	0.5%	0.6%	2.9%	2.8%
Bicycle	0.1%	0.0%	0.1%	0.1%	0.4%	0.6%
Public Transportation	N/A	0.0%*	N/A	1.8%	N/A	5.0%

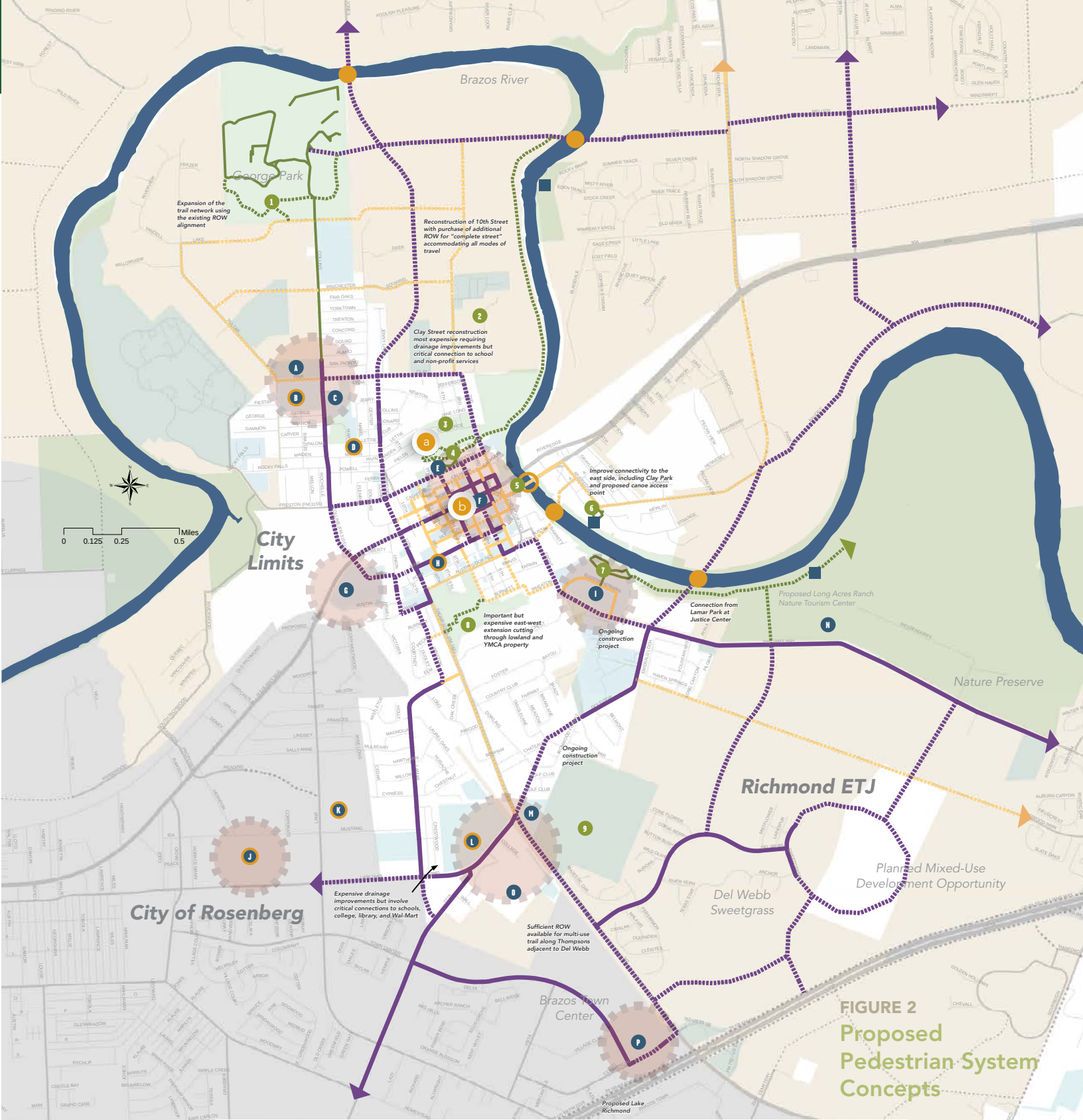


FIGURE 2

Proposed Pedestrian System Concepts

Proposed Pedestrian Network Concepts

- DASHED = Proposed
- SOLID = Existing
- Principal Trail Network
- Secondary Trail Network
- Recreation-Only Trail Network
- Existing River Crossing
- Proposed River Crossing
- Proposed Canoe Launch
- Special Trail Inset

Parks and Recreation Facilities

1. George Park (City)
2. Mt. Carmel Cemetery (Private)
3. Morton Cemetery (Private)
4. Wessendorff Park (City)
5. Crawford Park (City)
6. Clay Park (City)
7. Lamar Homestead Park (County)
8. TW Davis Family YMCA (Private)
9. Fort Bend Country Club (Private/Public Use)

Civic and Community Destinations

A. Mamie George Community Center
B. Pink Elementary School
C. Neighborhood Resource Center
D. Seguin Elementary School
E. Police Department
F. Multiple Downtown Destinations
G. Oak Bend Medical Center
H. Jane Long Elementary School
I. Fort Bend County Justice Center
J. Lamar High School and Junior High School
K. Wessendorff Junior High School
L. Wharton County Junior College / Texas State Technical College
M. George Memorial Library
N. Proposed Long Acres Ranch Nature Tourism Center
O. Wal-Mart
P. Brazos Town Center

FIGURE 3

Proposed Trail System Concepts Historic District Inset

See previous page for legend.

FIGURE 4

Proposed Bikeway System Concepts

Principal Bikeway Network

Future Potential Extensions

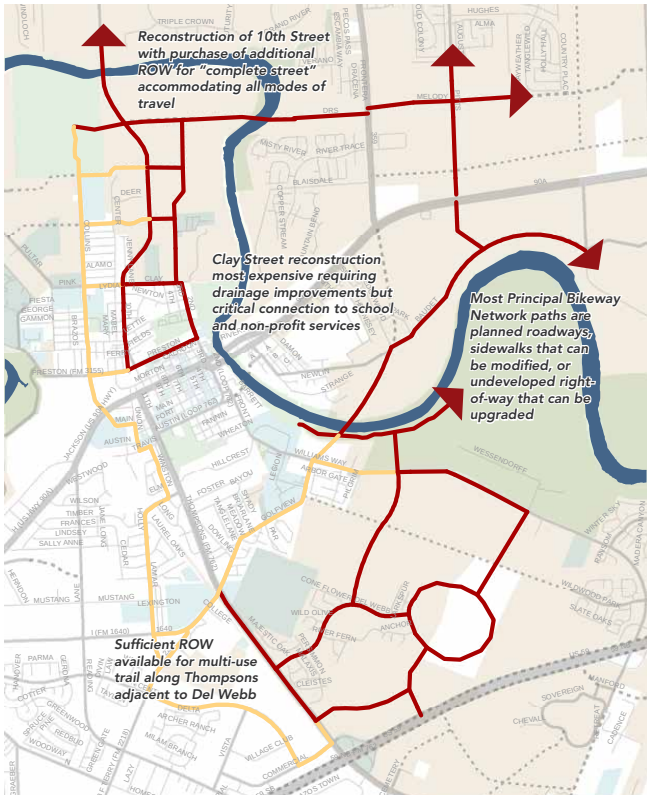


FIGURE 5

Proposed Transit System Concepts

Principal Transit Network

Future Potential Extensions

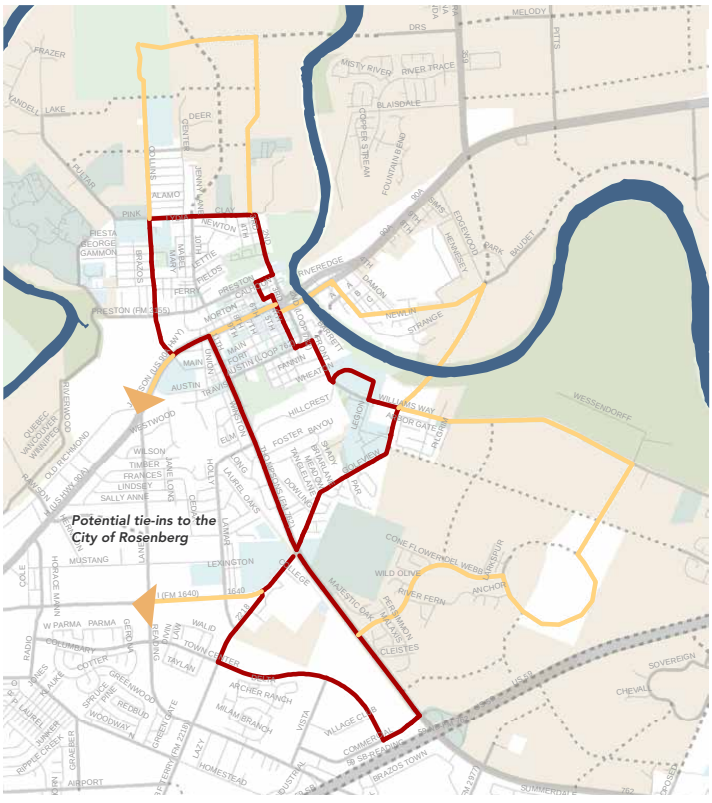
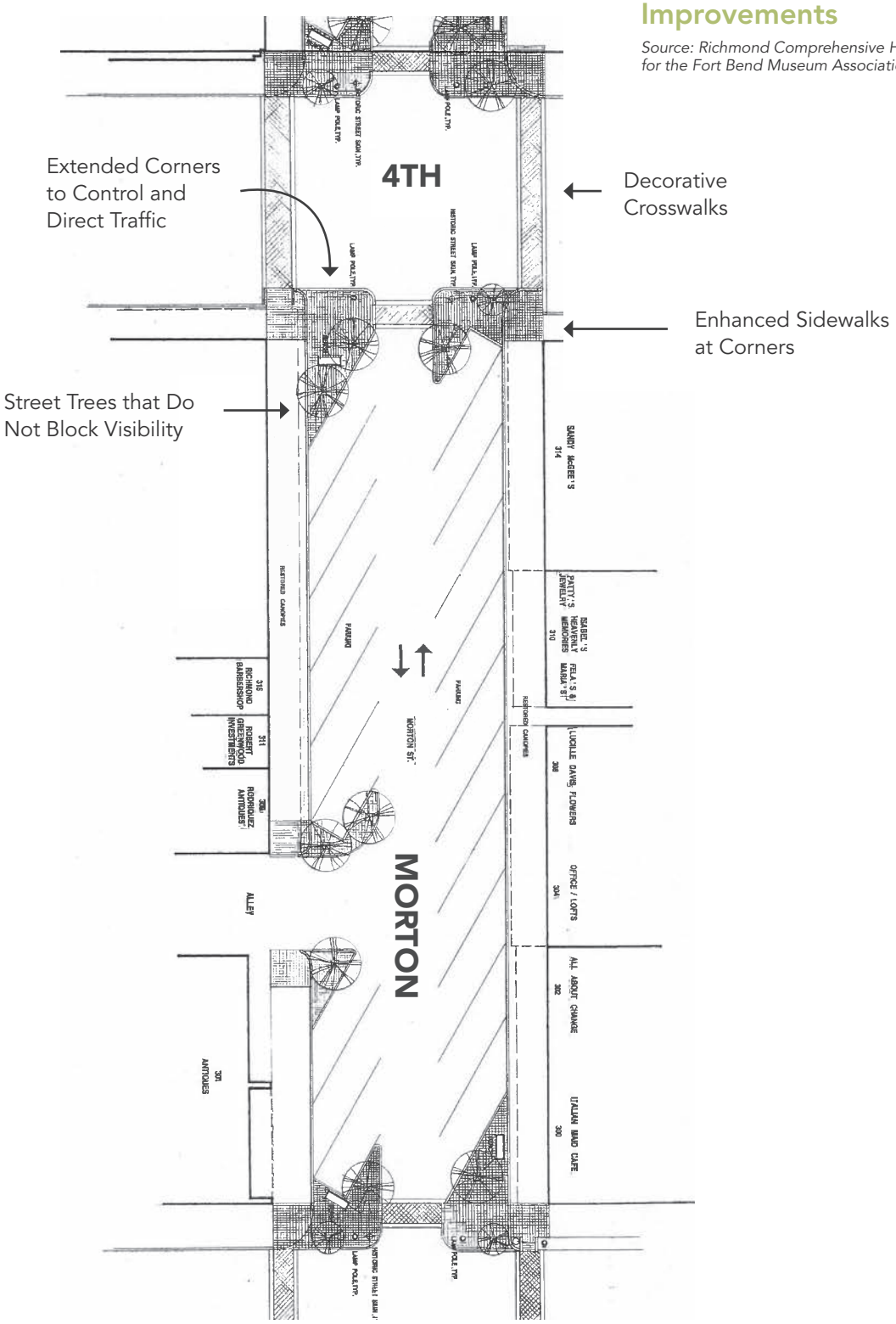


FIGURE 6

Morton Street Proposed Improvements

Source: Richmond Comprehensive Historic Preservation Plan for the Fort Bend Museum Association (August 2001)



Planning Sub-Areas

Area 1: North Richmond

- ***Major Destinations:*** George Park, Pink Elementary School, Seguin Elementary School; Mamie George Community Center; Morton Cemetery; Neighborhood Resource Center
- ***Safety Considerations and Barrier Elimination:*** Extension of 10th Street across the Brazos River connecting to McCrary Road via thoroughfare road bridge; new construction of Drs. Drive connecting to George Park via thoroughfare road bridge; older sidewalks in need of repair; drainage issues requiring major infrastructure upgrades to add sidewalks
- ***Potential Trailhead Locations:*** South side of George Park; Mamie George Community Center parking lot; intersection of proposed Drs. Dr. and Brazos River trail
- ***Special Study Areas:*** George Park internal trail system along existing easements; potential dog park and tie-ins to existing neighborhood or recreation areas

Area 2: Greater Historic District

- ***Major Destinations:*** Greater Historic District; City Hall and Annex; Police and Fire Stations; Historic Courthouse; Lake Richmond and Wessendorff Park; Crawford Park; Jane Long Elementary School; Oak Bend Medical Center
- ***Safety Considerations and Barrier Elimination:*** Extension of Austin Street across the Brazos River via thoroughfare road bridge; older sidewalks in need of repair, ADA accessibility for businesses; unstable river bank (currently pursuing grant for enhanced engineering); frequency of railroad traffic; US 90A traffic
- ***Potential Trailhead Locations:*** Lake Richmond and Wessendorff Park (using the existing parking lot); newly constructed Pedestrian Plaza abutting the Courthouse Square; City Hall
- ***Special Study Areas:*** Historic District (currently under study via University of Texas, San Antonio student project); waterfront potential near current Fire Station; Richmond Mile (recreation loop around Lake Richmond and Calhoun, approximately bounded by 2nd and 8th Streets)

Area 3: YMCA-Justice Center-Brazos River

- ***Major Destinations:*** Justice Center; Lamar Park; proposed Long Acres Ranch Nature Tourism Center (including proposed canoe launch); YMCA; Clay Park (including proposed canoe launch)
- ***Safety Considerations and Barrier Elimination:*** Drainage channels of Rabbs Bayou; Brazos River crossing via thoroughfare road bridge
- ***Potential Trailhead Locations:*** Clay Park (near the back end of the park closest to the water and near the proposed canoe launch; northeast section of the YMCA site (Davis Memorial Park); Lamar Park; Proposed Long Acres Ranch Nature Tourism Center
- ***Special Study Areas:*** Connection between the Justice Center and YMCA (currently under study via UTSA student project)

Area 4: Fort Bend Technical Center

- ***Major Destinations:*** Wal-Mart; George Memorial Library; Wharton County Junior College / Texas State Technical College; Lamar High School and Junior High School; Smith Elementary School; Fort Bend Country Club
- ***Safety Considerations and Barrier Elimination:*** Heavy traffic of FM 762; importance of connecting schools
- ***Potential Trailhead Locations:*** George Memorial Library; Wharton County Junior College / Texas State Technical College
- ***Special Study Areas:*** None

Area 5: Interstate Development

- ***Major Destinations:*** Del Webb Sweetgrass; Brazos Town Center (in Rosenberg); new planned mixed-use development
- ***Safety Considerations and Barrier Elimination:*** Railroad crossing eliminates direct pedestrian/bicyclist connectivity to Brazos Town Center; Rabbs Bayou (although turned into scenic and recreation amenity in Del Webb subdivision)
- ***Potential Trailhead Locations:*** New planned mixed-use development opportunity; Brazos Town Center
- ***Special Study Areas:*** None

North Richmond

1

Greater Historic District

2

YMCA-Justice Center-
Brazos River

3

4

Fort Bend
Technical
Center

5

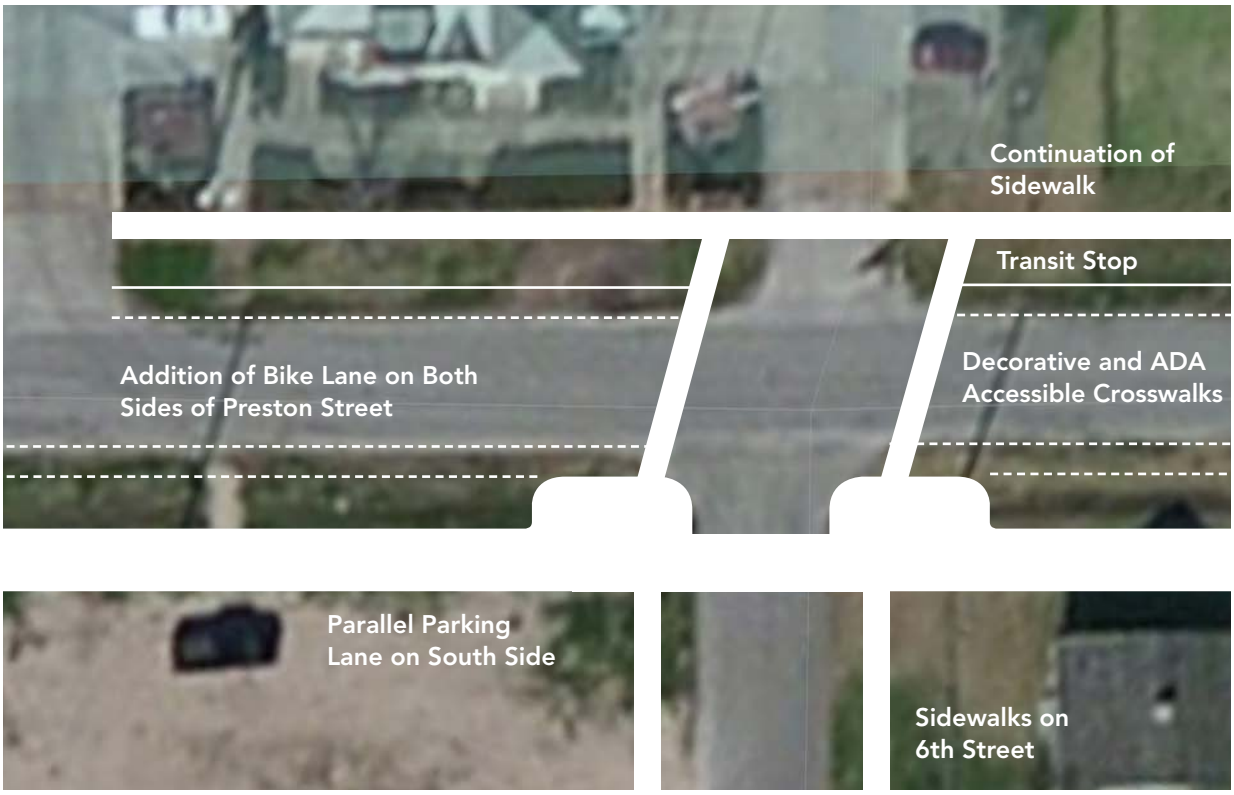
Interstate
Development

0 0.125 0.25 0.5 Miles

FIGURE 7
Sub-Areas and Trailheads

FIGURE 8

Preston and 6th Streets Concepts



In Houston, the Old Sixth Ward TIRZ was used to install historically appropriate brick/paver sidewalks within the residential area of Zone in a manner consistent with the few original sidewalks that still exist in the Zone (left image, Source: http://old6wardtirz.org).

DESIGN CONSIDERATIONS

As specific trail projects and improvements are authorized for detailed planning and design, the City will need to take into account the following considerations:

Historic District Character[1]

- The use of brick accents and tree grates to the west of City Hall shall serve as a model for new investments in the Historic District sidewalk infrastructure to ensure a compatible appearance and quality standard.
- Increase the amount of street furniture in the Historic District. This broad classification of amenities ranges from functional uses, like trash cans and transit loop shelters, to decorative displays, such as public art installations.
- Paving patterns, such as inlaid brick, stamped concrete, and other unique features, help to delineate pedestrian and bike travel zones. Reference the proposed streetscape from the Richmond Comprehensive Historic Preservation Plan in 2001.
- Examine the potential for curb bump outs to increase the pedestrian realm and promote traffic calming.
- Increase the amount of wayfinding and district branding at the pedestrian scale (i.e., not roadway signs). This includes everything from hanging signs, projecting signs and banners, and sidewalk or "sandwich board" signs.
- Enhanced crosswalks use a combination of visual and audible signals, paving and striping patterns, tactile surfaces, and ADA accessible ramps to facilitate pedestrian crossings and to alert motorists of safety hazards.
- Benches along the sidewalk should be kept simple and compatible with the historic character of the street. Do not place advertising signs on the back of benches.
- Limit the number of trash receptacles and benches. They should be very simple in design and not placed too closely to the edge of the street.
- Newspaper racks should be unobtrusive and painted a muted color. Do not place them in large groups near corners where they can impede pedestrian traffic.
- Avoid trying to make phone booths look historic. Do not allow booths to obscure important building features.
- Limit the amount of street furniture to avoid obscuring storefronts.
- Encourage outdoor dining to enhance the streetscape with lively sidewalk activity, as long as it is placed in unobtrusive locations within the building zone.

1 Principally derived from the Design Guidelines for Commercial Buildings in The Richmond Historic District (2001)

Neighborhood Character

- Minimizing impact on nearby residential areas, whether in terms of noise, lighting, litter, visual intrusion, etc. (which are all partly a function of how the trail is aligned relative to nearby homes and private properties).
- Designing consistent with the local setting in terms of materials, landscaping, types of amenities (lighting, benches, trash receptacles, etc.), and fitting in with the general "look and feel" of the surrounding area.
- Fencing, landscaped screening, or other physical separation and buffering to protect privacy of adjacent homes.

Accessibility

- Trail gradients no greater than five percent.
- Design and installation of ramps which comply with Americans with Disabilities Act (ADA) standards (generally at grades no greater than eight percent, with a level landing – minimum of three feet long – provided for every 30 inches of vertical rise). Also use of slip-resistant surfaces on ramps.
- Use of hard surfaces, or compacted crushed stone at an appropriate diameter (less than 3/8 inches), on any trail segment anticipated for use by persons with disabilities. No loose gravel surfaces in such cases.
- Handrails (32 inches high) installed on all ramps and bridges.
- Address access and circulation through, around, over, or under any major barriers for persons with disabilities.

- Eliminate any barriers along sidewalks and curbs and at intersections and street-crossing locations (including installation of curb ramps at each street corner).
- Stairs should not be incorporated in the trail system in any locations where wheelchairs, bicycles, or skaters will access or use the trail (ramps are preferred to stairs even where grades must exceed the five percent maximum).
- Where bollards or other barriers are installed at trail access points to keep out motorized vehicles, maintain at least 32 inches of clearance for wheelchairs.
- Rest areas every 300 feet on fully accessible trails, set off to the side of the main trail section, and with signs or information at the trailhead regarding the distance between rest areas.
- At least one accessible parking space in all trail-related parking areas.
- Compliance with ADA standards whenever a new trail provides access between new parking lots and new public facilities, including recreation or institutional facilities, commercial or business sites, and any new transportation-related facility.

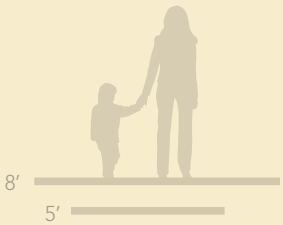
Environmental Sensitivity

- Sensitive siting and design/construction methods in or near environmentally sensitive areas (e.g., limiting areas to be disturbed, construction fencing, erosion control measures, site-specific construction practices).
- Design and surface types that are appropriate for areas with high erosion potential.
- Protection of mature trees and associated root zones, as well as riparian vegetation along stream corridors.
- Re-vegetation with native and/or self-sustaining plant materials, especially in non-irrigated locations.
- Development of aesthetically pleasing "greenways" along trails (rather than focusing only on the cross section of the trail improvement itself).
- Access to ecological features and observation points for trail users (e.g., along water features, wetland edges, habitat and vegetated areas, unique views, etc.).

Signage and Public Information

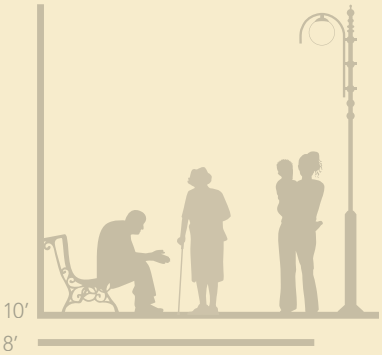
- Signage at trailheads and other access points regarding permitted trail uses, speed control, safety awareness on a shared-use path (e.g., rules for yielding, using a bell or signal to alert other users about to be passed), required or advised use of helmets for cyclists and/or skaters, and user courtesy policies (including respect for private property and owner privacy, no littering, dogs on leashes, etc.).
- More limited signage along trails for regulatory, informational, and wayfinding purposes, but to avoid adverse visual impacts.
- Use and placement of regulatory signs in accordance with standards set forth in the Manual on Uniform Traffic Control Devices (MUTCD). This includes:
  - Stop signs wherever a paved multi-use trail will cross a public street (unless vehicular traffic is required to stop at trail intersections).
  - Speed limit, slow, or danger/warning signs in areas with dangerous conditions ahead or limited sight distance.
  - Curve signs where an upcoming curve in the trail has a small radius and/or limited sight distance, especially if a trail user could potentially be forced off the trail if moving at a relatively high speed.
  - Dismount signs in areas where trail conditions or potential hazards warrant advising cyclists to dismount and walk these segments (e.g,. areas with substandard trail width and/or vertical clearance, narrow bridges, busy street crossings).
  - School zone signs near school campuses for the safety of both school children and trail users.
  - Private property signs in appropriate locations on an as-needed basis.
- Placement of signs for maximum visibility and where they will not impede trail use or present a hazard.
- Consistency in sign design and placement to avoid public confusion (and sign sizes and letter heights appropriate for anticipated trail user speeds).
- Use of reflective coating and graffiti-proofing on all regulatory signs.

FIGURE 9
Standard Sidewalk



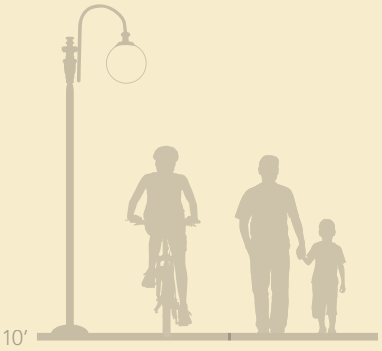
5 ft. to 8 ft. wide reinforced concrete with 4" to 5" thickness (emphasis on new development)

FIGURE 10
Historic District Sidewalk



5 ft. to 8 ft. wide reinforced concrete with 4" to 5" thickness (compatible with existing development patterns)

FIGURE 11
Shared Use Trail

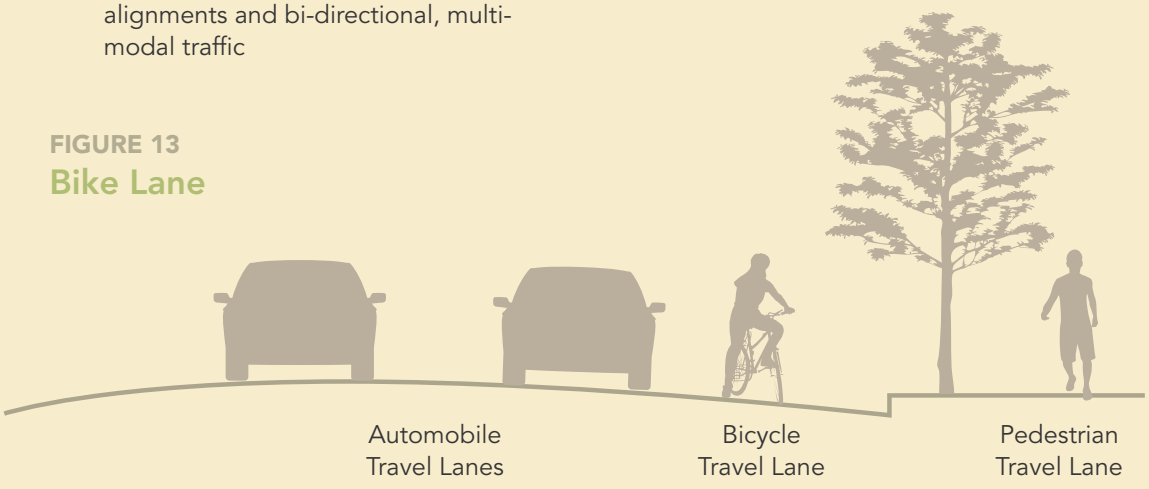


10 ft. to 12 ft. wide reinforced concrete typically located in areas that can accommodate wider trail alignments and bi-directional, multi-modal traffic

FIGURE 12
Soft Surface Recreational Trail

8 ft. wide soft-surface trail and edging (decomposed granite)

FIGURE 13
Bike Lane



5 ft. bicycle travel lane on both sides of street

Source: The illustrations are partially derived from the H-GAC Pedestrian Pathways and Building Better Bikeways publications.

Almost 60 percent of pedestrian deaths occur in places where no crosswalk is available.

Source: America Walks

- Development of trail system guides and maps (trailhead locations, description of trail segments and amenities – potentially with a trail rating system regarding length and degree of difficulty, information on wheelchair accessibility and any barriers, destinations, nearby services, user courtesy policies, major street crossings and crosswalk locations, location of drinking fountains and/or restrooms).

Safety

- Appropriate width.
- Surface material.
- Slopes.
- Trail curvature.
- Sight distance.
- Adequate vertical clearance where trails go under bridges or other overhead structures/features (a 10-foot vertical clearance from the trail surface is generally recommended, with eight feet as a minimum at any point above the width of the trail).
- Use of drainage grates and other features that are safe for bicycle tires to pass over while also limiting potential injuries to walkers and skaters.
- Adequate setback of fences, landscaping, and other potential obstructions from the trail (fences should generally be no closer than five feet from the trail edge, and fences that are necessary on both sides of a trail should not create a narrow "canyon" effect for long stretches).
- Shade and benches so trail users can rest and avoid overheating during the warmest months.
- Signage regarding potentially hazardous locations (e.g., water safety, wildlife).
- Marked crosswalks, signage, and potential pedestrian signalization and/or traffic calming measures where trail alignments must cross major roadways (and any railroad crossings must also be carefully designed).
- Bollards or other obstacles at trail access points to prevent unauthorized use by motorized vehicles, but of the type that can be removed or folded over in emergency situations.
- Public education on safe cycling and skating practices, use of safety equipment (helmets and padding, bicycle lights/reflectors, etc.), and other practices to increase user safety – and monitoring and police enforcement of trail rules and relevant City ordinances and laws.

Security

- Lighting.[2]
  - > Always in a tunnel or at overpasses.
  - > Trailheads.
  - > Bridge entrances and exits.
  - > Public gathering places.
  - > Along streets.
  - > Crosswalks.
  - > Where the path crosses another path or sidewalk.
  - > On signage.
- Trail and user visibility and elimination of potential "hiding" places (careful placement and design of fencing and landscaping, density, and trimming of natural vegetation, etc.).
- Emergency telephones or call box systems (with direct access to 9-1-1) in key locations, especially along more remote trail segments.
- Particular focus on police monitoring and security measures in parking areas.
- Ease of access for emergency personnel and vehicles.

2 AASHTO guidelines

IMPLEMENTATION FRAMEWORK

Funding Tools

- ***Multi-Modal Transportation Projects.*** Future trail projects should be tied into all major roadway construction and reconstruction projects to minimize costs. This requires ongoing conversations with Fort Bend County, the Houston-Galveston Area Council, and the Texas Department of Transportation to ensure coordinated infrastructure efforts for major projects like the proposed extension of 10th Street heading north over the Brazos River (connecting to the Grand River subdivision).
- ***Pavement Management and Maintenance Program via the City's Capital Improvement Program.*** One option for the City to develop a comprehensive trail network is to adopt a pavement management and maintenance program. This long-range strategy for reconstructing and improving the appearance, function, and safety of the City's existing streets and sidewalks dovetails the objectives of this plan. The program would need to be structured to target 6 to 10 sub-areas throughout the community over a 10- or 20-year period.
- ***General Obligation Bonds.*** Many cities throughout the Houston-Galveston region have funded trail projects using general obligation bonds either paired with transportation projects or as trail-specific projects, similar to Fort Bend County's approach to its mobility bond packages. For instance, the City of Houston is implementing a $205 million Bayou Greenways Initiative funded by a $100 million bond passed in November 2012. This is matched by private-sector contributions of land, design fees, and $105 million in funding.
- ***Public-Private Partnerships with Developers and Special Districts.*** Many trail segments will be partially or entirely built by private developers or special districts, as demonstrated by the internal trail network of the Del Webb subdivision. The City can proactively partner with these entities to co-fund projects that enhance the most visible elements or create critical connections that are otherwise not required in the City's land development regulations.
- ***Tax Increment Reinvestment Zone (TIRZ).*** Under Chapter 311, Texas Tax Code, the City has the authority to designate an area within the City limits as a TIRZ. This mechanism is used to encourage reinvestment in underutilized areas that would not redevelop as quickly or extensively on their own. One of the criterion for developing a TIRZ is the predominance of defective or inadequate sidewalk or street layout. As an economic development tool, it helps to self-finance new development projects by capturing back-end tax proceeds to amortize front-end project costs. This happens by withholding new tax revenues generated within the district for the life of the TIRZ. The withheld amount (the "increment") is used to offset the district's initial investment. Once debt is paid off, the increment can be used for additional investments and support of taxing bodies (e.g., school districts). TIRZ does not mean an increase in property tax rates within the zone. Instead, it helps expand the district's overall tax base by stimulating private development with new TIF-financed infrastructure or developer incentives. Many cities have used TIRZ to reinvest in Downtown area sidewalk infrastructure. In Houston, the Old Sixth Ward TIRZ was used to install historically appropriate brick/paver sidewalks within the residential area of Zone in a manner consistent with the few original sidewalks that still exist in the Zone. For instance the City of Amarillo's Center City TIRZ used more than $745,000 in construction funds to pay for improvements to its sidewalks surrounding the County Courthouse.
- ***Development Corporation of Richmond (DCR).*** In 1995, the City formed the DCR under the Texas Development Corporation Act of 1979 for the purpose of promoting, assisting, and enhancing economic and development activities on behalf of the City. According to its articles of incorporation, the DCR's focus is primarily in the areas of business retention and expansion, formation of new businesses, and business attraction. As part of the public input process for this plan, the project team heard anecdotal accounts of prospective Historic District business owners deterred by the condition of sidewalks and lack of ADA accessible ramps for business clientele. The City may want to consider using DCR funds to

provide matching funds for grant applications and fundraising assistance for larger sidewalk and trail projects. The City's 2013 Comprehensive Annual Financial Report indicates the DCR has more than $5 million in assets (most of which is restricted for use on community projects).

- ***Private Donors.*** The City has a long history of private donations that have funded the City's landmark projects, such as George Park and Wessendorff Park. The wide variety of community stakeholders - such as local foundations, non-profit organizations, and civic and educational institutions – serve as essential funding mechanisms that can provide critical starting capital, matching funds, land, and design enhancements above and beyond the City's contributions. On a smaller scale, fundraising campaigns can be set up for individual contributions such as penny drives and brick donations, which are approaches that have already been used by the Fort Bend Museum. Similarly, trail amenities such as bike racks, benches, picnic tables, water fountains, restrooms, signage, map/brochures stands, exercise/stretching equipment, shade structures, and landscaping could be donated by community organizations and businesses. In-kind donations of labor, materials, or property could also prove highly valuable to implementation efforts. "Hands-on" support, such as the Boy Scout service project to help construct Lamar Park, can be undertaken by community organizations to reduce costs.
- ***Grants.*** The City trail network will require supplemental funding from regional, state, and federal grants. It will need to use local sources of funds such as the City's Capital Improvements Program, institutional investors, and private donors to leverage outside funding and vice-versa - especially to tackle trails projects that require major infrastructure improvements, such as the drainage along Clay Street. Receiving one or two grants is a powerful way to build excitement for an initiative and catalyze additional investment from both public and private sources. The challenge in pursuing grants is the application process, securing matching funds, and the timing necessary to go through the process. Major grants include:

> ***Texas Parks and Wildlife Department's Small Community Grants.*** This grant was created to meet the recreation needs of small Texas communities with a population of 20,000 and under. The grant provides 50% matching grant funds to eligible municipalities and counties. Funds must be used for development or acquisition of parkland. Eligible projects include ball fields, boating, fishing, and hunting facilities, picnic facilities, playgrounds, swimming pools, trails, camping facilities, beautification, restoration, gardens, sports courts, and support facilities.

> ***Texas Parks and Wildlife Department's Outdoor Recreation Grants.*** This grant provides 50% matching grant funds to municipalities, counties, MUDs, and other local units of government with populations less than 500,000 to acquire and develop parkland or to renovate existing public recreation areas. Projects must be completed within three years of approval.

> ***Federal Highway Administration's (FHWA) Recreational Trail Grants.*** TPWD also administers the National Recreational Trails Fund in Texas under the approval of the Federal Highway Administration (FHWA). This federally funded program receives its funding from a portion of federal gas taxes paid on fuel used in non-highway recreational vehicles. The grants can be up to 80% of project cost with a maximum of $200,000 for non-motorized trail grants and currently there is not a maximum amount for motorized trail grants. Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors.

> ***Federal Highway Administration's Transportation Alternatives.*** Transportation Alternatives (TA), formally known as Transportation Enhancements (TE), are federally funded, community-based projects that expand travel choices and enhance the transportation experience by integrating modes and improving the cultural, historic, and environmental aspects of our transportation infrastructure. TA projects must be one of 10 eligible activities and must relate to surface transportation. For example, projects can include creation of bicycle and

pedestrian facilities, streetscape improvements, refurbishment of historic transportation facilities, and other investments that enhance communities, connections, and access. The federal government provides funding for TA projects through the nation's Federal-aid highway transportation legislation.

- ***Federal Highway Administration's Congestion Mitigation and Air Quality Improvement.*** The purpose of the Congestion Mitigation and Air Quality Improvement program (CMAQ) is to realign the focus of transportation planning toward a more inclusive, environmentally sensitive, and multi-modal approach. The CMAQ program provides funding for traffic mitigation programs and projects which reduces transportation related emissions. Pedestrian and bicycle facilities are included as measures to reduce vehicle use or improve traffic flow. However, bicycle and pedestrian projects are at a disadvantage compared to roadway or transit improvements simply because they do not always score as well for emissions reduction or congestion reduction as other types of roadway improvements, such as, high occupancy vehicle lanes, traffic signalization and synchronization, and intersection redesigns. This program is administered locally through H-GAC.

- ***Texas Department of Transportation's (TxDOT) Highway Safety Improvement Program (including Safe Routes to School).*** The TxDOT Highway Safety Improvement Program (HSIP) is for highway safety projects that eliminate or reduce the number and severity of traffic crashes. Funds may be used for projects on any public road or publicly-owned bicycle and pedestrian pathway or trail. The Texas SHSP identifies bicyclists and pedestrians as roadway system users that require special protections to enhance roadway safety. The SHSP identifies countermeasures for these users that include: public information campaigns to increase awareness of bicyclists and pedestrians; the construction of sidewalks; local ordinances for helmet usage; and improved signals, signs and crosswalk markings at intersections.

  The SHSP also recommends continued funding support for a comprehensive Safe Routes to Schools program in Texas. Safe Routes to School (SRTS) programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. For instance, East Bernard Elementary School and Junior High School in Wharton County received $346,225 for five-foot sidewalks, ADA ramps, and intersection crossings

- ***Houston-Galveston Area Council's (H-GAC) Transportation Improvement Program.*** Through its regional transportation planning role and as the Metropolitan Planning Organization (MPO) for transportation planning in the eight-county Houston-Galveston area, H-GAC funds and administers a broad range of pedestrian and bicyclist projects in its Transportation Improvement Program (TIP). H-GAC is intent on assisting more area local governments, including the City of Richmond, to develop pedestrian and bicyclist plans and projects so they may be nominated for funding in future annual updates of the regional TIP. With a Trail Master Plan now in place, Richmond should pursue this opportunity and tap into the resources that are already benefiting other area cities.

Refer to the following resources for strategic pedestrian-bicyclist funding mechanisms:

- ***Tools to Increase Biking and Walking: Houston, Texas Funding Profile for Advocacy Advance***
  http://www.bikeleague.org/resources/reports/pdfs/houston_funding_profile_final_compress.pdf

- ***National Center for Safe Routes to School: Federal Funding 101***
  http://www.saferoutesinfo.org/funding-portal/federal-funding-101

Maintenance Program

One of the key considerations in developing an implementation framework is the cost of maintaining the trail system. The City must set aside adequate funding support for ongoing, routine maintenance, oftentimes a criterion for grant applications. Example considerations include:

- Major and minor surface repairs caused by general wear and tear and root damage;
- Surface sweeping and clearing debris on a regular basis and after storms for user safety;
- Monitoring of lighting and signs to ensure safety and clear communication;
- Trash collection, litter removal, and graffiti removal;
- Cleaning of restrooms, drinking fountains, parking lots, and other trailhead and trail amenities; and
- Trimming of vegetation to ensure visibility (e.g., no higher than three feet for under-story vegetation and minimum vertical clearance of eight feet above trails).

In many instances along the proposed trail system, the path will connect City parkland or other City-maintained areas or rights-of-way where mowing already occurs and is covered by existing maintenance budgets. In other cases, a trail may be constructed along the edge of a school campus or in other locations where another agency or entity may already handle general mowing and maintenance. Given their proximity to neighborhoods or commercial areas, some trail segments may particularly lend themselves to volunteer mowing ("Adopt-A-Trail" initiatives) and upkeep assistance, which would ease the City's maintenance cost.

For the purposes of this plan, the estimated cost of maintenance and operations along a trail independent of existing right-of-way maintenance is estimated to be an average of $2,500 per linear mile for maintenance of hard and soft surfaces, recognizing soft surfaces tend to require a higher degree of maintenance and more frequent resurfacing, which is factored into the lifespan of the surface. This figure is derived from various sources and confirmed by City staff (TBD):[1]

- $1,200 per mile (as an absolute minimal cost) in the Rail Trail Maintenance & Operation Manual provided by the Rails-to-Trails Conservancy.
- $2,077 per mile for government run trails provided in the Rail Trail Maintenance & Operation Manual provided by the Rails-to-Trails Conservancy.
- $1,500 per mile provided in the Iowa Trails 2000 plan by the Iowa Department of Transportation (includes a mixture of different trail surfaces)
- $2,525 per mile summarized by the Milwaukee County Park System (all asphalt paths)
- $2,042.06 per mile of unpaved trail in the Trail Cost Model (draft by the Wisconsin Department of Natural Resources).

1 https://americantrails.org/resources/ManageMaintain/MilwMaintcost.html

Implementation of this plan requires the applicable regulatory tools to enforce its policies. In 2014, the City Commissioners voted to prepare interim protective regulations and a full Unified Development Code (UDC) that consolidates and improves on existing ordinances and West Fort Bend Management District Standards. This process of updating the City's land development regulations offers significant opportunities to require land developers to adhere to the guidance of this Trail Master Plan. The following considerations on the next page should be taken into account when drafting the UDC.

Acquisition Tools

Given the potential cost, timing, and complexity of developing a robust trail network, the City must set aside appropriate linear corridors for trail improvements similar to development of the Thoroughfare Plan. The two primary means discussed are: (1) land dedication requirements through the subdivision regulations, and (2) acquisition of easements for trail purposes.

Linear Land Dedications

One way to plan for the future trail network is to include trail dedication requirements in their subdivision regulations. In this way, proposed trail alignments can be preserved so that rights-of-way will be available for future "public thoroughfares." A development applicant shall coordinate with City staff to interpret the Trail Master Plan and its relationship to the proposed development. This would also include consideration of how any

Regulatory Implications

TABLE 4
UDC and Other Considerations

Considerations	Safe, Inviting, and Universally Accessible	Convenient Linkages	Unique and Educational Outdoor Experience	Cross-Functional Uses	Equitable Distribution and Access	Self-Sustaining System
Potential Article 4.1, Subdivision Design and Land Development and UDC Article 4.5, Streets, Sidewalks, and Trails						
Trail dedication, fee-in-lieu requirements, and/or trail easements		X			X	X
Connectivity of sidewalks, trails, and streets in subdivision regulations	X	X		X	X	
For collector streets with designated greenway, include 5' bike lane or 10' - 12' off-street shared-use trail; for minor residential streets with designated greenway, include 5' on-street bike lane	X	X		X	X	
Increase sidewalk width minimums to 5' - 8' depending on street classification *(with emphasis on new development)*	X	X		X	X	
Traffic calming and access management standards for intersection and roadway design to reduce vehicular speeds	X	X		X		
Alternative street cross-sections	X	X		X		
Maximum block lengths to encourage increased pedestrian options	X	X				
Potential UDC Article 5.1, Building Design Standards						
Building placement, orientation, scale, and street orientation that promotes walkability	X					
Architectural detail and window transparency that promote safety and walkability	X					
Potential UDC Article 4.2, Parking, Loading, Access, and Lighting						
Lighting standards to promote maximum visibility and activity at the pedestrian scale (versus automobile scale)	X					
Potential UDC Article 2.1, Zoning Districts						
Historic preservation overlay district standards for the Historic District streetscape amenities, sidewalks, and gathering spaces	X	X	X			
Promotion of mixed-use development patterns		X	X			
Use standards that promote walkability, connectivity, and safety within residential zoning districts		X				
Potential Engineering and Design Standards						
Universally accessible sidewalk surfaces, grades, and ramps	X					
Audible, visual, and tactile warning signals at crosswalks	X		X			

internal trail concepts within the development might connect with the existing trail network. Dedication of associated rights-of-way and/or land for public use would be accomplished through final plat approval.

The National Park Service (NPS), in its publication, *Protecting Open Space: Tools and Techniques for Texans*, points out the advantages and disadvantages of municipal parkland and trail dedication requirements. Among the advantages, such dedication ordinances enable communities to ensure adequate land for public recreational purposes "in step with the pace of land development." NPS points out that also having the developer construct the park or trail improvement can be cost-efficient because labor and heavy equipment will already be on site for other on-site infrastructure and improvements. On the other hand, NPS points out the potential legal risks of exaction ordinances if their requirements can be demonstrated to be excessive through successful litigation. NPS recommends instituting parkland and trail dedication requirements in communities where:

- Significant growth and new land development is occurring;
- The local government has a strong park/trail master plan to guide the development of new park/trail facilities; and
- Developers have typically complied well with local development ordinances.

However, NPS urges caution if:

- The exaction ordinances could be difficult and costly to administer;
- The local government does not have adequate resources to pay for the maintenance of newly dedicated/acquired lands; and/or
- The cost of exactions could become a deterrent to any new development.

Easements

NPS also explores the option of trail easements, which "obtain the use of a corridor across another landowner's property for public access purposes at a cost less than outright purchase of the corridor or tract in fee simple." In other words, an easement represents a partial interest in a property, giving the easement holder the right to enter onto the property, develop a trail facility within a designated corridor, and allow others into that corridor to use the trail.

Such an easement could be acquired by a variety of public and/or private players and does not necessarily have to be held by the municipality. Another advantage of easements is that they are recorded in county deed records, meaning they run with the land and are legally binding on successive owners of the property. Some property owners may be willing to donate the easement to the community while others are interested in the income aspect.

NPS points out that trail easements often grant access for a fixed number of years, which is different from many other easements that are established in perpetuity. However, property owners may insist on a less open-ended access commitment given concerns about potential liability, interference with their use of the land, and potential problems such as litter and vandalism.

Of particular interest to Richmond, NPS notes that trail easements are a vehicle to enable one public agency (such as a municipality) to obtain certain rights related to another public agency's property, such as a municipal utility district or levee improvement district that does not have a recreational mandate or the capabilities or staffing to manage public use of a trail facility.

As with parkland/trail dedication requirements, NPS points out both advantages and disadvantages of trail easements. The primary advantage is that easements typically cost less than outright land purchases, so the City's trail development funds can go further through the use of easements. Trails also occupy relatively narrow corridors, so they can be accommodated via easements within larger tracts of land that are used for various other purposes. The main disadvantage is that the easement puts the grantor (property owner) and grantee (municipality) in an ongoing relationship, which could prove tricky if disagreements emerge or certain expectations are not met. The landowner may also insist on certain restrictive terms to address concerns about the types of trail use and/or hours of public use, and these limitations may prove burdensome for the City (and trail users) over time. NPS particularly warns about term-limited easements where a property owner could choose not to renew the agreement after the City has already constructed the trail.

NPS concludes that trail easements are advisable in cases where:

- There would be substantial cost-savings in acquiring an easement rather than land in fee simple (full purchase);
- The easement is in perpetuity, and the terms and conditions are defined well enough for future owners to conform to the original intent if the land changes hands; and/or
- The granting landowner is already a public entity, and adding public use would be easy.

NPS does not recommend use of trail easements when:

- The granting landowner is leery of government and/or public use;
- The landowner's terms and conditions prove too restrictive to provide a reasonable amount of trail access and use; and/or
- The local government does not have adequate staff to effectively manage the trail easement to prevent negative impacts on the landowner.

PROJECT PRIORITIZATION

Cost Considerations

In order to develop a phased implementation strategy for the proposed trail system, the project team sought cost inputs from local design and contract professionals working in Fort Bend County and the Houston metropolitan area. The cost of building sidewalks and trails fluctuates from year to year and requires familiarity with the local terrain, drainage, and other environmental conditions that would increase the City's design, labor, or material budgets.

The following "planning level" estimates use 2014 dollar values and include a 10 percent contingency increase since all proposed trails are at a pre-design stage. The contingency helps to account for unknown variables, such as multi-phase projects that would involve smaller trail sections constructed at higher per-unit costs. For planning purposes, an additional 15 percent fee has been added to account for surveying, design, and construction administration associated with the improvements. The following baseline values were used for the purposes of this plan.

It is anticipated that the principal trails in the planned future trail network for Richmond will be primarily designed with concrete surfaces given their expected utilization level, the durability and relative maintenance ease of concrete, and the need for hard surfaces near low-lying areas subject to periodic flooding and potential erosion. While a 10-foot multi-use trail costs nearly double the price of an eight-foot soft-surface trail, it is expected to have a 15- to 30-year life span. Crushed granite surfaces need to be replaced every 2 to 10 years and can require higher maintenance costs due to edging and sweeping.

TABLE 5
Cost Per Unit

	Planning-Level Cost Estimates)
Bike Lane Conversions	
Bicycle lane marking both sides of street (per linear foot)	$11.00 per l.f.
Trails	
Demolition and disposal of concrete or asphalt (per square foot)	$2.20 per s.f.
Demolition and disposal/relocation of higher-intensity natural corridors (per linear foot, 20' wide, small trees and brush)	$2.20 per l.f.
5 ft. wide reinforced concrete one side of street with 4" to 5" thickness (per linear foot)	$36.67 per l.f.
10 ft. wide reinforced concrete/ shared-use path (per linear foot)	$165.00 per l.f.
8 ft. wide soft-surface trail and edging (decomposed granite) (per linear foot)	$88.00 per l.f.
Fine and rough grading allowances (per square foot)	$3.30 per s.f.
Culverts (12 inch diameter maximum for local drainage only) (one every 240 ft.) (per unit)	$1,100.00 ea.
Turf re-establishment (5 ft. on both sides of trail corridor via hydroseeding) (per linear foot, with establishment watering)	$0.55 per l.f.
Crosswalk Modifications	
Intersection and mid-block crosswalk striping (per direction up to 4 per intersection)	$1,100.00 ea.
Intersection accessibility ramps (per ramp up to 8 per intersection)	$1,300.00 ea.
Signage, Lighting, and Safety Features	
Trail/bikeway directional and safety signage (every 500 ft.) (per unit)	$550.00 ea.
Pole lighting (every 100 ft.) (per unit)	$2,800.00 ea.
Emergency call box (one per half mile) (per unit, cellular, solar-powered)	$11,000.00 ea.

A few of the off-street trails, like the proposed crushed gravel trail along Lake Richmond, will likely have other surface types depending on their location, length, and anticipated use. Design features should generally be specified to minimize maintenance needs, including appropriate base design and materials to ensure sound construction results and careful drainage planning.

Through the preliminary design process for specific trail projects, additional cost estimates would be needed for any trail-related amenities plus improvements at trailhead locations. Any necessary land and/or easement acquisition would represent another added cost. Then, standard cost expectations for engineering, testing, construction administration, contingencies, etc. would round out the overall project cost.

Potential Projects

This section focuses on prioritization of potential projects. The project tables list and prioritize specific tasks in the short- (1 to 2 years), mid- (3 to 5 years), and long-term (6+ years) to reflect multiple phases of development. The ultimate extent and timing of implementation activity will depend on policy decisions regarding the:

- City budget allocations from year to year;
- City's success rate in pursuing grant opportunities (some of which may also require City budget commitments to satisfy local matching fund requirements); and
- Potential action by the City to develop its Unified Development Code so that trail-related land dedications or improvements are addressed through the development review and approval process.

These figures shall be used for long-range planning purposes only. A landscape architect and engineer should be consulted to determine exact specifications for infrastructure improvements and design specifications, which could dramatically influence the overall project budget.

These figures represent the construction of core trail infrastructure (as listed) and do not include major infrastructure improvements (e.g., drainage improvements), purchase of right-of-way, or other considerations that would be included in the project. ST = Short-Term, MT = Mid-Term, LT = Long-Term

TABLE 6
Potential Projects

Priority	Sidewalks	Shared Use	Bike Lanes	Soft Surfaces	Intersections	Trailheads		New/ Repair	Length (ft.)	Trail Planning Estimate	
Area 1: North Richmond											
ST						X	Mamie George Community Center trailhead	New		$16,503	
ST	X				X		2-corner intersection crossing on Collins Road at Maiden plus small strip sidewalk connector	Reconstruction	40	$9,716	
ST/ MT	X		X				10th Street reconstruction and extension north (City limits to Preston Street)	New and Reconstruction	Joint Road Project		
LT	X		X		X		Clay Street between 2nd and Collins; 1 four-corner intersection; 3 three-corner intersections; 10th street included in road reconstruction	Reconstruction	3,188	$301,476	
LT	X		X		X		2nd Street (Clay and Preston); mid-block crossing Lake Richmond	Reconstruction	1,875	$159,455	
LT				X		X	Recreational trail in George Park and trailhead	New	4,752	$687,683	
LT	X		X				Drs. Drive	New	Private		
LT				X		X	Recreational trail along Brazos River (between Drs. and Lake Richmond)	New	8,120	$1,188,206	
Area 2: Greater Historic District											
ST	X						Austin Street turn	Reconstruction	Joint Road Project		
ST	X						Strategic repair of avg. 8' wide Historic District sidewalks; ADA ramps	Reconstruction	300	$81,610	
ST						X	Wessendorff Park / Lake Richmond trailhead		Joint Project		
ST						X	Historic Courthouse trailhead	New		$14,350	
ST						X	City Hall trailhead	New		$14,350	
MT	X				X		FM 762 between Fort and Austin; 2 two-corner intersections; 1 four-corner intersection	Reconstruction	285	$46,587	
MT	X						4th Street connector between Preston and Calhoun	Reconstruction	260	$19,225	
MT	X						5th Street connectors between Preston and US 90A	Reconstruction	468	$32,081	
MT	X						Main Street connectors between 4th and 7th; 4 one-corner intersections	Reconstruction	555	$51,952	
MT	X						6th Street connector between Houston and Main	Reconstruction	285	$18,872	
MT	X						4th Street connectors between Fort and Liberty; 1 two-corner; 1 three-corner; 2 one-corner	Reconstruction	586	$63,463	
MT	X				X		Preston Street between Collins and 10th; 2 two-corner intersections	Reconstruction	1,273	$117,459	
MT	X				X		Principally Union Street between Main to Winston; 3 two-corner intersections	Reconstruction	1,696	$128,287	

The following "planning level" estimates use 2014 dollar values and include a 10 percent contingency increase since all proposed trails are at a pre-design stage. For planning purposes, an additional 15 percent fee has been added to account for surveying, design, and construction administration associated with the improvements.

	Design / Const. Admin	Demolition	Bike Lanes	Trail	Grading	Turf	Culverts	Signage	Lighting	Emergency Call Box	Intersection Striping	ADA Ramps
	$2,153							$550	$2,800	$11,000		
	$1,267			$1,467	$660	$22					$1,100	$5,200
	$39,323		$35,072	$116,919	$52,609	$1,754	$14,300	$3,300			$4,400	$33,800
	$20,798		$20,626	$68,760	$30,939	$1,031	$8,800	$2,200			$1,100	$5,200
	$89,698	$10,454		$418,167	$125,450	$2,614	$22,000	$5,500	$2,800	$11,000		
	$154,983	$17,863		$714,534	$214,360	$4,466	$37,400	$8,800	$2,800	$33,000		
	$10,645	$5,280		$26,400	$7,920	$165						$31,200
								$550	$2,800	$11,000		
								$550	$2,800	$11,000		
	$6,077			$10,451	$4,703	$157	$1,100				$3,300	$20,800
	$2,508			$9,534	$4,290	$143	$2,200	$550				
	$4,184			$17,165	$7,724	$257	$2,200	$550				
	$6,776			$20,359	$9,161	$305	$2,200	$550			$2,200	$10,400
	$2,462			$10,451	$4,703	$157	$1,100					
	$8,278			$21,492	$9,671	$322	$1,100				$4,400	$18,200
	$15,321		$14,003	$46,681	$21,005	$700	$5,500	$1,650			$2,200	$10,400
	$16,733			$62,189	$27,982	$933	$7,700	$1,650			$3,300	$7,800

These figures represent the construction of core trail infrastructure (as listed) and do not include major infrastructure improvements (e.g., drainage improvements), purchase of right-of-way, or other considerations that would be included in the project. ST = Short-Term, MT = Mid-Term, LT = Long-Term

TABLE 6
Potential Projects

Priority	Sidewalks	Shared Use	Bike Lanes	Soft Surfaces	Intersections	Trailheads		New/ Repair	Length (ft.)	Trail Planning Estimate	
MT	X						10th Street between Preston and just south of US 90A	Reconstruction	Joint Road Project		
MT	X		X		X		Preston Street between 10th and 2nd; 5 three-corner intersections; 1 four-corner intersection (not including 10th Street reconstruction)	Reconstruction	2,503	$234,837	
MT	X				X		US 90A (both sides) connections between Collins and 9th; 3 two-corner intersections; 1 four-corner	Reconstruction	1,516	$233,693	
LT	X				X		Collins between Preston and Main; 1 four-corner intersection; 1 two-corner intersection	Reconstruction	2,505	$191,043	
Area 3: YMCA-Justice Center-Brazos River											
ST	X						Golfview between Ironwood Forest and FM 762	Reconstruction	Joint Road Project		
ST	X		X				Williams Way Boulevard	New and Reconstruction	Joint Road Project		
MT						X	Clay Park trailhead	New		$16,503	
MT						X	Long Acres Ranch Nature Tourism Center trailhead	New		$16,503	
MT	X				X		North-south spine between principally along Winston Drive to north tip Lamar Drive; 5 two-corner intersections; 1 three-corner intersection	Reconstruction	2,486	$215,846	
LT	X			X		X	Recreational trail connecting Lamar Park to Long Acres Ranch Nature Tourism Center and to Williams Way (minimal to no demolition)	New	6,575	$926,807	
LT						X	Lamar Park trailhead	New		$16,503	
LT		X				X	YMCA connector (between FM 762 to Burnett) (minimal to no demolition)	New	1,450	$356,371	
LT	X		X				Golfview at Williams Way to east crossing Brazos River	New and Reconstruction	Joint Road Project		
Area 4: Fort Bend Technical Center											
ST	X				X	X	Connections along FM 1640 to Lamar High School and Junior High (to City Limits); 2 corner intersection	New	1,230	$106,692	
ST	X						Extension of Lamar Drive between FM 1640 and FM 2218	New	Joint Road Project		
MT	X	X					Connector along FM 762 between Golfview and Commercial (partially private)	New	6,218	$1,459,596	
MT	X						Connector along Commercial Drive	New	Private		
Area 5: Interstate Development											
MT	X		X			X	Interior connections to Del Webb and future mixed-use planned development	New	Joint Road Project		

The following "planning level" estimates use 2014 dollar values and include a 10 percent contingency increase since all proposed trails are at a pre-design stage. For planning purposes, an additional 15 percent fee has been added to account for surveying, design, and construction administration associated with the improvements.

	Design / Const. Admin	Demolition	Bike Lanes	Trail	Grading	Turf	Culverts	Signage	Lighting	Emergency Call Box	Intersection Striping	ADA Ramps
	$30,631			$91,781	$41,298	$1,377	$11,000	$2,750			$6,600	$49,400
	$30,482			$111,205	$50,038	$1,668	$7,700	$2,200			$4,400	$26,000
	$24,919			$91,862	$41,334	$1,378	$11,000	$2,750			$2,200	$15,600
	$2,153							$550	$2,800	$11,000		
	$2,153							$550	$2,800	$11,000		
	$28,154			$91,158	$41,017	$1,367	$11,000	$2,750			$6,600	$33,800
	$120,888			$578,618	$173,585	$3,616	$29,700	$6,600	$2,800	$11,000		
	$2,153							$550	$2,800	$11,000		
	$46,483			$239,201	$47,840	$797	$6,600	$1,650	$2,800	$11,000		
	$13,916			$45,104	$20,295	$677	$5,500	$1,100	$2,800	$11,000	$1,100	$5,200
	$190,382			$1,025,954	$205,191	$3,420	$28,600	$6,050				

ACKNOWLEDGMENTS

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Jesse Torres, City Commissioner
Bill Dostal, Former City Commissioner
Gary Gillen, Former City Commissioner

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