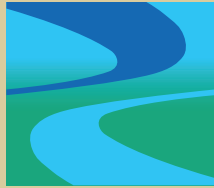


# West Houston Trails Master Plan



**Linking people, places and communities**



[energycorridor.org](http://energycorridor.org)



March 21, 2011

**The West Houston Trails Master Plan was developed through a broad-based community process. The following listings represent those entities that served on committees and/or attended the community input workshop.**

#### **Government Entities**

City of Houston Parks & Recreation • City of Houston Planning & Development • City of Houston Public Works & Engineering • Energy Corridor District • Harris County Flood Control District • Harris County Precinct 3 • Harris County Precinct 4 • Harris County Public Health & Environmental Services • Harris County Public Infrastructure • Harris County Public Architecture • Houston City Council • National Park Service • US Army Corps of Engineers

#### **Municipal Utility Districts (MUD)**

Green Trails Municipal Utility District • Harris County Municipal Utility District 120 • Harris County Municipal Utility District 136 • Harris County Municipal Utility District 147 • Harris County Municipal Utility District 157 • Harris County Municipal Utility District 167 • Harris County Municipal Utility District 238 • Harris County Municipal Utility District 239 • Harris County Municipal Utility District 250 • Langham Creek Utility District • Memorial Municipal Utility District • Northwest Harris County Municipal Utility District 12 • Northwest Harris County Municipal Utility District 16 • Nottingham County Municipal Utility District • West Harris County Municipal Utility District 6

#### **Organizations**

Alief Super-neighborhood #25 • American Society of Landscape Architects, Houston/Gulf Coast • Bayou Preservation Association • Blueprint Houston • Greater Houston Horse Council • Greater Houston Off-Road Biking Association • Houston Striders • Houston Wilderness • Mission Bend Greenbelt Association • Regional Parks Committee • Spring Branch North Super-neighborhood #84 • Texas Bicycle Coalition

#### **Area Businesses**

Asakura Robinson Company LLC • Bicycle World and Fitness • CB Richard Ellis, Inc. • Clark Condon Associates, Inc • ConocoPhillips • ExxonMobil Chemical Company • Hydra-Dynamics, Inc. • J.K. Wagner & Company, Inc. • Kerry R. Gilbert & Associations, Inc. • KGA-DeForest • Kudela & Weinheimer • Murr Incorporated • The Point Group • Radio Disney AM 1590 • Shell International Exploration & Production • TBG Partners • Technip USA, Inc. • Trammell Crow

# The West Houston Trails Master Plan

The West Houston Trails Master Plan (WHTMP) began as a partnership between the National Park Service and the Energy Corridor District.

With input from literally hundreds of people, guidance from multiple agencies, using data gathered during hundreds of hours of public forums and from over a thousand surveys, a development team created the WHTMP to encompass 113,000 acres within a 6-mile radius centered at the intersection of IH-10 and State Highway 6.

The goal of the plan is a shared-use trail system that will link residential and business centers and parks to provide alternative transportation opportunities, outdoor recreation, riparian preservation and restoration.

In this master plan you will find maps of existing trails as well as recommendations for future trails and spines. We also offer recommendations for design and maintenance of trails.

Among the many other details included in this comprehensive document are a timeline and an analysis of the positive impacts a West Houston trails system could have on the area and the quality of life of its residents.

The West Houston Trails Master Plan is the culmination of many years of work by thousands of interested individuals and entities from both the public and private sectors. We hope you find it useful and inspiring.

# Table of Contents

Visions, Goals & Objectives.....	pg 7
Benefits of Trails .....	pg 11
Recommendations .....	pg 15
Map of System .....	pg 16
Description of system .....	pg 16
Spine Trails.....	pg 18
Barker-Cypress Spine Trail.....	pg 18
Bear Creek Pioneers Park Spine Trail .....	pg 20
Bear Creek Spine Trail .....	pg 22
Bellaire Blvd Drainageway Spine Trail .....	pg 24
Brays Bayou/Barker Dam Spine Trail .....	pg 26
Clay Road Spine Trail .....	pg 28
Patterson/N. Eldridge Spine Trail .....	pg 30
Eldridge/Energy Corridor Spine Trail .....	pg 32
Eldridge/South Spine Trail .....	pg 34
George Bush Park Spine Trail.....	pg 36
Greenhouse Kingsland T109 Spine Trail .....	pg 38
Grisby/ IH-10 Spine Trail.....	pg 40
Horsepen Creek Spine Trail .....	pg 42
Langham Creek Spine Trail.....	pg 44
Mason Creek Spine Trail.....	pg 46
Noble Road Spine Trail .....	pg 48
S. Mayde Creek-Cullen Park Spine Trail .....	pg 50
SH-6 North Spine Trail .....	pg 52
SH-6 South Spine Trail .....	pg 54
Terry Hershey Park Spine Trail .....	pg 56
Wycliff Highline Spine Trail .....	pg 58
Additional Recommendations .....	pg 60

<b>Design Guidelines</b> .....	<b>pg 63</b>
<b>A better system through coordination.</b> .....	<b>pg 64</b>
<b>Trails Defined</b> .....	<b>pg 66</b>
<b>Design Concerns</b> .....	<b>pg 68</b>
<b>Trail Corridor Placement</b> .....	<b>pg 70</b>
<b>Trail Alignment &amp; Routing</b> .....	<b>pg 72</b>
<b>Trail Construction</b> .....	<b>pg 74</b>
<b>Traffic Control</b> .....	<b>pg 78</b>
<b>Bridges &amp; Support Facilities</b> .....	<b>pg 80</b>
<b>Signage</b> .....	<b>pg 82</b>
<b>Landscaping</b> .....	<b>pg 83</b>
<b>Security &amp; Maintenance</b> .....	<b>pg 84</b>
<b>Summary</b> .....	<b>pg 85</b>
<b>Operations &amp; Maintenance Guidelines</b> .....	<b>pg 87</b>
<b>Operations &amp; Maintenance Guidelines</b> .....	<b>pg 88</b>
<b>Trails Usage</b> .....	<b>pg 90</b>
<b>Safety &amp; Security</b> .....	<b>pg 92</b>
<b>Communication</b> .....	<b>pg 93</b>
<b>Maintenance</b> .....	<b>pg 94</b>
<b>Summary</b> .....	<b>pg 101</b>
<b>Outreach, Education &amp; Marketing Strategies</b> .....	<b>pg 103</b>
<b>Outreach, Education &amp; Partnerships</b> .....	<b>pg 104</b>
<b>Outreach Program Goals</b> .....	<b>pg 105</b>
<b>Outreach Program Development</b> .....	<b>pg 106</b>
<b>Conclusion</b> .....	<b>pg 109</b>
<b>Appendix</b> .....	<b>pg 114</b>



# Visions, Goals & Objectives

# Visions, Goals & Objectives

The vision of the many people who helped develop this West Houston Trails Master Plan is a system of trails that connect the parks and public lands of West Houston, including the drainage corridors, with residential, retail, business, schools and churches in the area. The goal of the Master Plan project is to create a trail network that serves the greatest number of users while providing good stewardship of land and water resources. In order to achieve this goal, existing trails have been identified and proposed routes for new trails have been developed and prioritized.

Once implemented, the West Houston Trails Master Plan will result in alternative transportation routes, increased commuter choices, greater outdoor recreational opportunities, safe routes to schools and other public places, increased options for storm-water management and habitat restoration.

The partnership between the National Park Service and the Energy Corridor District –

established specifically to develop the West Houston Trails Master Plan – has created the opportunity for a variety of public agencies to meet, share data, provide input and develop an understanding of the need for connectivity.

## Vision Statement

Create a 100+ mile interconnected trail system within West Houston while respecting the natural ecosystems and cultural resources of the area.

## Goals

- Identify locations of future public trails and connecting routes.
- Provide outdoor recreation opportunities on trails through parks and conservation areas.
- Provide opportunities for bike-to-work commutes and safe routes for walking and cycling to schools and other locations.
- Increase conservation through reduced use of cars, fuel and roadways.

- Increase opportunities for health and fitness.
- Promote safety through proper design of trails and road crossings, construction of trails separated from roadways and education supporting safe use of trails.
- Provide connections to transit and on-road bikeways.

## Objectives

- Connect new miles of trail to 34+ existing miles of trail.
- Add at least 15 miles of new trail in the next five years.
- Identify and promote an initial trail to demonstrate the importance of connectivity (targeting Patterson-North Eldridge Trail).
- Develop a strategic plan to prioritize implementation of trail projects, create partnerships for implementation and identify funding strategies.



- Develop design guidelines for a variety of trail types including trails that are “light on the land” and consistent with U.S. Army Corps of Engineers criteria for sensitive areas.
- Develop guidelines for operating and sustainably maintaining trails.
- Establish, communicate and enforce user guidelines for trails.
- Develop educational and marketing programs to promote: the vision and goals of the Master Plan; the benefits of trails and ecosystem protection; the use of existing trails; healthier citizenry through increased activity.
- Incorporate environmental and cultural interpretation opportunities when developing trails.
- Encourage volunteerism to fund and implement trails, as well as for trail maintenance and patrol.
- Raise public awareness to the benefits of outdoor recreation and help stimulate activity as well as trail development.
- Support and influence trail-friendly policy decisions for future public and private infrastructure and land development.
- Enhance the economic vitality and real estate values of West Houston by expanding outdoor recreational opportunities and transportation choices.

“This is a great initiative. Houston has thousands of runners and cyclists. Enhancing its opportunities for recreation and its ease of commuting without a car will make Houston a more desirable place to live.”

—Anonymous Survey Respondent



SPEED  
LIMIT  
10

PLEASE OBEY PATH RULES

# Benefits of Trails

# Benefits of Trails



Trails make our lives richer in a variety of ways. Not only do they allow people to connect with nature, they allow people to connect with one another. They provide a venue where neighbors meet, where children play, where families gather. Trails bring people out of their homes, out of their cars and into their communities.

In a reversal of the trend towards enclosed, gated neighborhoods, where residents must get into their cars to travel to school or to the little league field, an integrated trails system provides residents the opportunity to incorporate exercise into their daily routines. When a community is connected via trails, walking and bicycling become attractive and viable options.

## Connectivity

Trails connect people to the places they want to be. They offer routes between home and school, church, retail and business – even between parks and open spaces. In the best of circumstances, trails also offer a stimulating and pleasurable outdoor experience.

## Alternative Transportation

In an area the size of West Houston, safely transporting people is a high priority for city, county and state governments. By providing a safe alternative to single-occupant car travel, trails alleviate the demands on public

infrastructure and reduce the negative environmental impact of motorized commuting.

## Recreational Activities

The desirability and economic strength of a community is often measured by the degree it supports and promotes outdoor recreation for its citizens. Recreational activities contribute greatly to individual well-being and quality of life. In communities that rank recreational activities high on the priority list, schools often show higher testing scores and residents have fewer obesity-related health problems.



## Better Health

If current obesity trends continue, the average life span of Americans will decrease for the first time in our history. Trail systems allow communities to engage in regular physical activity including walking, running and biking. Such activity offers physical and mental health benefits including, but not limited to, lower rates of obesity, prevention of heart disease, control and prevention of diabetes, decreased blood pressure, reduced symptoms of depression and aging.

## Economic Benefits

Numerous studies over the last 15 years have shown that having trails incorporated into residential developments helps in the sale of properties and in the value of real estate. In one recent survey, trails were listed as the amenity considered second by potential homeowners when selecting a neighborhood, only after roadway access. Research has also shown that businesses prefer to locate in cities offering quality-of-life amenities: places designed for recreation; safe, non-motorized transportation options; shorter travel

time to work; and attractive urban design. Similarly, liveable cities attract the “creative class” of the workforce, those workers who can pick where they choose to live, work and play. Developers are beginning to understand all of this. They know, as do many of the advocates of the WHTMP, that trail infrastructure could be key to making West Houston more economically attractive to residents and businesses alike.



# Recommendations

Map of System .....	pg 16	Greenhouse Kingsland T109 Spine Trail .....	pg 38
Description of system.....	pg 16	Grisby/ IH-10 Spine Trail .....	pg 40
Spine Trails .....	pg 18	Horsepen Creek Spine Trail .....	pg 42
Barker-Cypress Spine Trail .....	pg 18	Langham Creek Spine Trail .....	pg 44
Bear Creek Pioneers Park Spine Trail .....	pg 20	Mason Creek Spine Trail .....	pg 46
Bear Creek Spine Trail .....	pg 22	Noble Road Spine Trail .....	pg 48
Bellaire Blvd Drainageway Spine Trail .....	pg 24	S. Mayde Creek-Cullen Park Spine Trail .....	pg 50
Brays Bayou/Barker Dam Spine Trail.....	pg 26	SH-6 North Spine Trail.....	pg 52
Clay Road Spine Trail .....	pg 28	SH-6 South Spine Trail .....	pg 54
Patterson/N. Eldridge Spine Trail .....	pg 30	Terry Hershey Park Spine Trail .....	pg 56
Eldridge/Energy Corridor Spine Trail .....	pg 32	Wycliff Highline Spine Trail.....	pg 58
Eldridge/South Spine Trail .....	pg 34	Additional Recommendations .....	pg 60
George Bush Park Spine Trail .....	pg 36		

# Map of System

“The West Houston Trails Master Plan is a very important document which, if implemented, would significantly improve the attractiveness and livability of the communities within its footprint, and it would add value to The Houston Energy Corridor by providing health enhancing, non-polluting, non-congesting transportation for commuters.”

—Peter Wang

## West Houston Trails System

















The number one recommendation resulting from the master planning process is the endorsement of an interconnected trail system within the West Houston area. The area encompasses 113,000 acres within a 6-mile radius centered at the intersection of IH-10 and State Highway 6. The West Houston Trails Master Plan adopts the following map, supporting all the proposed trails shown as dashed lines.

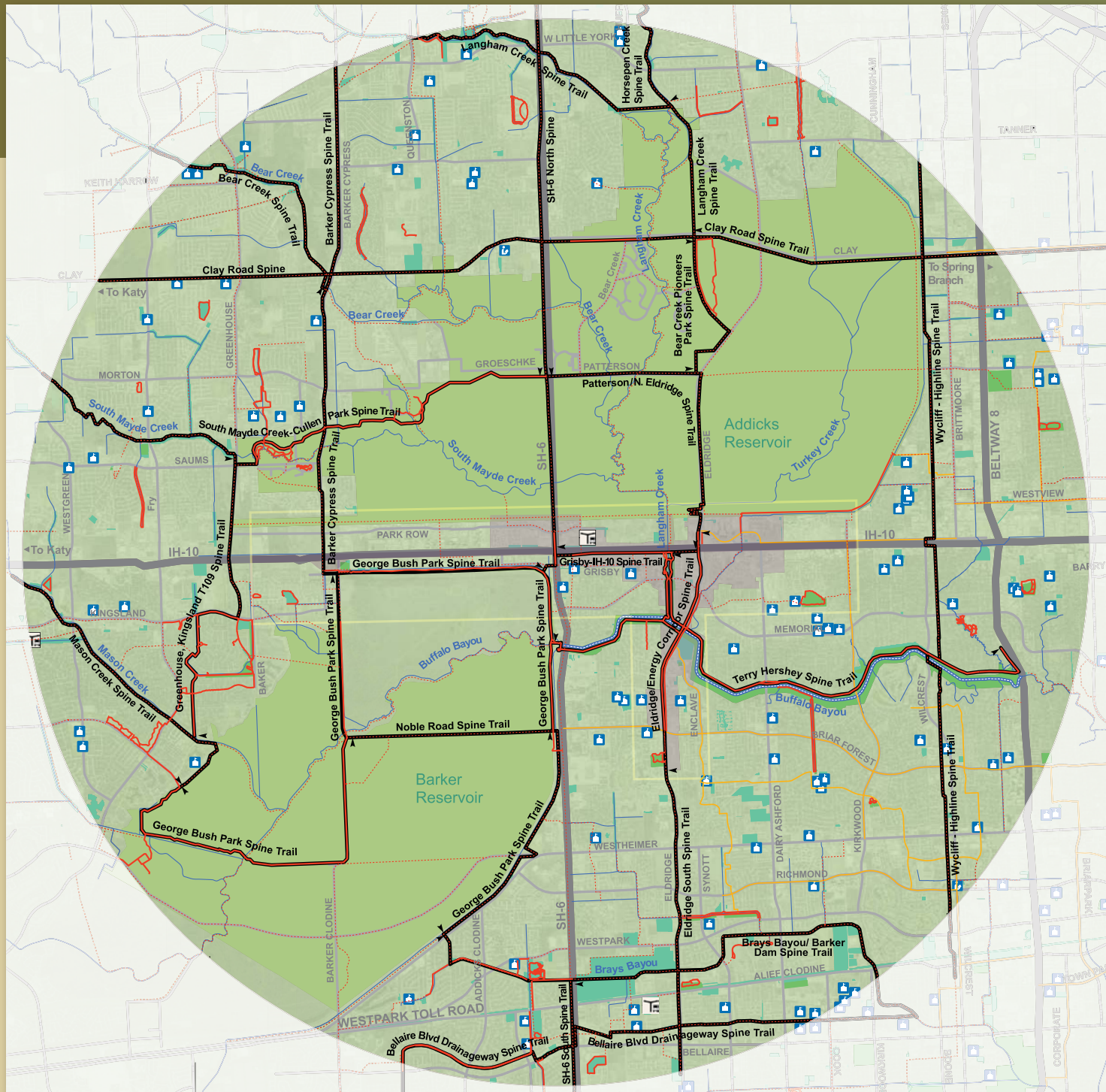
The map features two kinds of proposed trails: those indicated by red dashed lines and those indicated by red dashed lines on top of black lines. Red dashed lines show trails that were proposed in adopted trail plans of the City of Houston, Harris County, Harris County Flood Control District and as many municipal utility districts (MUDs) as reported their plans to the project team. Red dashed lines also include those new trail ideas proposed during the WHTMP community input process and the subsequent committee evaluation meetings.

Red dashed lines overlain on bold black lines indicate “spine trails.” A spine trail is defined as a trail with substantial length that has high potential to connect existing trails and destinations like parks, neighborhoods, workplaces and retail areas. Since the spines were chosen for their strong likelihood to create an interconnected system, they are featured as individual priority recommendations in the second section of this Recommendations chapter. When a portion of a spine trail already exists, it is shown as a black line with a solid red overlay.



# Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



# Barker-Cypress Spine Trail

## Location

Generally follows Barker Cypress Road – 2.6 miles west of SH-6 and IH-10 – from beyond the subject area on the north to the south side of IH-10.



0 1 2 3 4 5 6 Miles

## Attributes

- 5.9-mile corridor, no existing trail.
- Could connect residential areas and West Houston medical campuses to two regional park facilities.
- Would connect to existing Cullen Park and its 8+ miles of trail.
- South end would connect to the George Bush Park Spine Trail along Barker Dam, linking to Terry Hershey Park Spine Trail and J.R. Hatch Park.
- Could be constructed on existing public parkland or road right-of-way.
- High potential for outdoor recreation, commuting and casual use.
- Important north-south connection under IH-10.



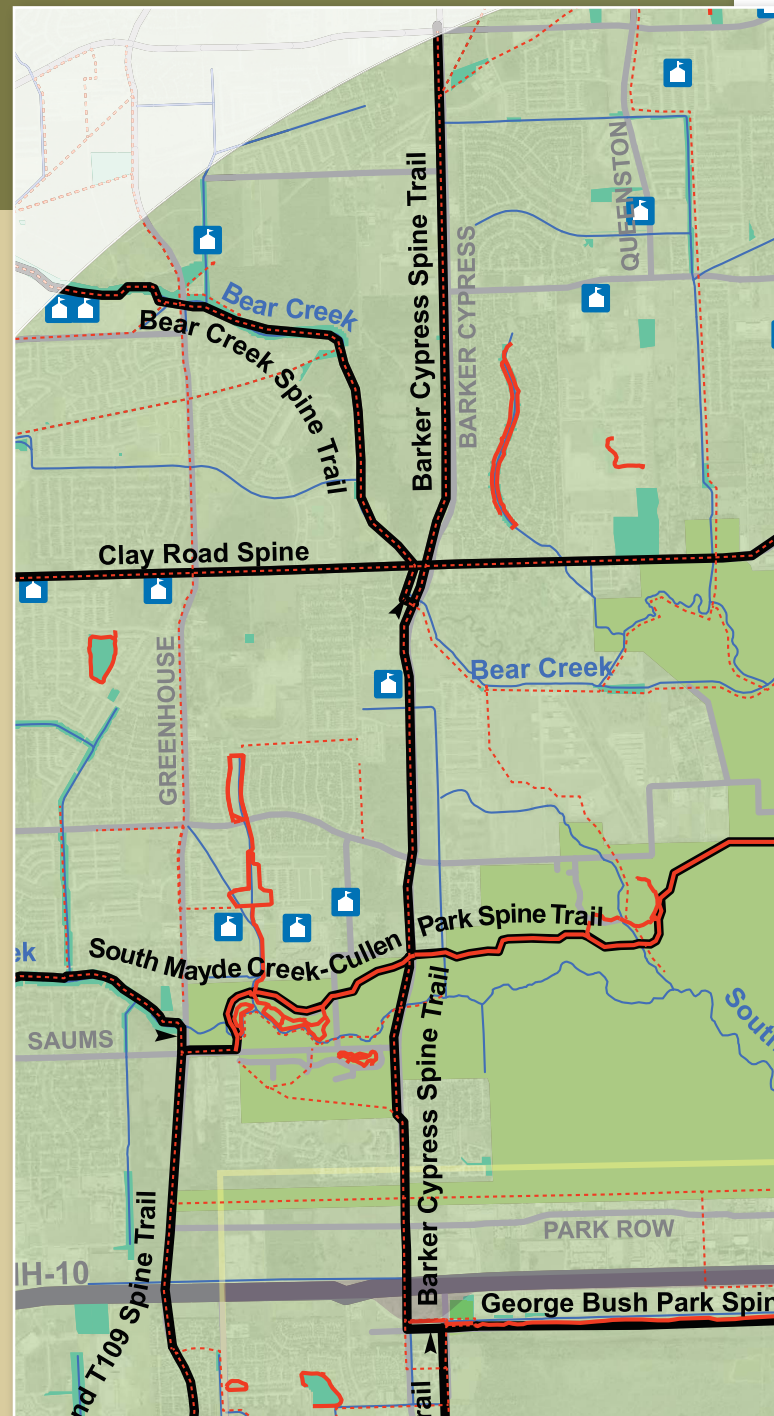
## Partners

- USACE
- City of Houston
- Harris County- Precinct 3
- Addicks Utility District
- Harris County MUD 136
- Harris County MUD 183
- Harris County MUD 127
- Langham Creek MUD
- Cy-Fair ISD
- Katy ISD
- Texas Children's Hospital
- Developers



## Implementation Strategies

- Recommend that trail be separated from driving surface but run parallel to road.
- Trail within or adjacent to road right-of-way lends itself to funding from County Public Works CIP and other transportation funding sources.
- TxDOT would need to design and construct facilities to accommodate the trail/route passing under IH-10.
- Proposed location within Cullen Park would require Houston PARD and USACE approval.
- Undeveloped adjacent land offers potential for partnerships with developers and pre-development design.
- Multiple MUDs might assist in maintenance roles and as funding partners.
- Medical community might contribute to the trail to promote active lifestyles.
- Challenges include crossing Bear Creek and negotiating an alignment through the Clay Road and Barker-Cypress intersection.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Bear Creek Pioneers Park Spine Trail

## Location

Between Clay Road and N. Eldridge Parkway in Bear Creek Pioneers Park, to follow War Memorial Drive, located 2.5 miles north of IH-10.



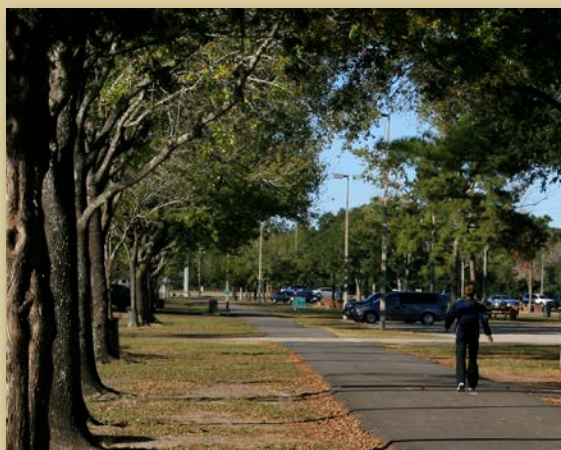
0 1 2 3 4 5 6 Miles

## Attributes

- 2.0-mile corridor, no existing multi-use trail.
- Has shaded picnic tables and grills as well as extensive parking for leased sports fields, bird watching and captive-animal viewing.
- Could connect the proposed Langham Creek Spine Trail, Patterson/Eldridge Spine Trail and Clay Road Spine Trail which could connect to the SH-6 North Spine Trail.
- Adjacent to a 3-mile recreational loop.
- Facilities include public restrooms, drinking fountains and playgrounds.

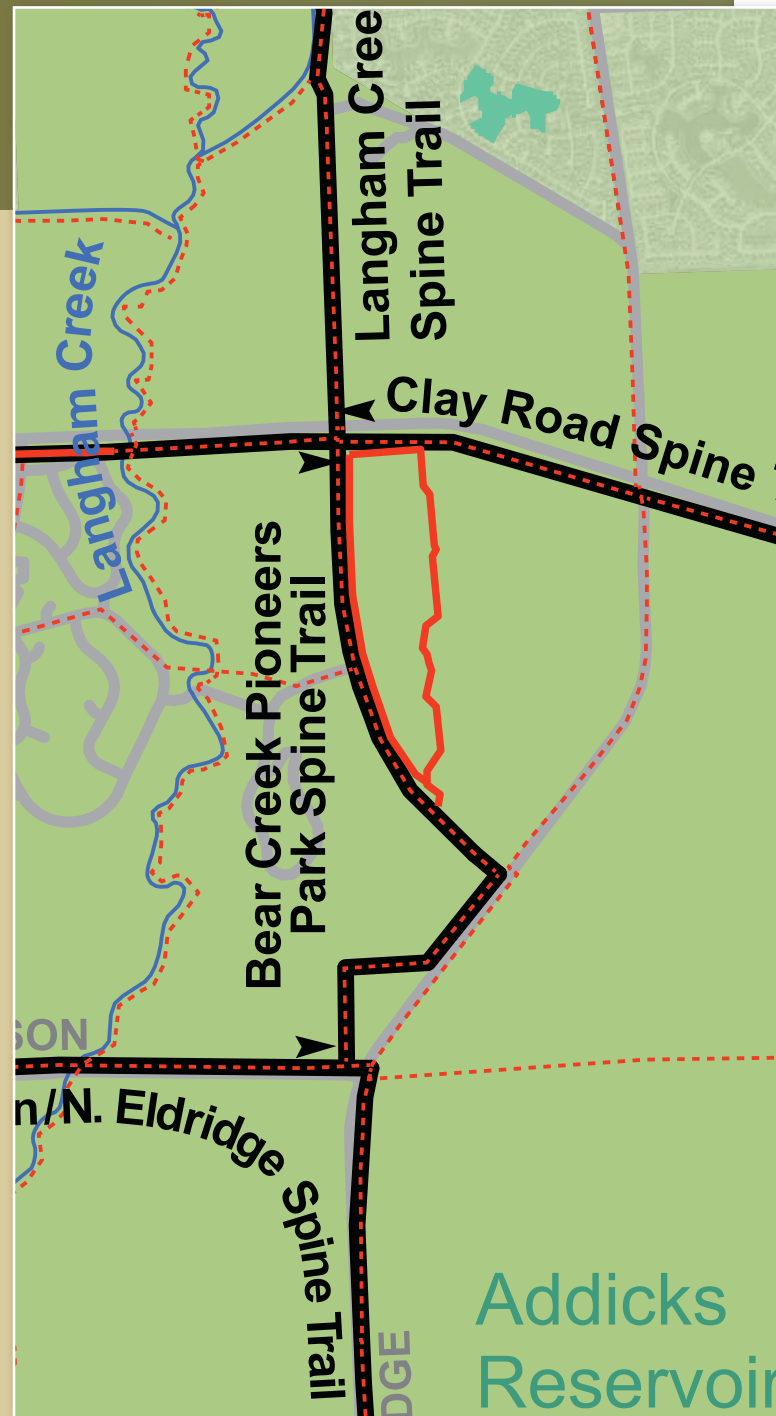
## Partners

- USACE
- Harris County- Precinct 3
- Sporting Associations



## Implementation Strategies

- Recreational user groups may support development of a multi-use trail. Park visitors have expressed a desire for connected trail system that is protected from motor vehicles.
- Abandoned road segment offers a ready-to-use trail segment.
- Texas Recreational Trail Fund would be an appropriate source.
- Located within the USACE intense development area, trail could satisfy USACE-allowed activities.
- Challenge includes safe routing to avoid congested vehicular areas.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Bear Creek Spine Trail

## Location

Runs northwest along Bear Creek from the intersection of Clay and Barker Cypress Roads.



0 1 2 3 4 5 6 Miles

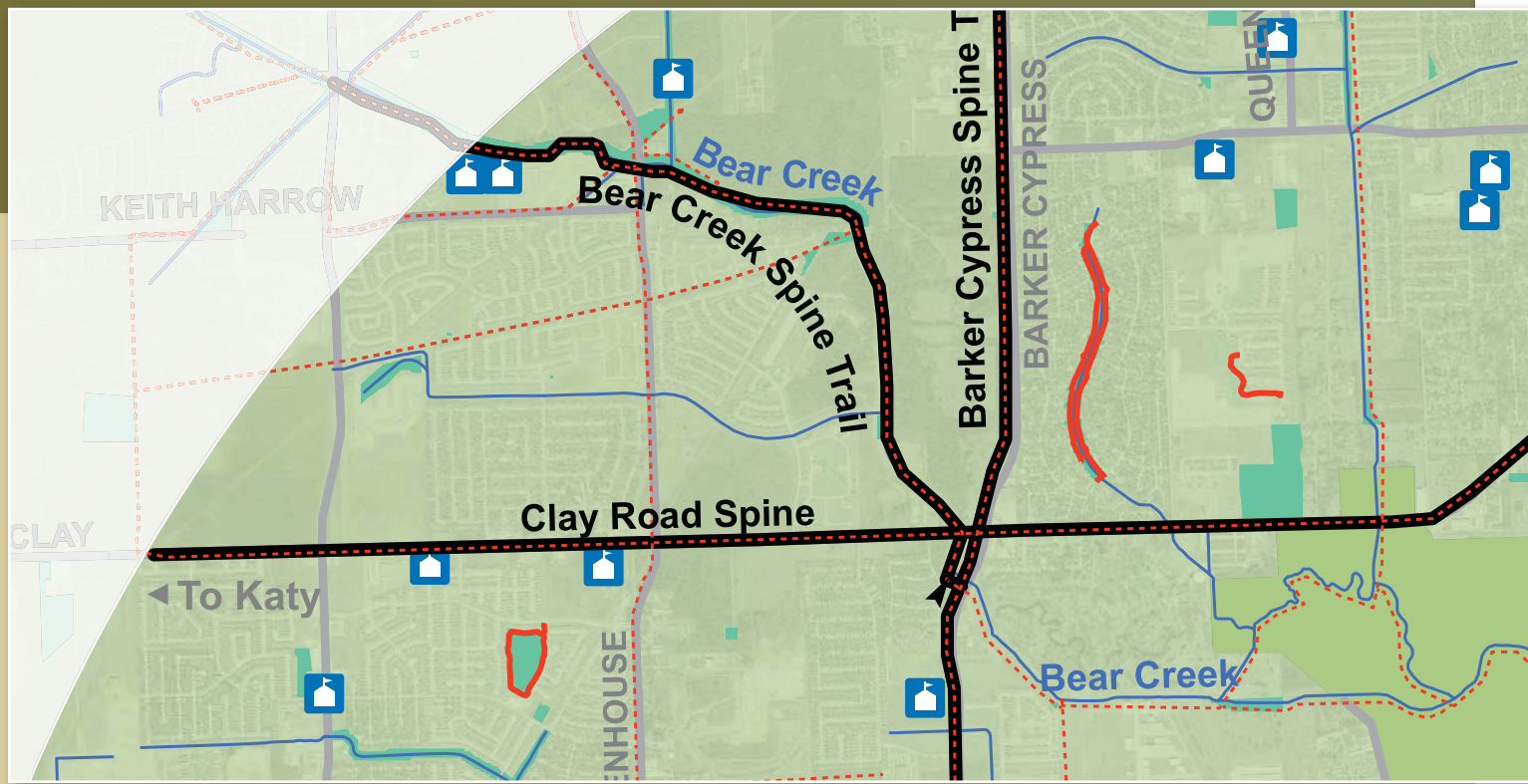
## Attributes

- 2.6-mile corridor, no existing trail.
- More than 90% of the corridor is publicly owned by HCFCFD.
- Could link residential land to public regional parks and local retail.
- Could provide commuting opportunities to The Houston Energy Corridor.
- On the southern end, could connect to the proposed Barker Cypress Trail Spine.
- 75% of the corridor is adjacent to wooded, undeveloped land.
- Three public schools exist within one-half mile of the corridor.
- Could link future western residential communities to Cullen Park, Terry Hershey Park and Bear Creek Pioneers Park.
- Has potential to connect to Cullen Park and Paul Rushing Park.
- High potential for outdoor recreation, commuting, exercise, nature viewing and birding.

















## Partners

- USACE
- Harris County- Precinct 3
- Harris County Flood Control District
- Addicks Utility District
- Rolling Creek MUD
- Harris County MUD 167
- Cy-Fair ISD
- Land Developers





## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
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-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- A trail located on the south side of Bear Creek would serve the largest number of residences and require only one bridge crossing over a drainage area. This may prove advantageous to the adjacent land developer, offering a potential funding and maintenance partnership.
- Since HCFCDD is a major landholder, recreational easements may be obtained with less investigation and lower legal fees.

- Challenges include creating safe pedestrian crossings at Clay Road and Barker Cypress.



# Bellaire Blvd Drainageway Spine Trail

## Location

Follows existing drainage ways that parallel Bellaire Boulevard on the north side. Eastern end terminates at Brays Bayou between South Kirkwood and Boone Road. Western end continues beyond Bellaire Boulevard outside of the subject area.



0 1 2 3 4 5 6 Miles

## Attributes

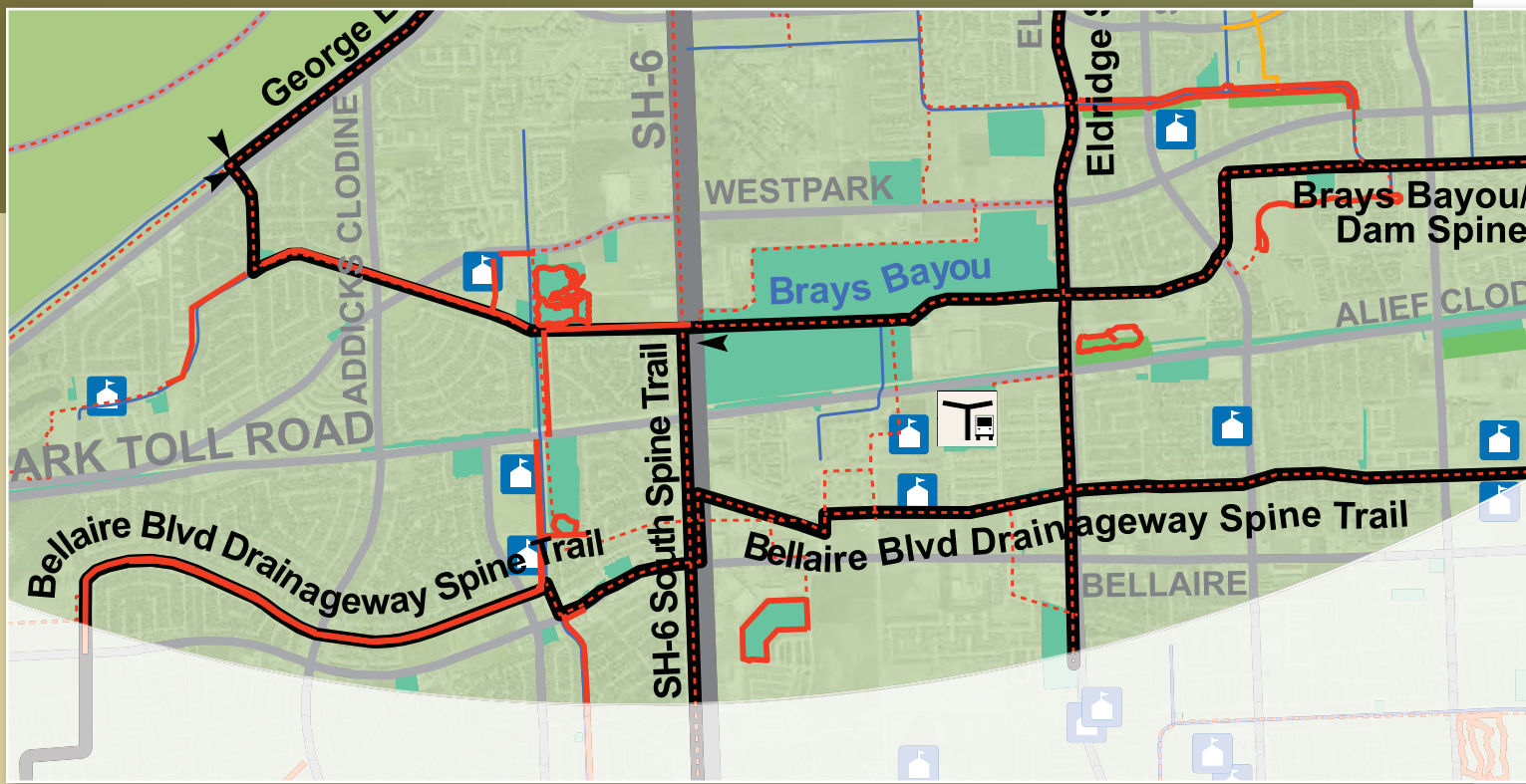
- 5.2-mile corridor.
- 2.3 miles have existing trails, part of the 9-mile Mission Bend Greenbelt Trails system.
- Eleven public schools within one-half mile; five directly adjacent to the corridor.
- Five parks within one-half mile.
- Corridor would serve dense residential areas with extensive multi-family housing.
- Could link to proposed Brays Bayou/ Barker Dam Trail.
- Would intersect public transportation routes in many locations.
- Trails would greatly improve communities with increased pedestrian and bikeway opportunities.

## Partners

















- City of Houston
- Harris County- Precinct 3
- Harris County Flood Control
- Mission Bend MUD 1
- Mission Bend MUD 2
- Chelford City MUD
- Chelford One MUD
- Harris County MUD 158
- Mission Bend Greenbelt Association
- Alief Superneighborhood
- Alief ISD







## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
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-  Open Space (Publicly Owned)
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-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- Funding sources may include Safe Routes to School grants.
- A partnership between the schools being served could improve eligibility for both public and private grants.
- Texas Recreational Trail Fund might be an appropriate funding source.
- Challenges include safe mid-blocks crossings and developing strong community support.



# Brays Bayou/Barker Dam Spine Trail

## Location

Generally follows Brays Bayou from Barkers Dam at Westheimer and Vineyard Drive –approximately 1.8 miles west of SH-6 – to Alief Clodine Road and S. Kirkwood Road.



0 1 2 3 4 5 6 Miles

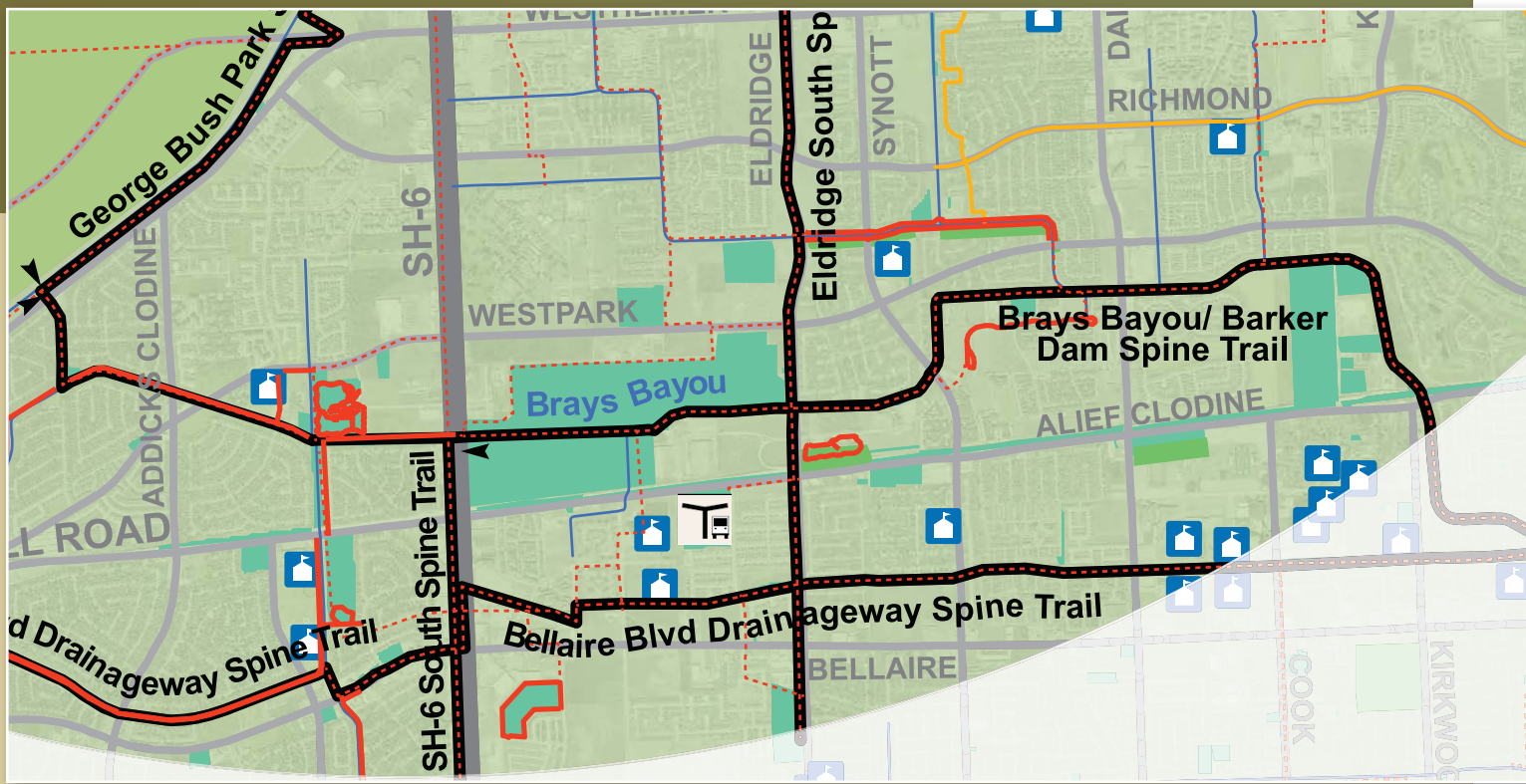
## Attributes

- 6.0-mile corridor
- Approximately one mile of corridor has existing trail. Additional trails within the Brays Bayou/Eldridge Basin project are under construction.
- West end could connect to the George Bush Spine Trail.
- Could connect to the 9+ miles of Mission Bend Greenway Trails system.
- East end could extend to connect with Art Storey Park and central Houston's Brays Bayou trail system as well as the Texas Medical Center.
- High density of housing and jobs in corridor vicinity.
- Ten public schools within one-half mile.
- Six parks within one-half mile.
- Would intersect public transportation routes in many locations improving area public transportation opportunities.

















## Partners

- City of Houston
- Harris County- Precinct 3
- Harris County Flood Control
- Mission Bend Greenbelt Association
- Addicks Utility District
- West Harris County MUD 04
- Harris County MUD 120
- Harris County MUD 147
- Harris County MUD 359
- Harris County MUD 372
- Alief Superneighborhood
- Alief ISD





## Legend

-  Spine Trails
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-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- Existing MUD 120 and Harris County Precinct 3 partnership may complete crossing under SH-6 providing access to the Eldridge Basin detention facility and parkland.
- Expanding bikeway plans and partnerships with the City of Houston mean greatly increased opportunities for connectivity.
- Harris County could use this spine trail to connect the George Bush Park, Sergeant J.R. Hatch Park, Archbishop Joseph A. Fiorenza Park and Arthur Storey Park.

- Challenges include creating safer pedestrian protection when crossing Westheimer Road at Vineyard Drive



# Clay Road Spine Trail

## Location

Follows Clay Road from just west of Fry Road on the west, through Addicks Reservoir, extending beyond Beltway 8 to the east. This spine trail is intersected by SH-6 approximately 3.5 miles north of IH-10.



0 1 2 3 4 5 6 Miles

## Attributes

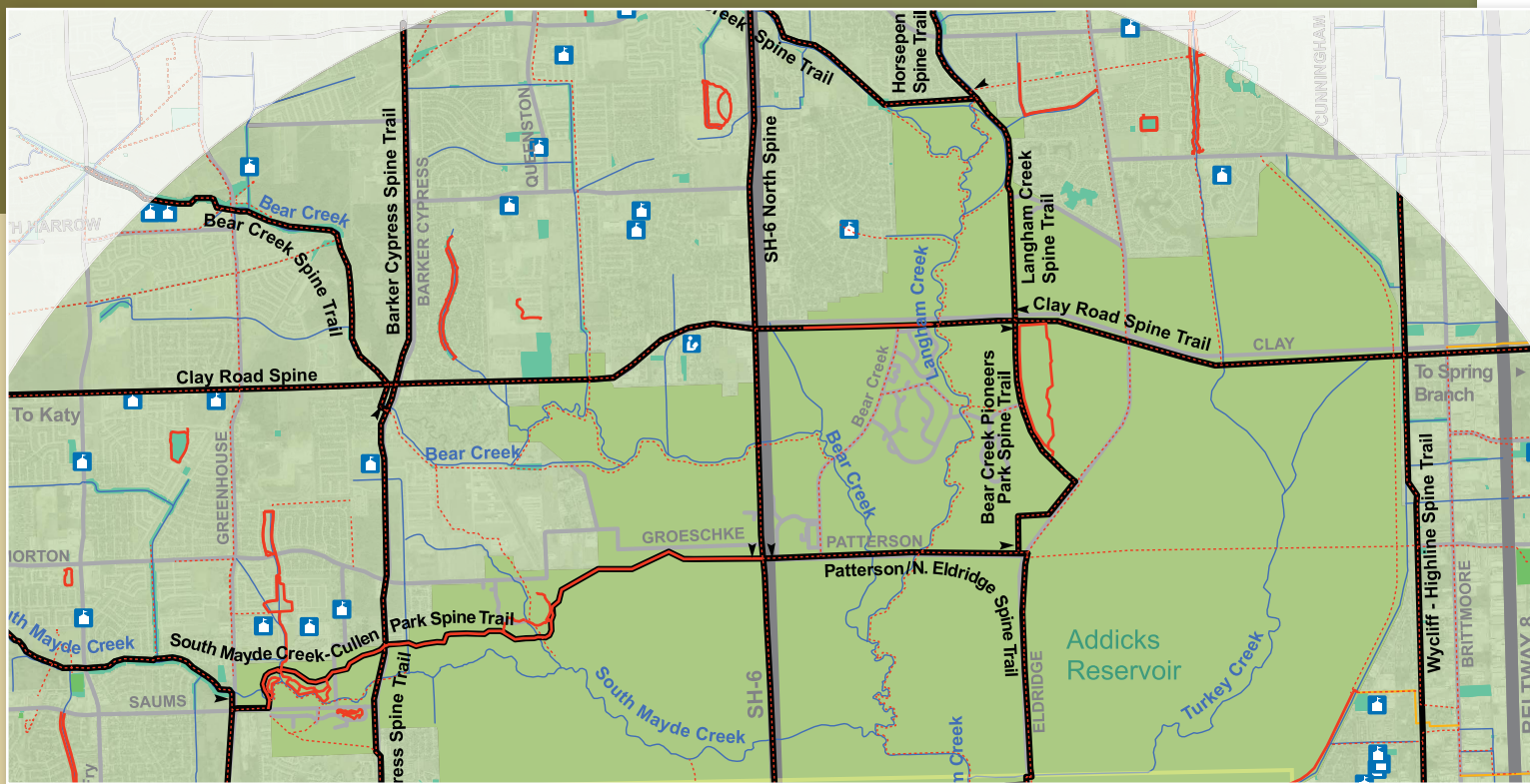
- 10.3-mile corridor.
- One mile of trail currently exists.
- East end connects to a City of Houston bike lane that continues 7+ miles to White Oak Bayou.
- Spine trail could connect the Spring Branch area to the Katy area thus improving alternative transportation opportunities.
- This spine trail would connect to five other spine trails in the West Houston Trails Master Plan.
















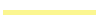


## Partners

- USACE
- TxDOT
- City of Houston
- Harris County- Precinct 3
- Harris County UD 006
- Jackrabbit Road MUD
- Barker Cypress Road MUD
- Harris County 136 MUD
- Rolling Creek MUD
- Addicks Utility District
- Clay Road MUD
- Mayde Creek MUD
- Harris County MUD 284
- Ricewood MUD
- Spring Branch Improvement District
- Spring Branch ISD
- Cy-Fair ISD
- Katy ISD





## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- A sponsor such as a MUD, an agency or a partnership of stakeholders could help to develop this project by submitting it to the City of Houston for inclusion into the Capital Improvement

Plan (CIP), thus extending the current Houston Bikeway routes.

- Contributing partners with Harris County may also expand current trails along Clay Road.
- The trail system may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.
- Adjacent Addicks Reservoir land should facilitate trail development away from roadway if USACE approves.



# Patterson/N. Eldridge Spine Trail

## Location

Begins at Patterson Road and SH-6 and follows Patterson east to N. Eldridge Parkway. Continues south approximately 1.7 miles along N. Eldridge Parkway ending at an intersection with the proposed Terry Hershey North Trail just after crossing under IH-10.



0 1 2 3 4 5 6 Miles

## Attributes

- 3.5-mile corridor, no existing trail.
- Travels through scenic, wooded Addicks reservoir.
- The corridor is surrounded by open space.
- North/south portion of the trail could be located within an existing City of Houston right-of-way separated from N. Eldridge Parkway automobile traffic.
- Trail would follow Patterson Rd. on the north side and cross N. Eldridge at a proposed traffic signal. The trail would then continue south on the east side of N. Eldridge crossing a drainage way and the Addicks Dam.
- Trail would connect to the Terry Hershey Park Spine Trail and to the METRO-Addicks Park & Ride and the N. Dairy Ashford bike lanes.
- Six schools within one-half mile.
- South end connects to The Houston Energy Corridor with its multiple high-employment campuses, high-rise office centers, restaurants and densely populated residential neighborhoods.

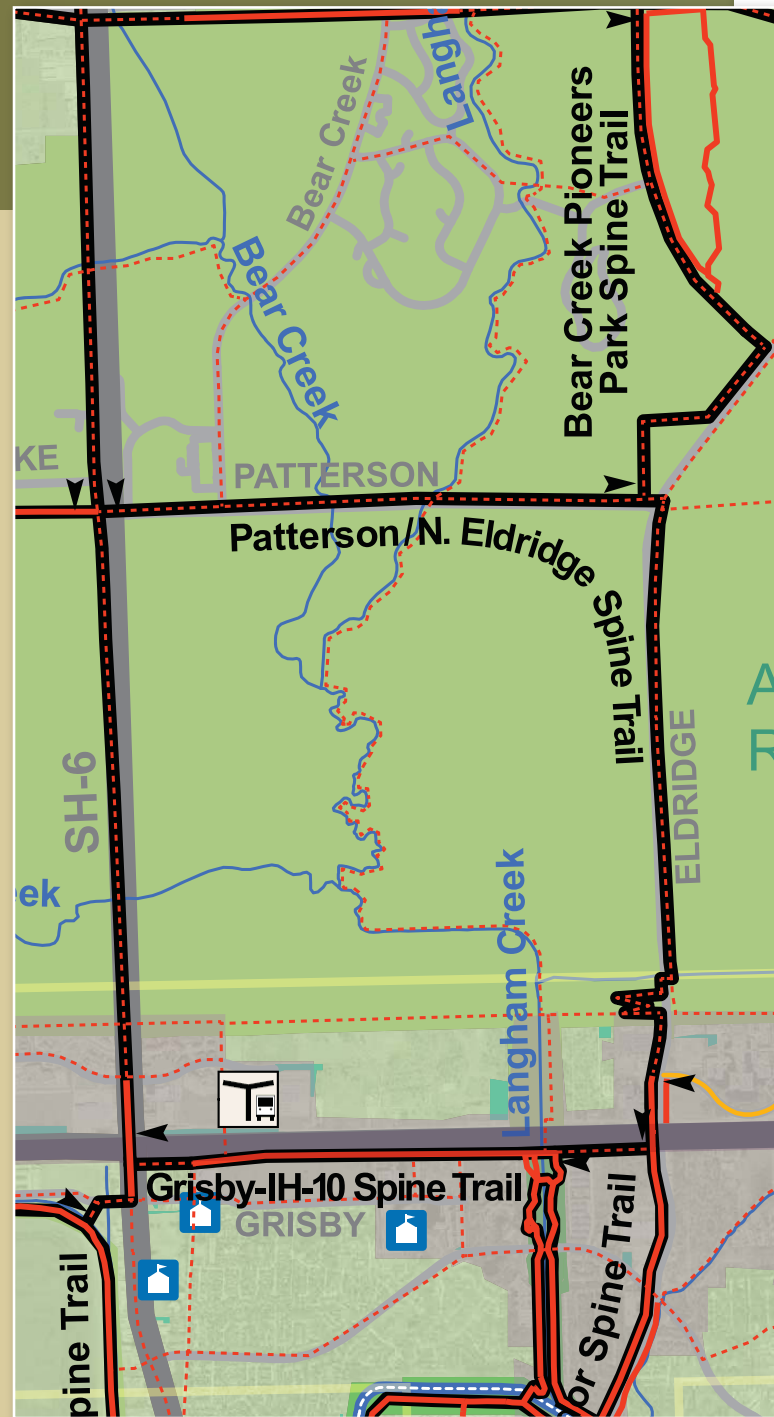
## Partners

- USACE
- TxDOT
- Harris County Precinct 3
- City of Houston
- Energy Corridor District
- Energy Corridor businesses
- Katy ISD



## Implementation Strategies

- This spine trail would be primarily within existing City of Houston roadway right-of-ways.
- The City of Houston and the Energy Corridor District have held meetings discussing strategies for moving this project forward pending final approvals by the U.S. Army Corps of Engineers.
- The project would be coordinated with the State Transportation Enhancement Program (STEP) and the trail development project for North Terry Hershey Park implemented by Harris County Precinct 3.
- City of Houston Parks & Recreation and local council members will be strong partners to help further this project.
- Trail may be eligible for Congested Mitigation & Air Quality Improvement (CMAQ) funding as well as other Pedestrian and Bikeways Transportation Enhancement funding.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Eldridge/Energy Corridor Spine Trail

## Location

Begins at the southern end of the Patterson/N. Eldridge Spine Trail at N. Dairy Ashford and N. Eldridge Parkway. Continues to the Eldridge/South Spine Trail at the southern boundary of the Energy Corridor District approximately .4 miles south of Briar Forest Drive.



0 1 2 3 4 5 6 Miles

## Attributes

- 2.8-mile corridor.
- More than 2 miles of trail currently exists.
- Connects single and multi-family housing, commercial office buildings, large employer campuses and restaurants.
- The City of Houston's first LEED-certified library and community center is located on the spine adjacent to six other LEED-certified high-density office buildings.
- Trail would connect to the Terry Hershey Park Spine Trail, to two city bikeways and to the preserved Buffalo Bayou drainage corridor.
- Six schools within one-half mile and two parks on the spine.
- Spine trail has full-length public bus service, connects to three other bus routes and provides service to the regional METRO Addicks Park and Ride.

## Partners

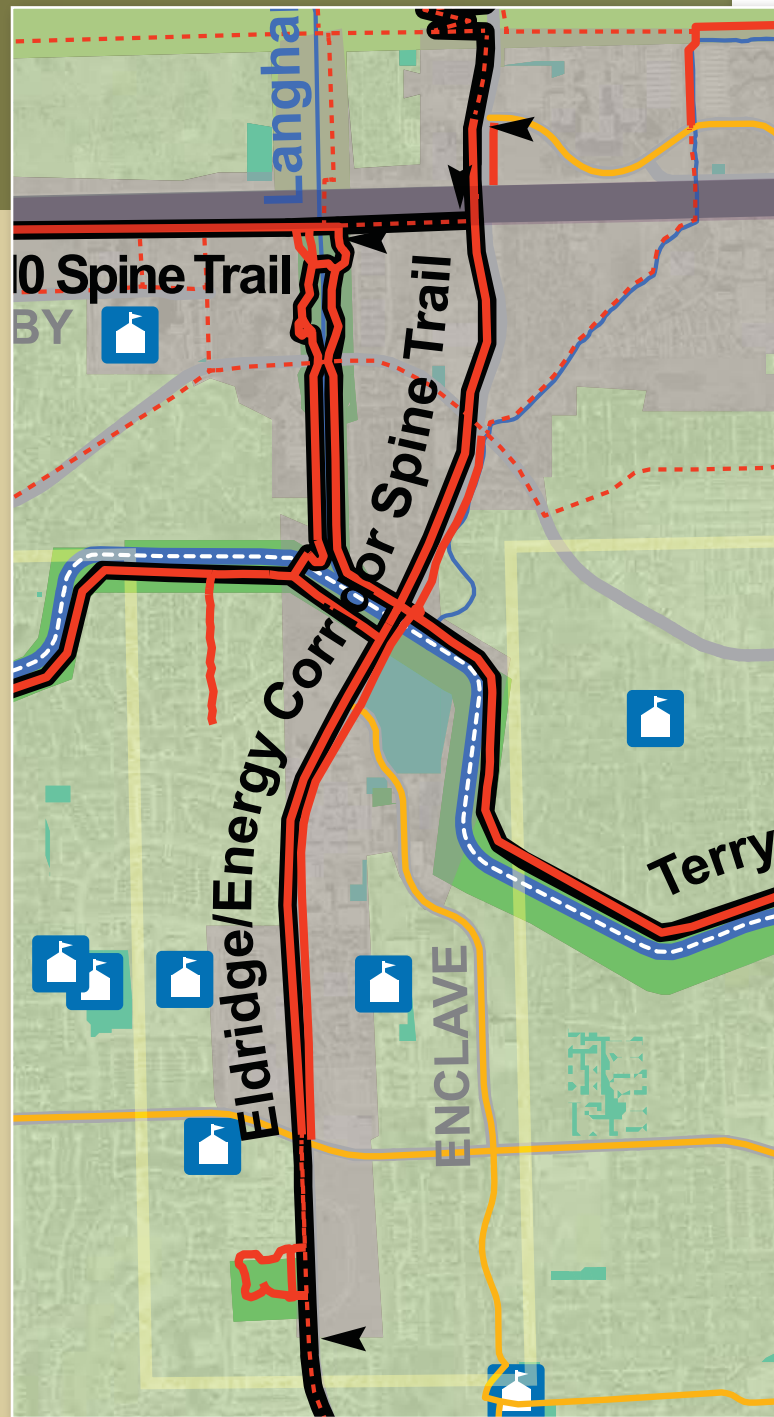
- USACE
- City of Houston
- Energy Corridor District
- Energy Corridor businesses
- Spring Branch ISD
- Houston ISD





## Implementation Strategies

- The Energy Corridor District would be the strongest partner and supporter for further implementation of this spine trail section.
- Local businesses and multi-family complexes could help make a strong argument for widening trail along Eldridge Parkway.
- The trail system may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Eldridge/South Spine Trail

## Location

Begins at the southern end of the Eldridge/Energy Corridor Spine Trail and continues south past Bellaire Boulevard beyond the subject area. This is the southern most section of the spine trail proposed along Eldridge Parkway.



0 1 2 3 4 5 6 Miles

## Attributes

- 2.9-mile corridor, no existing trail.
- Connects single and multi-family, commercial office buildings, large employer campuses, restaurants and retail.
- Connects to The Houston Energy Corridor and the Brays Bayou Spine Trail as well as the Bellaire Boulevard Drainage Way Spine Trail.
- South end spurs to METRO-Mission Bend Park & Ride.
- Trail has many connections to major public transportation routes.

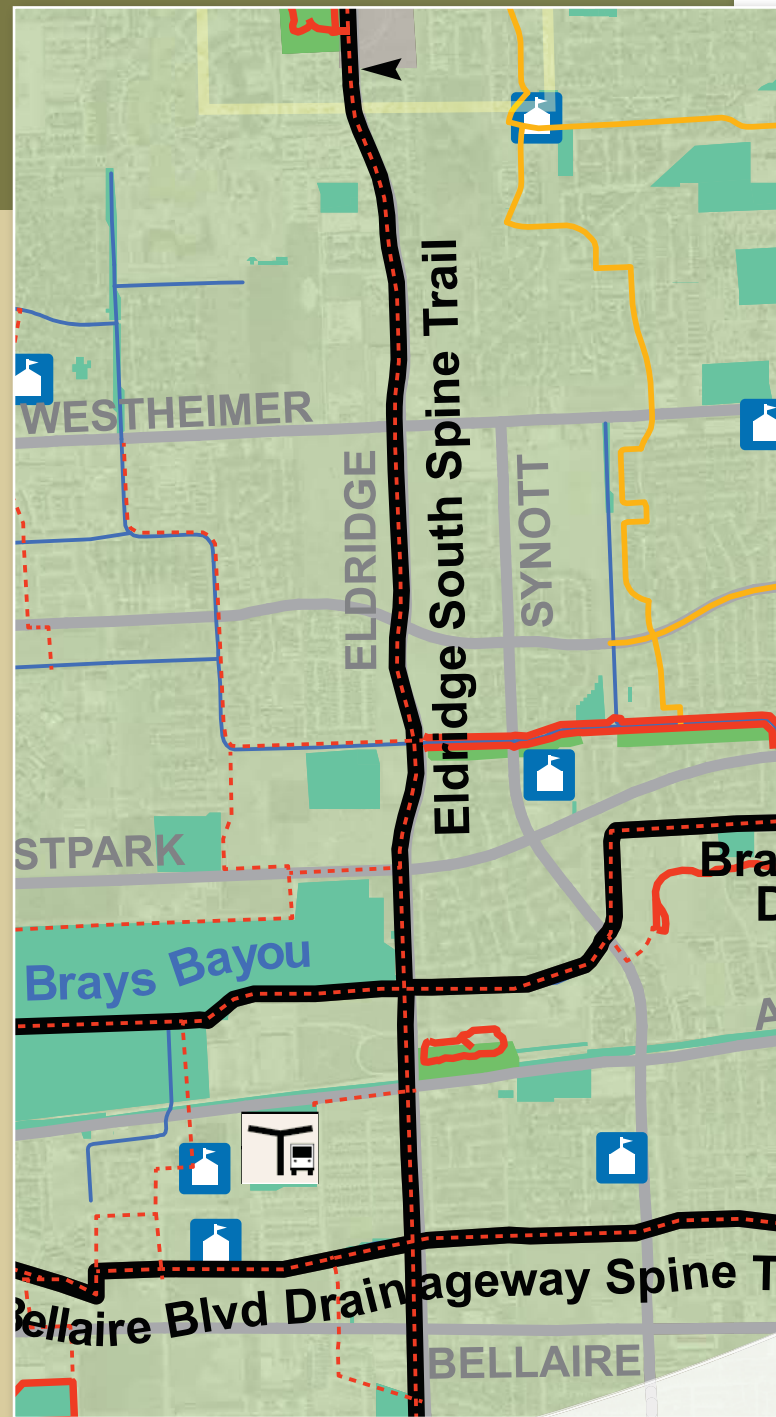
## Partners

- City of Houston
- Mission Bend Greenbelt Association
- Harris County MUD 158
- Alief Superneighborhood
- Alief ISD
- Metro



## Implementation Strategies

- This spine trail could support economic development, which means the City of Houston and local associations could benefit by including this project in the Capital Improvement Plan.
- The project may be eligible for Safe Routes to Schools and Pedestrian/Bikeways Transportation Enhancement funding.
- METRO could be a partner providing access to the Mission Bend Park & Ride and bicycle storage.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# George Bush Park Spine Trail

## Location

The spine trail currently is complete from the proposed connection to the Mason Creek Spine Trail to the east end of the Noble Road Spine Trail. Proposed section of this spine trail runs along Barker Dam from Noble Road and SH-6 to Vineyard Road and Westheimer where it connects to the Brays Bayou/Barker Dam Spine Trail.



0 1 2 3 4 5 6 Miles

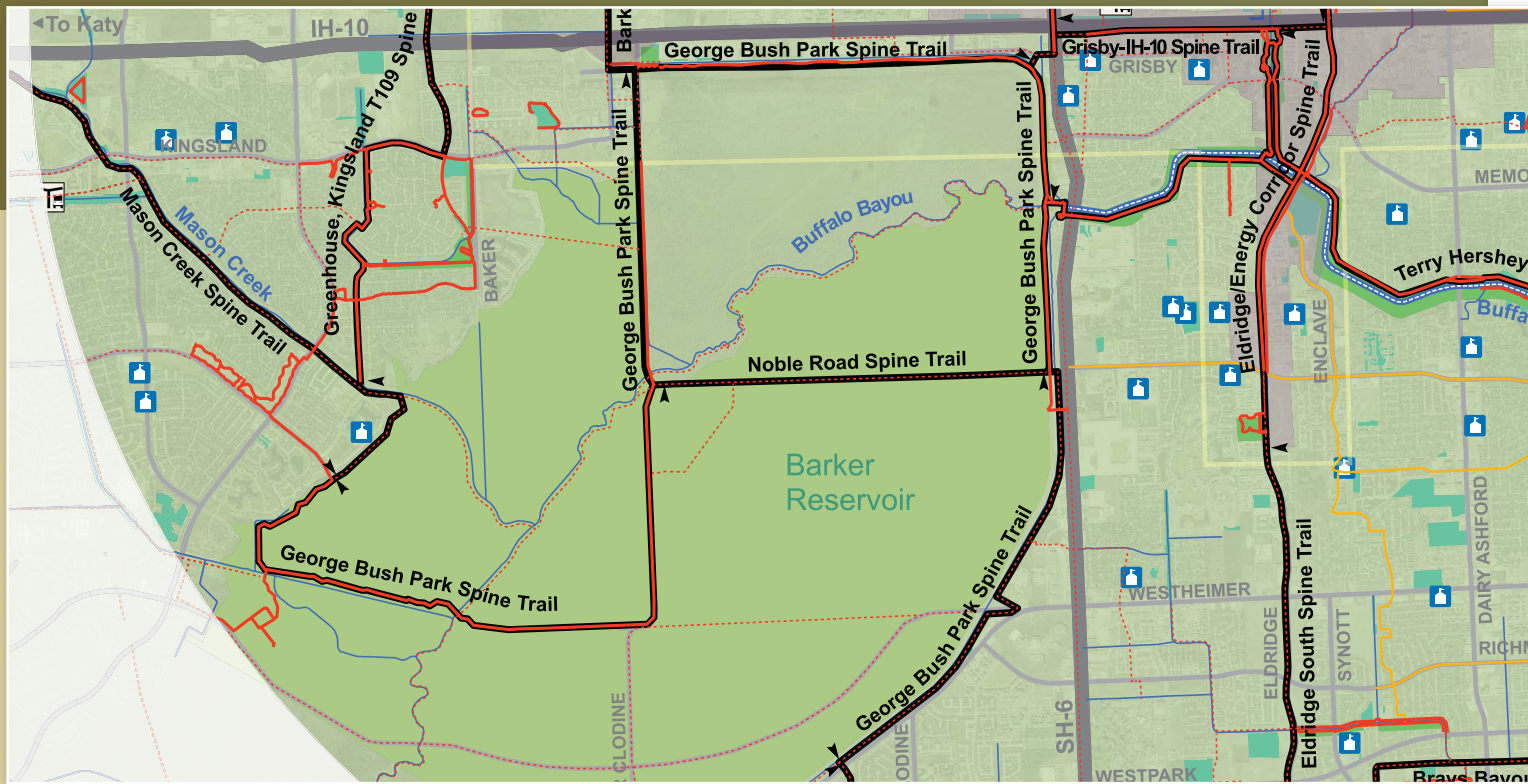
## Attributes

- 14.1-mile corridor.
- 10.4 miles of trail currently exist and are used daily by commuters and recreational enthusiasts.
- Could connect to The Houston Energy Corridor via the Grisby/IH-10 Spine Trail.
- Would connect the Barker Cypress Spine Trails and the Mason Creek Spine Trail.
- Trail features long views and open spaces with varying wildlife habitats.
- Access opportunities exist from Fry Road, Barker-Clodine, SH-6, Barker-Cypress, Westheimer Parkway and Harris County-Pct 3 Sergeant J.R. Hatch Park.
- Excellent parking and access opportunities for equestrians, cyclists and pedestrians.
- Restrooms and drinking water exist at several locations.
- Bridges, boardwalks and seating over Buffalo Bayou offer excellent wildlife viewing opportunities.

## Partners

- USACE
- City of Houston
- Energy Corridor District
- Mission Bend Greenbelt Association
- Katy ISD
- Alief ISD





## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



## Implementation Strategies

- A partnership to complete the remaining spine trail section should include the associated parties listed as well as user groups who support health, fitness and outdoor recreation.
- Current plans are underway to connect to this spine trail at its southern most proposed point.
- This project may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.
- The project may be eligible for funding via an Urban Outdoor Recreational Grant administered through the Texas Parks and Wildlife Department.
- Challenges include coordinating the roadway crossing at Westheimer Parkway and Westheimer to prevent a mid-block crossing on Barker Dam.



# Greenhouse Kingsland T109 Spine Trail

## Location

On the northern end, the trail begins at an intersection with the proposed S. Mayde Creek/Cullen Park Spine Trail near Saums Road. It follows Greenhouse Blvd. south to Kingsland Boulevard then west .5 miles parallel to Kingsland to the T109 drainage way where it turns south 1.5 miles to end at intersection with the proposed Mason Creek Spine Trail.



0 1 2 3 4 5 6 Miles

## Attributes

- 4.5-mile corridor, 2.6 miles of existing trail.
- Would connect major West Houston medical campuses, residential communities and regional parks.
- Would connect on north end to the proposed S. Mayde Creek Spine Trail and the Cullen Park Spine Trail. Would connect to almost 6 miles of existing MUD trails and to Barker Reservoir trails.
- Could also connect to a proposed trail following the Addicks Reservoir dam.
- High potential for commuting, outdoor recreation, viewing wooded park land and trail linkage.
- Greenhouse Road section serves as a very important north/south connection across IH-10.
- Spine trail would connect the USACE Addicks Reservoir north of IH-10 to Barker Reservoir south of IH-10.

## Partners

- USACE
- TxDOT
- HCFC
- Harris County Pct 3
- City of Houston
- Westlake MUD 01
- West Park MUD
- HC MUD 345
- Methodist West Houston Hospital
- Katy ISD



















## Implementation Strategies

- Undeveloped land along Greenhouse Road means potential for partnerships with developers and pre-development design.
- For ease of implementation, the segments north and south of IH-10 might be considered separately.
- Connecting residential communities to health care facilities could benefit involved partners.



## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



# Grisby/ IH-10 Spine Trail

## Location

Begins at the northeast corner of Barker Reservoir, just southwest of the intersection of IH-10 and SH-6. It follows Grisby Road under SH-6 and east to the Eldridge/Energy Corridor Spine Trail. It connects to the SH-6 North Spine at the northeast corner of IH-10 and SH-6.



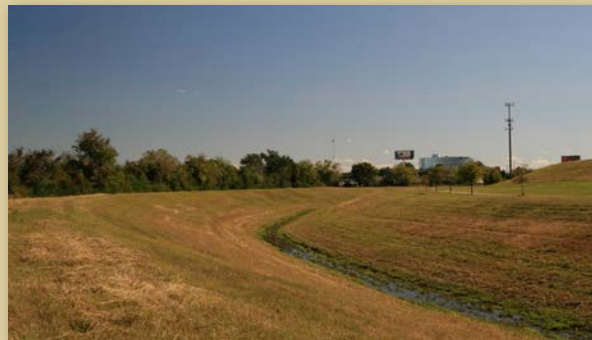
0 1 2 3 4 5 6 Miles

## Attributes

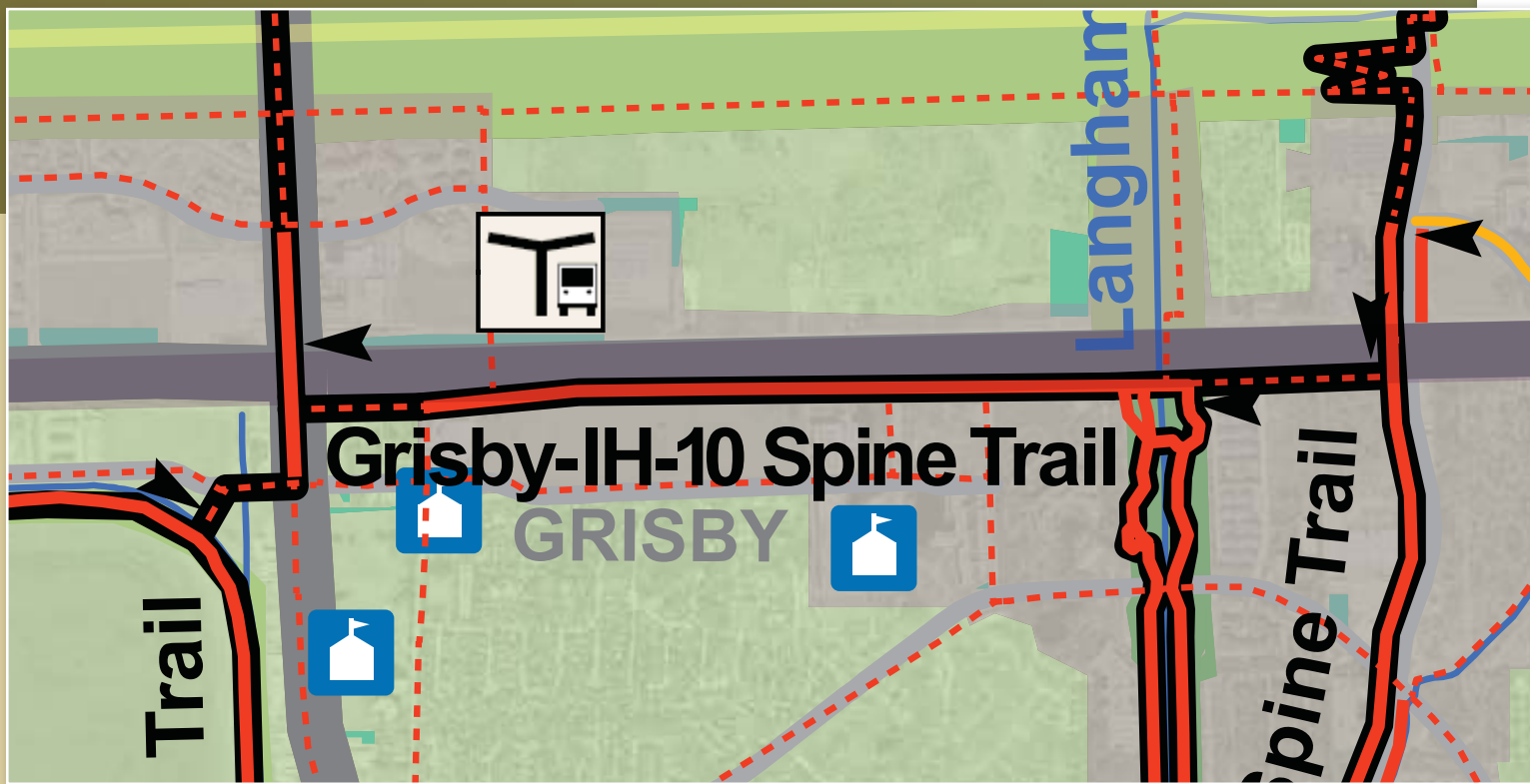
- 2.0-mile corridor.
- 1.1 miles of existing trail.
- Major connector between George Bush Park Spine Trail, SH-6 North Spine Trail, Terry Hershey Park Spine Trail and Eldridge/Energy Corridor Spine Trail.

## Partners


















- USACE
- TxDOT
- Harris County Flood Control District
- Harris County Precinct 3
- City of Houston
- Energy Corridor District
- Energy Corridor businesses
- Katy ISD







## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot
-  N

## Implementation Strategies

- Approval from Harris County Flood Control and USACE should be sought for installation of a bridge over the drainage way outside of the dam.
- The crossing at Grisby and SH-6 will involve TxDOT and the City of Houston. Safety of pedestrians and cyclists will be paramount.
- This Spine Trail is recommended in the Energy Corridor District Bicycle Master Plan



# Horsepen Creek Spine Trail

## Location

Located on the northern boundary of Addicks Reservoir, the confluence of Horsepen and Langham Creeks. The location is approximately 1.5 miles east of SH-6 and .4 miles south of W. Little York Road.



0 1 2 3 4 5 6 Miles

## Attributes

- 1.0-mile corridor with potential for 13+ miles of trail; no trail exists.
- Could connect to proposed Langham Creek Spine Trail and Addicks Reservoir.
- Horsepen Creek intersects the City of Houston/FM 529 bike lane .7 miles from subject area.
- Half the drainage/trail corridor is owned by HCFCD.
- Follows along bayou between dense single-family subdivisions.
- Two schools within one-half mile.
- Would connect multiple master-planned communities, retail businesses, neighborhood parks and Addicks Reservoir.



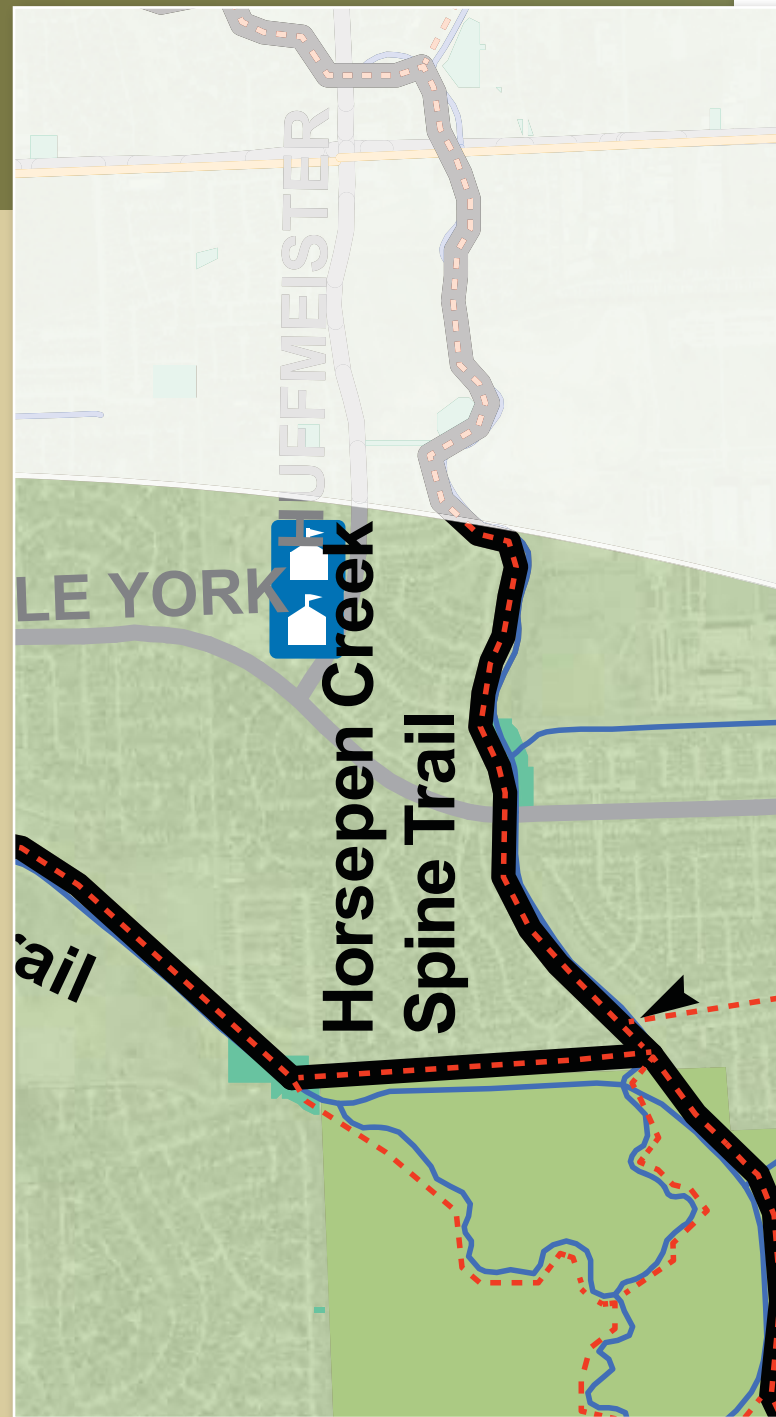
## Partners

- USACE
- HCFCD
- Harris County Pct 3
- Harris County Pct 4
- City of Houston
- Harris County MUD 102
- Horsepen Bayou MUD
- Harris County MUD 255
- Cy Fair ISD



## Implementation Strategies

- The partner for this spine trail should reach beyond the subject area of the West Houston Trails Master Plan to expand its full potential and serve the greatest user population by including at least the 11+ MUDs adjacent to Horsepen Creek.
- With much of the property under private ownership, challenges include adding recreational easements over the current HCFCFCD maintenance easements.
- Challenges include creating safe mid-block crossings and trail ledges under road bridges.
- The trail system may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Langham Creek Spine Trail

## Location

Begins .5 miles north of W. Little York Road and follows Langham Creek to the northern boundary of Addicks Reservoir, the confluence of Horsepen and Langham Creeks. It then parallels the east side of Langham Creek to Clay Road at War Memorial Drive.



0 1 2 3 4 5 6 Miles

## Attributes

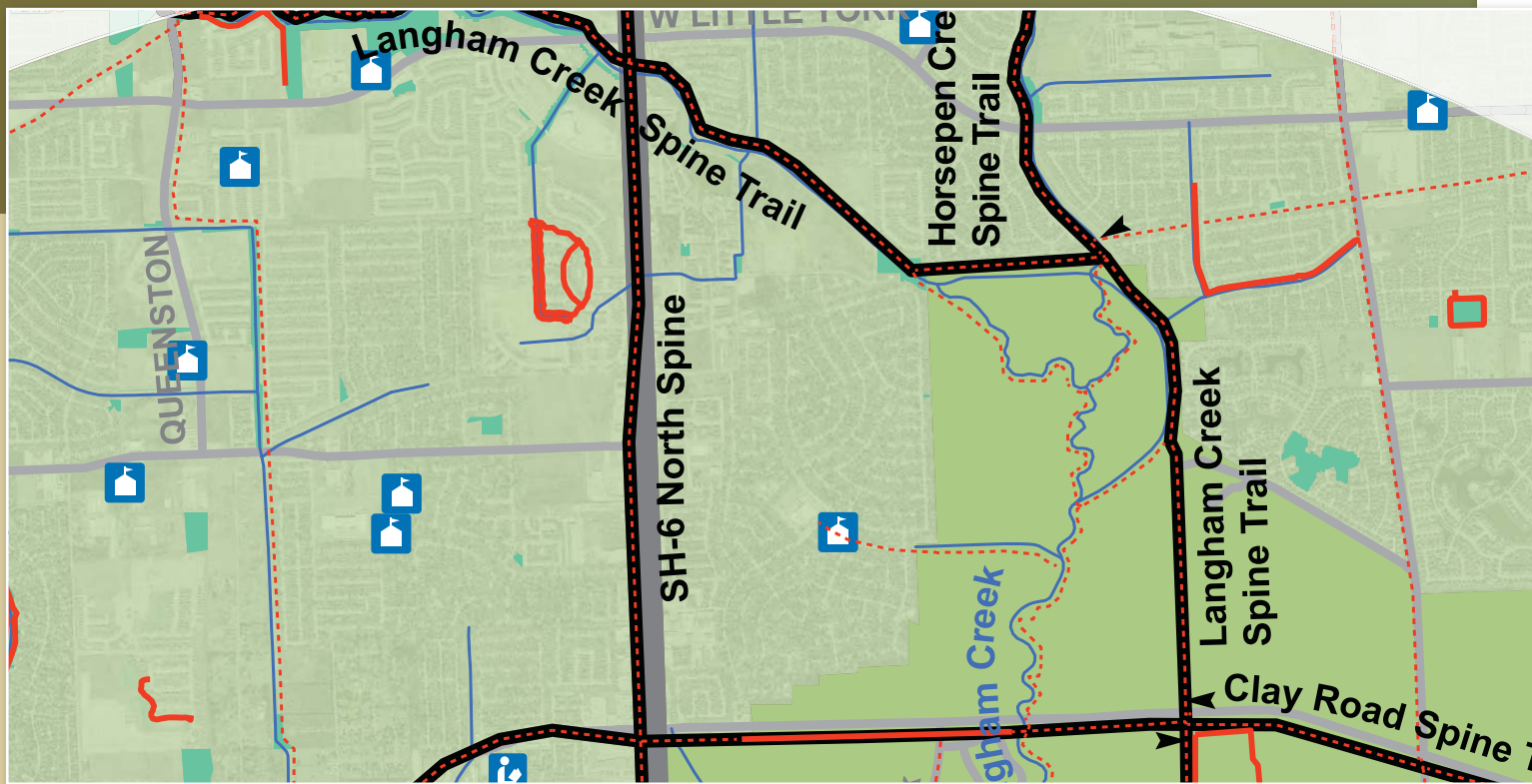
- 4.9-mile corridor with .5 mile of existing trail.
- Would link to 4 proposed spine trails: Bear Creek Pioneers Park, Clay Road, Horsepen Creek and SH-6 North.
- Would connect large residential areas to the north to proposed trail network.
- Would provide substantial commuting opportunities to The Houston Energy Corridor when combined with the Patterson/Eldridge Spine Trail.
- 2 miles proposed within scenic, wooded Addicks Reservoir and along perennial stream and pools.
- Strong potential for recreation, interpretation and nature experiences.
- 2 miles proposed on HCFCD drainage right-of-way.
- Three schools in the corridor vicinity; borders Langham Creek High School.
- Connects to a proposed master-planned MUD detention trail system.

## Partners

















- USACE
- Harris County Pct 3
- Harris County Pct 4
- City of Houston
- Harris County MUD 6
- Harris County MUD 102
- Harris County MUD 185
- Harris County MUD 276
- Harris County MUD 166
- Harris County MUD 257
- Northwest Harris County MUD 16
- Langham Creek MUD
- Horsepen Creek Spine Trail partners
- Cy Fair ISD

## Implementation Strategies

- To expand its full potential and serve the greatest user population, partners should include MUDs along Langham Creek upstream of the WHTMP subject area.
- Challenges include adding recreational easements over the current HCFCD maintenance easements.
- Federal and city approval must be obtained and protected areas avoided where corridor occurs within USACE property leased to City of Houston.



## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



- Project may be eligible for Pedestrian/Bikeways Transportation Enhancement funding and/or Urban Outdoor Recreational Grant funding through the Texas Parks and Wildlife Department.
- With county and HCFCD approval, below-grade crossings at SH-6 and W. Little York could provide safe routes under existing bridge structures.
- Challenges include designing a system that adequately serves users on both sides of the drainage way.

# Mason Creek Spine Trail

## Location

Starts near IH-10 and Mason Road and continues along Mason Creek into the Barker Reservoir. Meets the George Bush Park Spine Trail approximately .5 miles southeast of Fry Road and Highland Knolls Drive and extends beyond the subject area.



0 1 2 3 4 5 6 Miles

## Attributes

- 3.7- mile corridor, no existing Spine Trail but .9 miles from IH-10 to Kingsland Blvd is under construction
- Could connect to Greenhouse/Kingsland/T109 Spine Trail and George Bush Park Spine Trail.
- Three public schools within one-half mile.
- 3 miles proposed on HCFCF drainage right-of-way.
- Would connect with 16 miles of existing trails.
- Would serve to connect a densely populated residential area to park open space, trails and soccer fields.



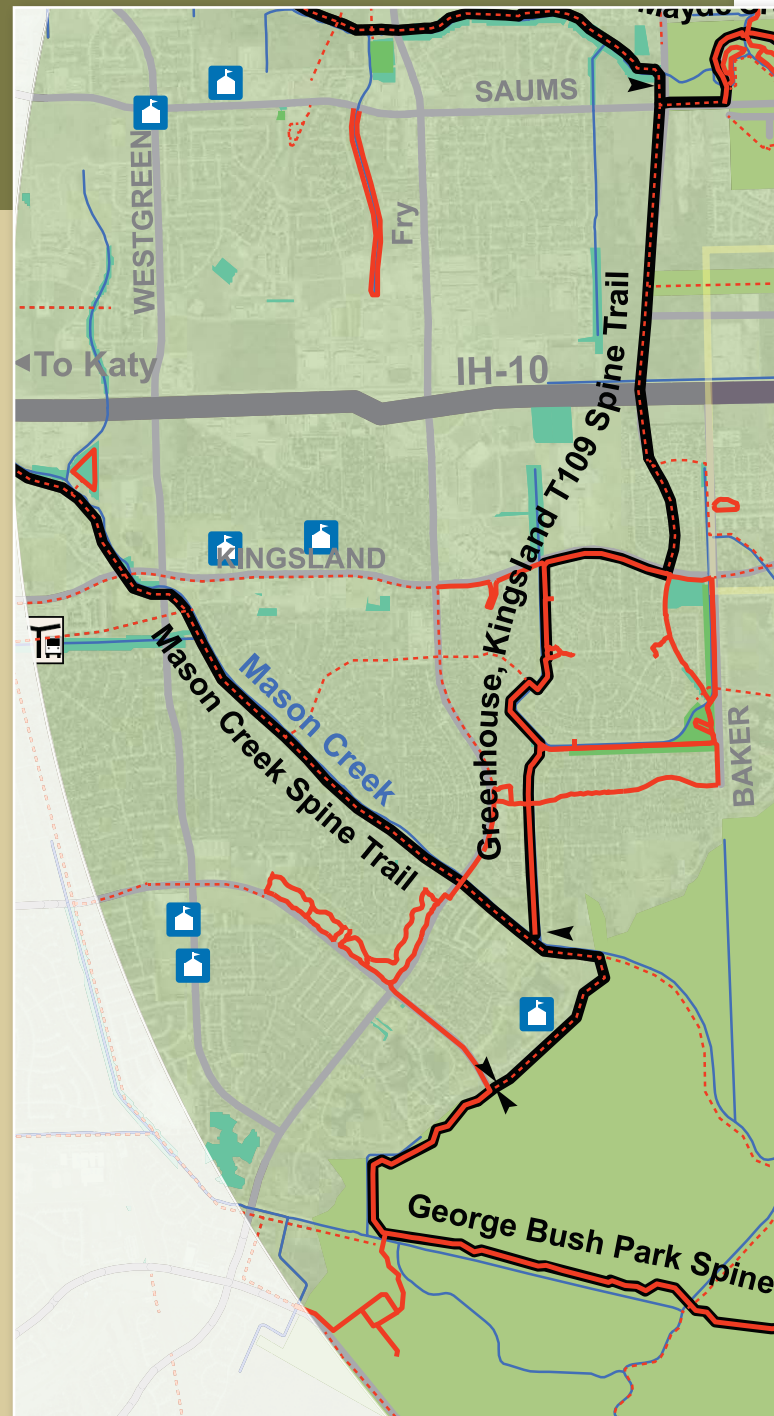
## Partners

- USACE
- Harris County Flood Control District
- Harris County Pct 3
- Nottingham Country MUD
- Green Trails MUD
- Mason Creek MUD
- Interstate MUD
- Castlewood MUD
- METRO



## Implementation Strategies

- Current partnerships with Interstate MUD, Mason Creek MUD, Harris County Precinct 3 and METRO continue to expand trails by engaging additional partners to connect spines and Park & Rides.
- Although the current project will continue under Westgreen and Kingsland Boulevard, the next challenge will be crossing under Fry Road.
- Additional challenges include obtaining permission and funding for a bridge to cross Mason Creek near the Greenhouse/Kingsland/T109 Spine Trail connection.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Noble Road Spine Trail

## Location

A straight trail segment that begins 2.0 miles south of IH-10 on SH-6 at Briar Forest. Continues west along an existing earthen maintenance road until it intersects with the George Bush Trail spine .07 miles south of the Buffalo Bayou inside Barker Reservoir



0 1 2 3 4 5 6 Miles

## Attributes

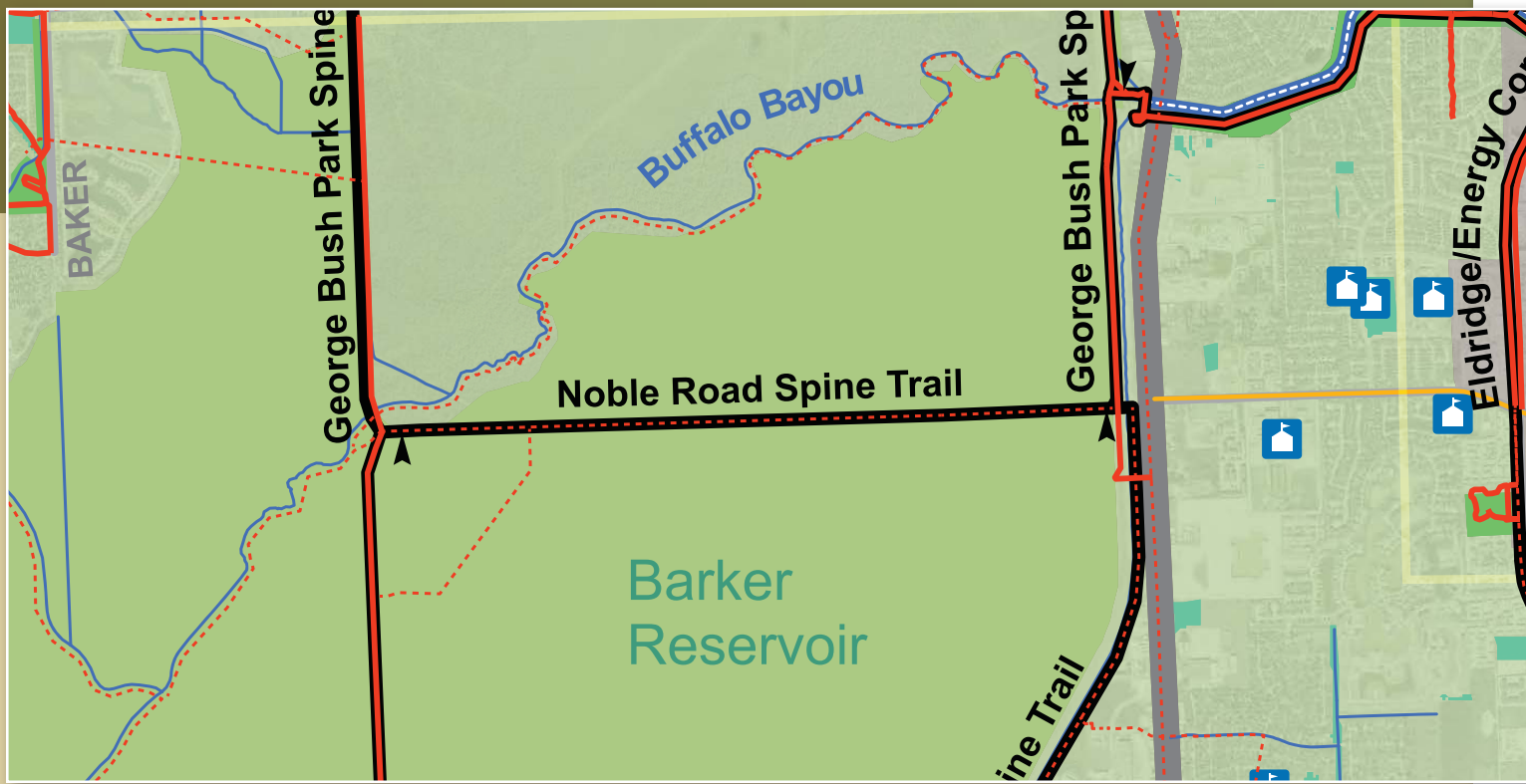
- 2.3 mile corridor
- No existing trail
- Would connect on each end to north-south segment of George Bush Park Spine Trail and on east end to city bike lanes
- This spine trail is owned by the USACE and is located entirely within the boundaries of the Barker Reservoir
- This trail passes between three large water bodies providing excellent wildlife viewing opportunities for both sedentary and migratory birds.
- An abundance of wildlife lives adjacent to this spine trail.
- This trail provides a quick “gap filling” route from residential areas west of Barker Reservoir to the business and retail developments along SH-6 at Briar Forest and further around to the Brays Bayou Spine Trail.

## Partners














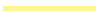


- Harris County Pct 3
- US Army Corps of Engineers







## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffalo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- Trail may be eligible for recreational trail funding
- Since this spine trail connects to the George Bush Spine Trail on both ends, continued efforts from adjacent neighborhoods to connect to the system will support completing this segment.
- Adding all-weather surfacing to existing maintenance road is easy way to create a trail that may also provide emergency access to areas of the Barker Reservoir that may otherwise be inaccessible.

# S. Mayde Creek-Cullen Park Spine Trail

## Location

Begins approximately .3 miles west of the intersection of Raintree Village Drive and Morton Road. Continues east along S. Mayde Creek to Greenhouse Road then south to Saums Road and east into the park, becoming Cullen Park Trail to its end at SH-6. Extends beyond the subject area to the west.



0 1 2 3 4 5 6 Miles

## Attributes

- 6.5-mile corridor, 3.6 miles of existing trail
- Three neighborhood parks are adjacent.
- Four public schools within one-half mile.
- More than half the corridor outside Cullen Park is publicly owned by HCFCD.
- More than 90% of the corridor outside Cullen Park is surrounded by single-family residential.
- Five drainage tributaries offer potential neighborhood connections.
- Flowing creek, hardwood-bottom woodlands and preserved riparian habitats support wildlife viewing and outdoor education.

















## Partners

- USACE
- Harris County Pct 3
- City of Houston
- Morton Road MUD
- Westlake MUD 1
- West Harris County MUD 07
- West Harris County MUD 17
- Fry Road MUD





## Legend

-  Spine Trails
-  Existing Trails / Pathways
-  Proposed Trails / Pathways
-  Existing Bike Route / Lanes
-  Buffulo Bayou Paddling Trail
-  Reservoir Parks
-  Other Parks
-  Open Space (Publicly Owned)
-  Drainage Ways
-  Schools
-  Libraries
-  Major Roads
-  Highways
-  The Houston Energy Corridor
-  Energy Corridor District Limits
-  Metro Park & Ride Lot



## Implementation Strategies

- Challenges include determining property ownership and the development of recreational easements over HCFCD right-of-ways.
- Harris County Precinct 3, the HCFCD and MUD partnerships could possibly streamline research and accelerate trail development.
- Additional challenges include crossing under Fry Road and making the connection to the Cullen Park trail system near Greenhouse Road.



# SH-6 North Spine Trail

## Location

From the northern boundary of the subject area, parallels either or both sides of SH-6 from a point .5 miles south of FM 529 south through Addicks Reservoir where it coincides with the Grisby/IH-10 Spine Trail. Extends beyond the subject area to the north.



0 1 2 3 4 5 6 Miles

## Attributes

- 6-mile corridor begins at IH-10 on south end; .4 miles of trail exists
- Major north/south connector would improve commuting to The Houston Energy Corridor by providing alternative transportation opportunities.
- Scenic views of Addicks Reservoir along 3 miles of the corridor.
- Could connect existing resources: Addicks and Barker Reservoirs, Terry Hershey Park Spine Trail, George Bush Park Spine Trail, Grisby/IH-10 Spine Trail, Bill Archer Dog Park, Cullen Park and the Harris County Farm and Ranch facility.
- Would connect proposed Langham Creek Spine Trail, Clay Road Spine Trail, S. Mayde Creek-Cullen Park Trail, Patterson/Eldridge Spine Trail and Grisby/IH-10 Spine Trail.
- Entire corridor is part of the Texas Parks & Wildlife's Upper Texas Coastal Birding Trail.

- Although the highway serves very dense retail and residential development, there are no sidewalks, shared-use trails or bike lanes in 93% of the corridor.
- Could provide safe pedestrian and bike access to numerous commercial businesses.

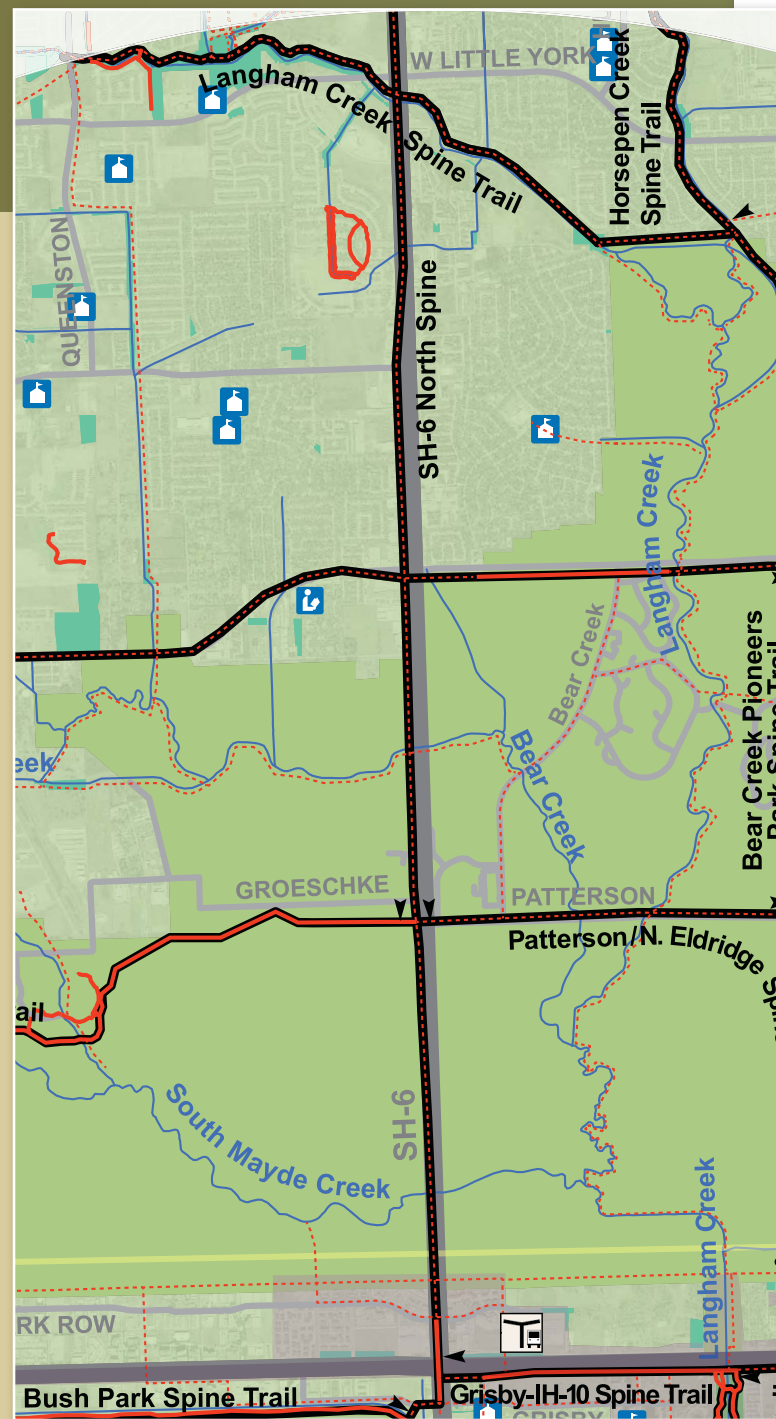
## Partners

- USACE
- TxDOT
- Harris County Pct 3
- City of Houston
- Energy Corridor District



## Implementation Strategies

- The trail system may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.
- Partnerships with METRO, the City of Houston, Harris County and TxDOT could help to connect regional parks and residential communities to major public transportation hubs improving commuting options.
- Challenges include adoption by TxDOT as an important corridor for pedestrian/bike activity to be included in future SH-6 construction or renovation.
- Challenges include providing a safe pedestrian crossing at Clay Road and funding support for pedestrian/bikeway routes paralleling SH-6 north of the Addicks Dam.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# SH-6 South Spine Trail

## Location

Begins on SH-6 at Brays Bayou approximately .3 miles north of the Westpark Toll Road where the toll road intersects with the Brays Bayou/Barker Dam Spine Trail. Continues south along either or both sides of SH-6 beyond the subject area.



0 1 2 3 4 5 6 Miles

## Attributes

- 1.2-mile corridor; no existing trail.
- Could connect the Brays Bayou/Barker Dam Spine Trail and the Bellaire Blvd Drainageway Spine Trail
- Could eventually extend to Keegans Bayou, US 59 and the City of Sugarland Trail System.
- Follows busy high-speed 5-lane highway, unsafe for bicycles and pedestrians.



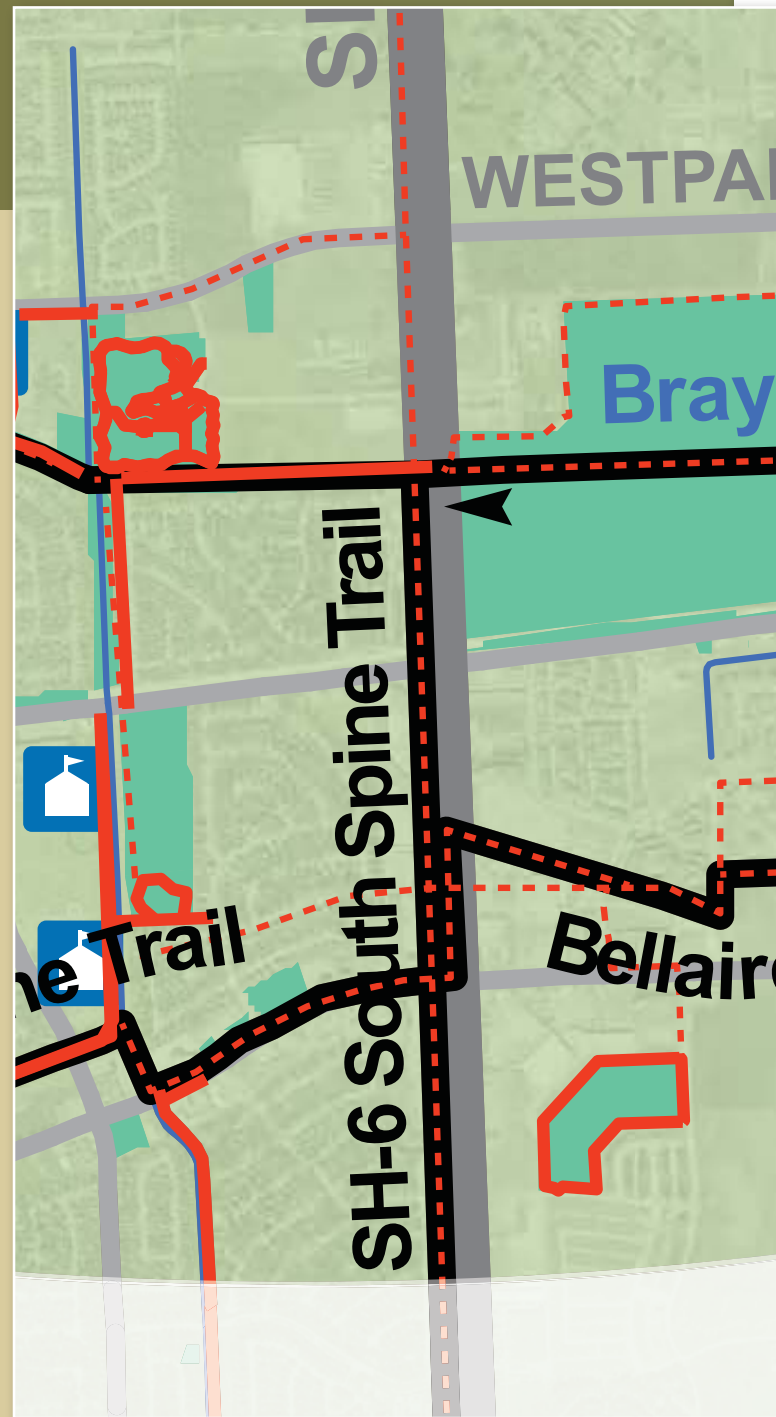
## Partners

- TxDOT
- Harris County Pct 3
- City of Houston
- Alief ISD
- Mission Bend Greenbelt Association
- Harris County MUD 120
- Mission Bend MUD 1
- Mission Bend MUD 2



## Implementation Strategies

- The trail system may be eligible for Pedestrian/Bikeways Transportation Enhancement funding.
- Challenges include adoption by TxDOT as an important corridor for pedestrian and bike activity to be included in future SH-6 construction or renovation.
- Additional challenges include acquiring financial backing to provide safe pedestrian crossing.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot



# Terry Hershey Park Spine Trail

## Location

Begins at Barker Reservoir and Buffalo Bayou on SH-6 approximately 1.0 mile south of IH-10. Continues to the east along the banks of Buffalo Bayou to Beltway 8.



0 1 2 3 4 5 6 Miles

## Attributes

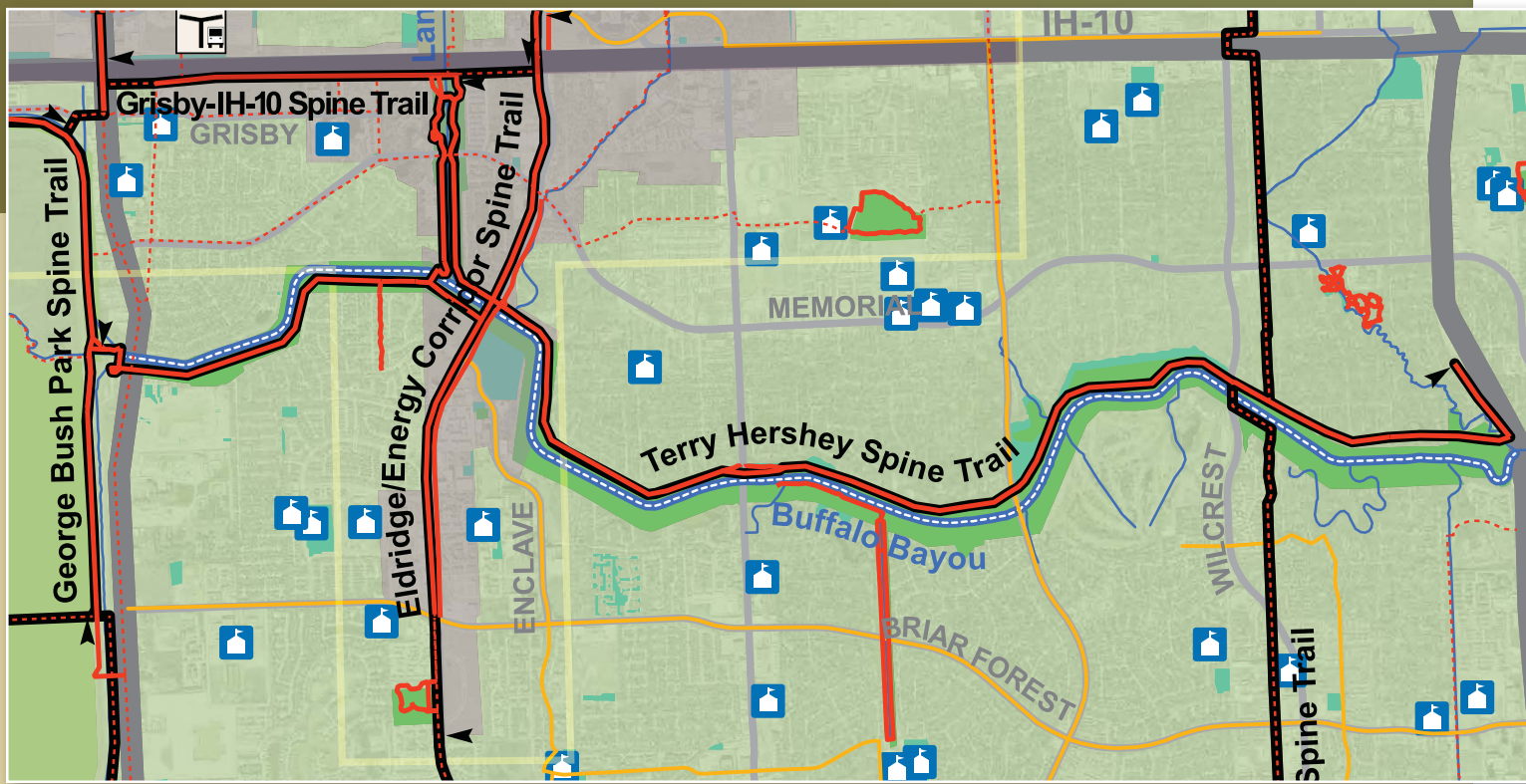
- 8-mile corridor.
- This spine trail is complete, though extensions are pending.
- Currently connects to the George Bush Park Spine Trail and the Eldridge/ Energy Corridor Spine Trail and could connect to the Patterson/Eldridge, Grisby/IH-10 and Wycliff Highline Spine Trails.
- This system, with multiple connections built within a drainage right-of-way, serves as an excellent model for combining outdoor recreational land use, wildlife habitats and bayou and riparian preservation.
- The spine trail offers numerous parking and restroom facilities, drinking fountains, outdoor showers and a playground.
- Since the development of the trail system, residential and commercial property values adjacent to the trails – or with access to the park and trail – have increased significantly.
- Parallels portion of Buffalo Bayou Paddling Trail designated by Texas Parks and Wildlife.

## Partners

- Harris County Pct 3
- HCFCD
- City of Houston
- Eldridge/ West Oaks Super Neighborhood
- Memorial Super Neighborhood
- Briar Forest Super Neighborhood







## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
- Drainage Ways
- Schools
- Libraries
- Major Roads
- Highways
- The Houston Energy Corridor
- Energy Corridor District Limits
- Metro Park & Ride Lot

## Implementation Strategies

- Since this spine trail exists, continued efforts to promote use and provide pedestrian bridge connections may help more neighborhoods gain access to the trail.
- Future trail extensions may be eligible for recreational trail funding.
- Challenges are to find neighborhood groups to organize and partner with either Harris County and/or the City of Houston to improve local recreational opportunities.



# Wycliff Highline Spine Trail

## Location

Begins approximately .3 miles southwest of the intersection of Tanner Road and Brittmoore Road and follows south along the existing utility corridor to Richmond Avenue and Wilcrest Drive. Extends beyond the subject area to the north and to the south.



0 1 2 3 4 5 6 Miles

## Attributes

- 8.7-mile corridor; no existing trail miles.
- Follows north-south overhead power line right-of-way easement.
- Would connect Terry Hershey Park Spine Trail to proposed Brays Bayou/ Barker Dam Trail.
- Six schools within one-half mile of trail.
- Houston Audubon's Moore Sanctuary, with 1+ miles of nature trails is within one-quarter mile.
- Intersects with more than four Houston bikeway routes/lanes.
- Houston Community College/Alief Campus is adjacent to the corridor.
- Corridor views include wooded buffers, golf courses and residential areas.
- Connects to six METRO bus routes.



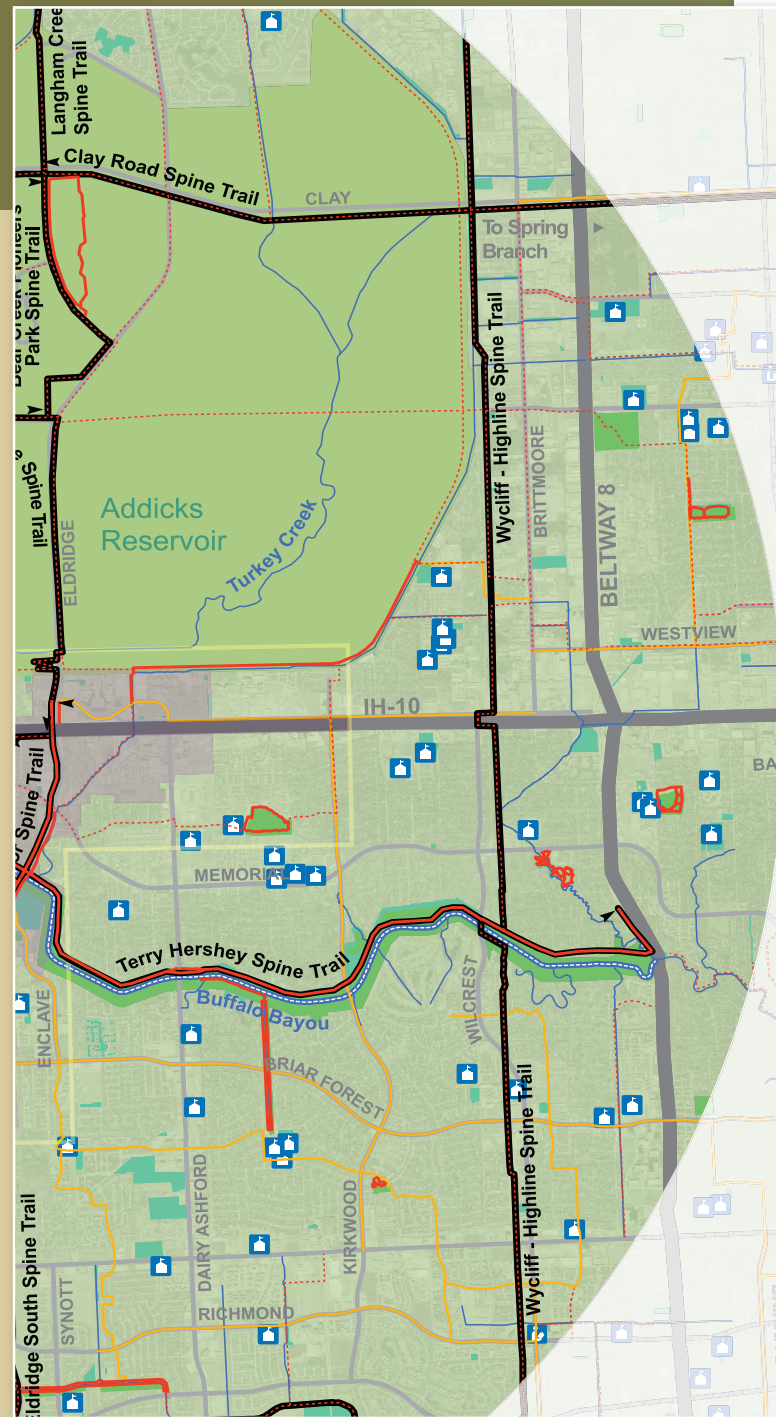
## Partners

- Harris County Pct 3
- Harris County Pct 4
- City of Houston
- Utility Companies
- Spring Branch ISD
- Houston Community College
- Memorial Super Neighborhood
- Briarforest Area Super Neighborhood
- Westchase Super Neighborhood
- Alief Super Neighborhood
- Springbranch West Super Neighborhood



## Implementation Strategies

- Recommend property title and easement research for determining recreational easement opportunities.
- Expand on agency partnerships for assistance in property searches.
- Recommend initial phase of trail expansion begin at Terry Hershey Park Spine Trail and continue north across IH-10 connecting to the City of Houston Bike Plan routes.
- Could support additional connections along Rummel Creek directed to commercial activity and the Houston Community College/Spring Branch campus.
- Challenges include some mid-block crossings and crossing Buffalo Bayou at Wilcrest.
- Trail development and a pedestrian bridge over Buffalo Bayou could potentially qualify for grants from recreational trail funds.



## Legend

- Spine Trails
- Existing Trails / Pathways
- Proposed Trails / Pathways
- Existing Bike Route / Lanes
- Buffalo Bayou Paddling Trail
- Reservoir Parks
- Other Parks
- Open Space (Publicly Owned)
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# Additional Recommendations

The planning team acknowledges that, in addition to the Trail Plan Map and Individual Spine Trails recommendations, many significant ideas deserve to be recognized. Following are other recommendations resulting from the master-planning process.

## Recreation Trails

The proposed spine trail system focused on interconnectivity. The development team also recommends the addition of “loop trail systems” designed for recreation, exercise and nature viewing. Within park and reservoir settings, loop trails could be constructed of natural surfaces suitable for hiking, mountain biking and equestrian use.

Loop trails designed for mountain biking and equestrian use – particularly when 10 miles or longer – would be highly competitive for Texas Parks and Wildlife Department recreational trail funding. Trails planned for reservoir land require



permission and environmental review by the U.S. Army Corps of Engineers. Trails on parkland would also need to be granted permission by the entity holding jurisdiction over the property. Trails in reservoir locations may be closed when the reservoir is needed for flood storage; such information is posted on the US Army Corps of Engineers website for Barker and Addicks reservoirs.

To ensure that proposed trails do not conflict with environmentally sensitive areas or the 2009 Barker and Addicks Reservoir Master Plan, parties interested in developing an equestrian or mountain bike trail should submit a proposal to USACE denoting conceptual areas for review. Approved trail locations, methods of development and long-term maintenance responsibilities will also need to be outlined in a subsequent proposal to the governing agencies.

## Support for Partner-proposed Trails

The priority emphasis on the spine trail system in this WHTMP is in no way meant to discourage any other trails that may be proposed by MUDs, clusters of adjacent MUDs, homeowner associations, or parks departments of the City or County.

Like major arterials of the road and street system for motorized vehicles, spine trails serve as major arterials for an integrated transportation system for non-motorized users. If partners and stakeholders unite in support of the spine system, spurs or connecting trails will provide even greater bike and pedestrian opportunities within the West Houston area. Gaps between spine trails or other local trails are key recommendations of this plan as they also contribute to a greater system of connected trails.

MUDs and homeowners associations have a history of taking initiative to provide trails within their service areas. This plan encourages those initiatives, especially when neighboring MUDs plan together to connect their local trails to each other.

## Key Policy Recommendations

In addition to recommending specific trail corridors, the planning team has identified some policy areas that we believe will contribute to more efficient execution of the overall trail system. Those with jurisdictional responsibility and authority over a given area are the most likely to be effective at implementing these recommendations.

- Develop a road- and bridge-abutment slope standard that supports future trail additions by providing a ledge under bridges allowing trails along drainageways. The magnitude of a policy such as this will improve future trail system connectivity, reduce mid-block crossings, reduce conflicts between vehicles and pedestrians or cyclists, improve wildlife migration opportunities and contribute to the overall health, safety and welfare of the community.
- Develop recreational-use easements on all open and accessible areas currently slated as public maintenance easements. This recommendation is already a current practice of Harris County Flood Control District, holder of the majority of maintenance easements for flood management purposes, but it should become a policy of any entity needing to obtain easements for utilities, maintenance or flooding purposes.
- Adopt trail corridors in this and other regional plans and, when properties containing proposed trail corridors are submitted for development review, incorporate requirements for implementation responsibilities.
- Include a minimum 8-foot wide multi-use trail in the design of new roadways. Where spine trails are recommended for existing roadways, an 8-foot wide trail should be located on at least one side of the road, replacing sidewalk if needed.
- Create an advocacy organization, coalition or regional trail authority to promote the West Houston Trails System. Responsibilities would include outreach, fundraising, coordinating agencies and agency funding initiatives, foundation support, and generally advocating implementation of the system.
- Develop more sustainable design practices for recreational land uses and areas surrounding drainage corridors.



- Evaluate vegetation management policies that surround drainage and riparian corridors to encourage appropriate vegetation growth, reforestation of the upper banks and habitat restoration, improved water quality and reduced maintenance costs.
- Remove unnecessary fencing surrounding detention basins, thus expanding amenity opportunities to allow trail access, wildlife reviewing and habitat development.



# Design Guidelines

<b>A better system through coordination.</b> .....	<b>pg 64</b>
<b>Trails Defined</b> .....	<b>pg 66</b>
<b>Design Concerns</b> .....	<b>pg 68</b>
<b>Trail Corridor Placement</b> .....	<b>pg 70</b>
<b>Trail Alignment &amp; Routing</b> .....	<b>pg 72</b>
<b>Trail Construction</b> .....	<b>pg 74</b>
<b>Traffic Control</b> .....	<b>pg 78</b>
<b>Bridges &amp; Support Facilities</b> .....	<b>pg 80</b>
<b>Signage</b> .....	<b>pg 82</b>
<b>Landscaping</b> .....	<b>pg 83</b>
<b>Security &amp; Maintenance</b> .....	<b>pg 84</b>
<b>Summary</b> .....	<b>pg 85</b>

# A better system through coordination.

## **Pedestrian**

A person standing, walking freely or with assistance, running or utilizing a wheelchair or other wheeled, mobility-assistive device.

## **Cyclist**

A person traveling on a non-motorized, single- or multi-wheeled device.

## **Roller Skater**

A person traveling, generally on smooth terrain, by means of inline or quad skates.

## **Equestrian**

A person riding a horse or mule who uses the facilities associated with such activities.

## **Pet**

An animal kept legally for companionship or enjoyment.

## **All-Terrain Vehicle**

A motorized vehicle with a seat straddled by the operator and handlebars for steering control that travels on low-pressure tires.

## **Motorized Vehicle**

A self-propelled wheeled conveyance – such as a car or truck, bus, go-kart or motorcycle – that does not run on rails.

## **Skateboards and Scooters**

Typically a short, narrow board with a set of four wheels mounted underneath, with or without a vertical handle bar that is generally ridden in a standing or crouching position.

The West Houston Trails Master Plan (WHMP) is intended to provide general trail information that will be useful to public and private-sector decision makers involved in trail planning, design, construction and maintenance.

In establishing these design guidelines, the WHTMP development team's goal is to aid in the creation of a trail system that is complete and fully connected, demonstrates sustainable practices and sound construction, and safely serves the largest number of users while being good stewards of land and waterways.

While acknowledging political boundaries, our hope is that the Master Plan will ultimately help create a quality trail system in West Houston for residents, employees and visitors.

By offering a uniform vision and sharing techniques that have proven successful, we aspire to incorporate consistency into the trails system.

The more consistent the base components – signage, surfacing, sight lines and the like – the better the system operates as a whole.

The value of any single trail improves when it connects to a system of trails. When the system connects to multimodal transportation, the value is enhanced even further. To be successful, entrances and exits must be safe and well marked.

There is no doubt that development will continue in West Houston and the surrounding area. We encourage public agencies and private entities to consider adding regional trail plans when developing infrastructure.

It is our belief that supporting current trails and allowing for future trail extensions is not only good design, it makes good economic development sense.



## Limitations

This document does not describe every condition, design method or construction detail that might affect a trail. Before proceeding with actual design and construction, we strongly suggest that a professional be consulted.

It should also be clearly stated that the methods described in this document are by no means the only ones available to accomplish the stated goals. Public agencies, utility districts, homeowner associations and other trail-building entities and partnerships may choose to develop trails and trail systems through alternative methods.

Finally, the views in this document do not necessarily reflect the unanimous opinions of members of the WHTMP steering committee or others listed in this document.

## Regulatory Requirements

It is the recommendation of the West Houston Trails Master Plan development team that any individual or entity developing a trail or system of trails consult the following public agencies for current regulatory requirements.

## AASHTO

The American Association of State Highway and Transportation Officials offers the AASHTO Guide for the Development of Bicycle Facilities and the AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities.

[www.transportation.org](http://www.transportation.org)

## ADA

At the time of publication, the Americans with Disabilities Act (ADA) was in the process of establishing guidelines for public and private trail use. Please refer to their website for current guidelines.

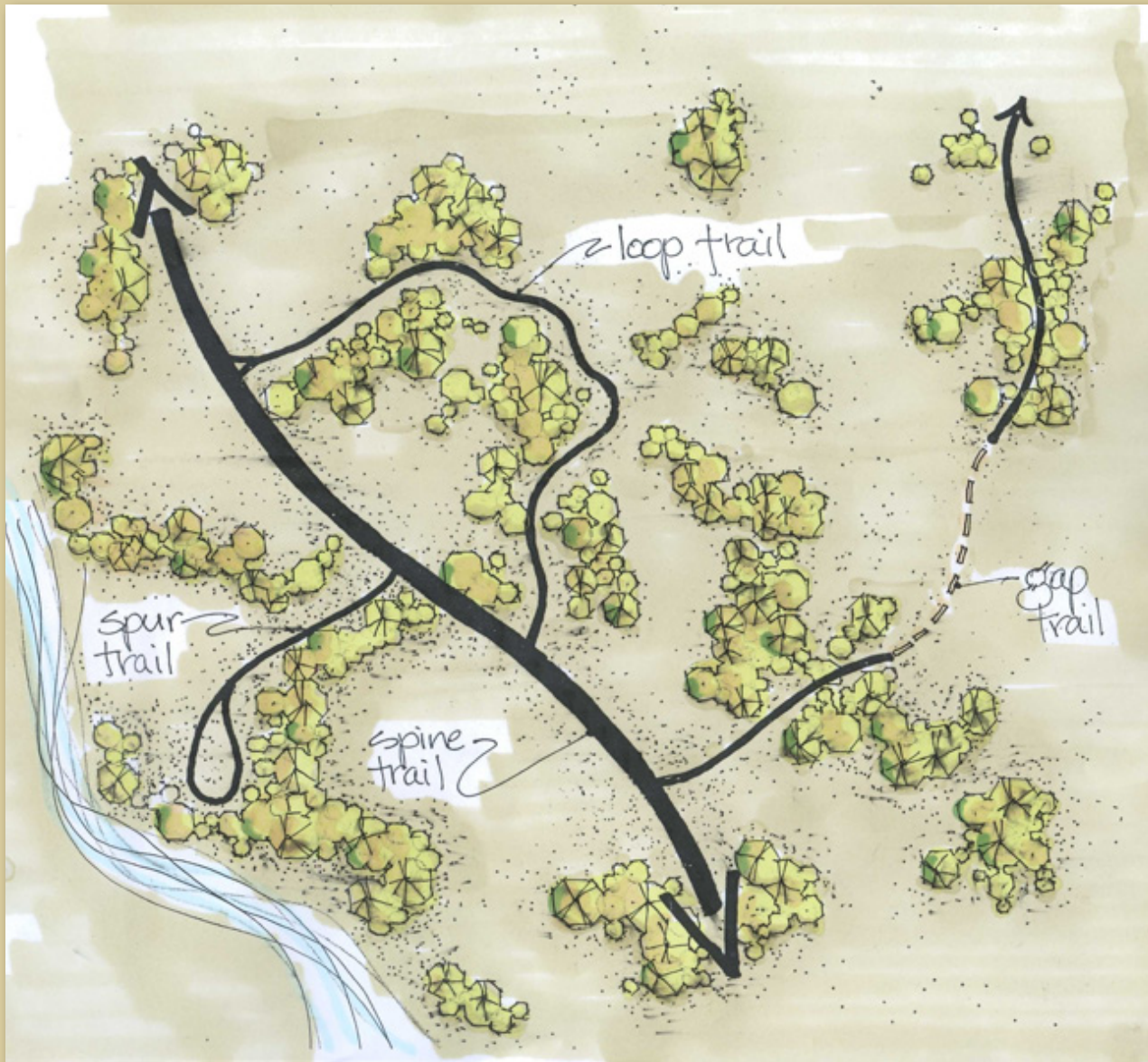
[www.ada.gov](http://www.ada.gov)

## Texas Department of Licensing and Regulation

The department provides current requirements for submitting plans for review and compliance.

[www.license.state.tx.us](http://www.license.state.tx.us)

# Trails Defined



## Spines

- The largest type of trail in the system in width, length and volume.
- Width is based upon projected use and connections.
- Form the “backbone” of the trail system and support connections.
- Generally many miles in length.
- Used to link separated areas or regions.
- Corridor generally ranges from 30 feet to 100 feet or more,
- Spine trails typically are a minimum of 10 feet in width to accommodate projected future user volume.

## Loops

- Best trail type for a varied trail experience.
- Give users a familiar access point to which to return.
- Generally used for recreation, exercise, points of interest or pleasure purposes; not as alternate means of transit or commuting.
- Corridor ranges from 12 feet to 20 feet.
- Generally ranges from 6 feet to 10 feet in width, depending upon total length of loop and type of users.

## Spurs

- May provide direct access to a park, neighborhood, or special use that is not along a spine.
- Does not connect multiple trail systems.
- Generally short in distance.
- Corridor ranges from 12 feet to 16 feet.
- Spurs typically range in size from 6 feet to 8 feet in width.
- Generally has the lowest volume of trail users.
- Best trail type for special interest areas such as bird rookeries, wildlife viewing and photography as spurs minimize disturbance to sensitive areas.

## Gaps

- Provide the necessary connection to create a contiguous trail system.
- Connect multiple trail systems.
- Generally are very short in length.
- Corridor and trail widths vary widely depending upon the types of trails they are linking.

# Design Concerns



## Creating trails that get used.

Ideally, the design of trails will vary depending on the trail's intended use and users. A rollerblading trail may be surfaced differently than a hiking trail, for example.

A trail that connects an office park and a METRO Park and Ride lot will most likely meander less than a trail intended for equestrian or recreational use.

When a trail corridor is wide enough to allow options, designers might take user preferences into account. Factors like scenic qualities, surfaces, routes and connectivity to desired destinations are all important considerations. By providing trails that effectively serve a variety of functions while offering experiences that are enjoyable, developers can ensure successful trails, those that are used frequently and by many.

## Safety

The safety of the end user is and always should be the primary concern of everyone involved with any aspect of trail design, construction and maintenance. To review state and federal safety standards, refer to AASHTO and other recognized and approved manuals.

We recommend that safety considerations and emergency contact phone numbers be posted at trailheads, in designated parking locations and at other appropriate destination points.

Key trail identification points such as streets, bridges and mile markings may be provided on such postings; this information is helpful for both the trail user and the emergency personnel who may be called upon to provide assistance.

## Sustainable Design

The goal of sustainable design is to minimize long-term negative environmental impacts directed toward assuring the trail's longevity for continued and safe user enjoyment.

Sustainable design serves to minimize long-term maintenance requirements and optimize site potential by protecting and conserving natural resources, employing environmentally preferable products and lessening non-renewable energy consumption.



## Maintenance

The true cost of any development project must reflect its maintenance expectations and use requirements.

Fiscal resources for maintenance should be agreed upon and set aside before the project is underway.

In many instances, the costs of sustaining a feature after construction exceed the original costs of installation.

Long-term commitments may be diminished by utilizing native, natural elements that blend into existing landforms.

Evaluation of natural site features, drainage considerations and resource management can, in most cases, reduce overall construction and maintenance costs. The use of reclaimed, locally available materials may also reduce initial and replacement costs.



# Trail Corridor Placement



Location of trail corridors is determined by numerous factors including surface availability, land characteristics and the development status of surrounding properties.

In urban areas that have already been built out, locations are limited to undeveloped land, shared corridors dedicated to other compatible uses, parkland, and other public and quasi-public spaces.

In areas that are not yet developed or are in early stages of development, the opportunity exists to identify trail locations that provide internal connections to playgrounds, community centers and recreation facilities.

Providing connectivity links to existing and planned trails, surrounding business campuses and retail centers, neighboring subdivisions and mass transit park-and-ride hubs will have a positive economic impact on the surrounding land values and greatly enhance system use, functionality and enjoyment.

## Public Land



Because acquiring private land can be a costly and lengthy process, the optimum choice for public trails is generally existing public land: parks, reservoirs, drainage easements, road right-of-ways and other open spaces.

The West Houston study area is blessed with abundant acreage of public land – primarily Addicks and Barker reservoirs, both US Army Corps of Engineers (USACE) reservoirs – and numerous opportunities for recreation loop trails.

Even so, there are restrictions that affect trail locations. In 2009, USACE revised its land-use plan and designated sensitive areas for no- or low-impact facilities.

Some trails may be considered low impact – those that do not require added fill, for example – but all trail proposals must be approved by USACE as well as the City of Houston or Harris County Precinct 3 where each has leased parkland.

Since the reservoirs are subject to periodic flooding, trails within the Addicks and Barker reservoirs may be faced with occasional closures. That said, publically owned drainage-ways offer great potential for linear trails which may be built upon their banks.

### Utility Corridors

Existing utility corridors offer fabulous trail potential. These corridors are generally free of existing vegetation reducing costs associated with clearing and grubbing.

Additionally, mowing is generally under contract so costs for corridor maintenance are reduced.

If underground utility work and inspections become necessary, trails may provide access for service crews and can easily be replaced if damaged by utility work.

Historically the liability of easement holders has been an obstacle to the installation of public recreational trails on utility corridors.

There is legislation in the works that reduces this exposure, improving the opportunities for multi-use easements.

### Private Property Easements

To support a trail system, property owners must understand the benefits trails offer their customers and employees.

By dedicating recreational trail access, owners may reduce their own maintenance costs and improve security concerns, especially on drainage-way corridors held in easements for flood control or conveyance purposes.



# Trail Alignment & Routing

Once a general trail layout has been agreed upon, a number of factors affect the specific route each trail will take. Following are issues that must be considered.

It is our recommendation, however, that investigations be completed prior to any construction. Due diligence will reveal issues specific to a site and help eliminate pitfalls.

## Ownership Verification

A current, sealed survey will verify ownership of any property. The rights of property owners must always be respected.

## Permitting and Jurisdictional Issues

Crossing jurisdictional wetlands and other sensitive areas is not easy. The permitting process can be lengthy and expensive; sometimes it's preferable to reroute a trail to avoid the area altogether.

It pays to conduct a comprehensive legal and engineering investigation on land before finances are committed.

## Cultural and Historic Resources

It is important to respect all cultural and historic features. Investigate and coordinate potential preservation and protection issues and permitting with appropriate authorities including the Texas Historical Commission. When possible, incorporate interpretative signage to educate users and enhance an appreciation of the history or cultural significance of an area.

## Natural Landforms



Trails should move with the landform, not through it. This minimizes the need for excessive grading, cut/fill and/or disturbance and encourages users to appreciate the

landscape and its natural features.

The trail experience is enhanced by the integration of natural landforms. By respecting existing contours and natural drainage patterns, a trail developer will diminish erosion thus protecting the drainage ways and lowering long-term maintenance costs.

## Varying Trip Experiences

Long, straight trails are efficient but boring and, due to increased opportunity for excessive speeds, can be dangerous.



Vary the surroundings of a trail using existing woodlands, grasslands (ecotypes) and points of interest.





Alternative trail routes or a loop system between trail points add interest and enhance the user experience.

### **Sight Distances**

Sight distance requirements on a trail will vary widely based on user activities and abilities. Every trail should be designed for users with greatest sight-distance needs; a cyclist needs to see farther than a walker, for example.

Expanding sight lines will maximize user safety and minimize the opportunity for criminal activity.

### **Floodplains and Floodways**

Unless otherwise regulated, floodplains and floodways may successfully be used for trails, parks and open-space recreation.

After rain and flooding events, these spaces may be temporarily unusable,

however, and construction and maintenance costs may be greater than on lands that don't flood.

It is a good idea to install water depth markers in areas prone to flood inundation.

Depending upon the location of a trail, technology may be incorporated to inform users of trail conditions or closures.

# Trail Construction



From asphalt to boardwalks to concrete, the options for trail composition are many.

Selection of materials is generally based on resource availability and trail use. However, safety, maintainability and sustainability are all important considerations.

There is no such thing as a maintenance-free trail system. In fact, over the useful life of a trail, maintenance costs often exceed construction costs.

Planning for such costs is imperative and a number of factors play into the figures including the initial investment, design characteristics of a system and its traffic volume and usage.

Maintaining shoulders on the sides of paved surfaces is of critical importance; shoulders should be two feet wide and free of grass and foliage.

Drainage is also a consideration. Good drainage will help deter pavement and

base deterioration, standing water and “bird baths” that create unsafe conditions.

## Tread or Composition Types:

### Aggregate

Decomposed granite or mixtures of sand and gravel may be used with or without stabilizers.

Edges of aggregate trails will need to be contained to reduce or prevent sloughing. Aggregate trails require regular maintenance and material replacement as well as periodic re-leveling.

### Asphalt

Conventional dense or open-graded paving materials with smaller top sizes (.5 inches or less) are suitable trail surfaces.

Maintenance will include filling cracks and sealing the surface at intervals contingent on local weather conditions. Un-stabilized swelling soils must be recognized and considered.



## Natural Surfaces

From graded soils with sterilization to simple footpaths, natural surfaces make great trails. Periodic maintenance will be required to preserve original design grades and surface conditions.

## Pavers

Pavers may be used over an adequate base with some type of edge restraint. Maintenance will include occasional paver replacement and, if fillers are used, periodic replacement of joint fillers.

## Concrete

Conventional reinforced or unreinforced concrete is a common trail surface. Expansion and contraction joints must

be level and maintained regularly for the safety for cyclists, roller skaters and walkers, especially when concrete is poured directly over unstabilized joints. Differences of as small as .25 of an inch can cause accidents.

## Boardwalks

Boardwalks are very site specific. Local conditions and trail usage may help determine materials but recycled materials should be considered

A rough tread is important for user safety; an abrasive may be added to keep stair treads in particular from becoming slick. Maintenance considerations include the replacement of rotted wood and fasteners.

## Soil Considerations

A good trail foundation will help minimize maintenance costs. Before construction begins, a geotechnical soils investigation should be conducted. An experienced professional can determine type and general uniformity of soils throughout a project.

# Trail Construction



## Trail-to-Trail Intersections

The West Houston Trails Master Plan development team encourages two-way traffic and the posting of user maps, distance, direction indicators and other information at trail intersections.

Intersections should remain clear of obstructing, overhanging and encroaching vegetation and free from excessive distractions. Intersections should be equipped with crosswalk indicators and striping where reasonable. Signage may adhere directly to the trail surface as well as on vertical surfaces.



## Grading and Drainage

It's easy to overlook or misinterpret grading and drainage issues but these two factors will have a tremendous impact on trail sustainability and long-term maintenance costs.

Minimum and maximum recommended slopes will be determined by a variety of considerations but tread stability and user safety being among the most important.

The thickness of a trail's added surfacing material and its relationships to adjacent grades will determine cross-drainage issues that can occur either below the tread or across a trail's surface.

Side sloping will help direct drainage away from the trail surface and its sub-base. Optimally, grading will blend seamlessly into the natural terrain of the land and the degree of the slope will remain constant.

We recommend using native plant material to stabilize trail borders and to help filter runoff within riparian corridors. Erosion, sediment and dust control are important considerations during and after construction. The control of erosion and sediment is not only crucial to protecting the investment in a trail, it is required by most jurisdictions and agencies.

## Intersections

The safety of all users is the number one consideration in trail and intersection design. We recommend that anyone involved in the design or

construction of a trail system consult AASHTO, Texas Recreational Trail Fund Guidelines and ADA guidelines or other sources before addressing intersections. Following are intersection configurations and recommendations specific to each.

### Trail-to-Roadway Intersections



The recommendations for trail-to-trail intersections apply to all intersections. In addition, trail-to-roadway intersections will be made safer with the installation of crossing signals to stop vehicular traffic and permit safe crossings.

Both trail and roadway should be marked with crosswalk indicators and striping. Fencing, gates and other barriers may be used to control passage

between the trail and street.

Surface transitions should be smooth and free of tripping or skidding hazards. Detectable advance warnings devices should be employed to the greatest extent possible.

### Mid-Block Intersections

These are the most dangerous type of crossings and should be avoided if an alternative is available, which might include drainage corridors.

(Barrier-free ledges with the proper clearance may be built on drainage corridors to provide trail users access under road bridges and along drainages without vehicular conflicts.)

Traffic engineers should always be included in the design of mid-block intersections.

In addition to the recommendations provided for other intersections, developers of mid-block intersections should consider installing motion-activated visual warnings to notify vehicles and trail users of approaching conflicts.



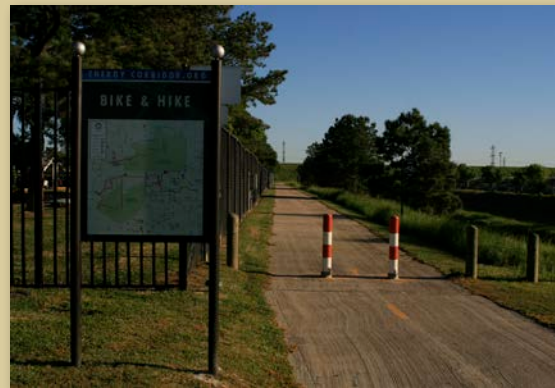
# Traffic Control



There are many ways to control traffic on a trail system, to limit the flow of traffic and the speed at which users travel. Following are some of the more popular traffic controls options.

## Barriers

Barriers or flow-impeding devices such as concrete bollards, indigenous materials like rock, native plants or even signage may be used to slow or stop traffic on a trail, forcing the user to consciously make their way around the obstruction. Safety concerns and advanced visibility must be considered.



## Crosswalks

Pedestrians and cyclists may find themselves at risk in poorly designed crosswalks. Well-designed and executed crosswalks, on the other hand, will put walkers and bikers on high alert. Pedestrian signals should be used at traffic-controlled intersections. The best crosswalks have safe islands where users can pause and re-evaluate the traffic situation. Mid-block crossings may require evaluation by a professional traffic engineer who will review conditions such as automobile speed, site visibility and signage. Blinking lights provide added safety and cost. User safety is paramount.



## Fencing and Gates

Properly designed fencing may add to the aesthetic of a trail and will serve to restrict access of users in unwelcome or unsafe areas.



## Guardrails

Guardrails are among the most widely recognized indicators of unsafe conditions and are frequently specified by governing agencies for areas deemed dangerous. In any unsafe area, signs and other diversions should be limited as visual chaos may lead to user distraction.



## Speed Inhibitors

Physical restraints such as speed bumps or trail dips do inhibit speed. However, these elements should be used sparingly as they may cause a cyclist or runner to involuntarily lose control and injure themselves or others. Please note that surface enhancements specified by the State of Texas for identification and delineation, as used in ADA ramps, for example, are not speed inhibitors.

# Bridges & Support Facilities



## Bridges

Bridges add substantial costs to the construction of a trail system. If alternatives are available, they should be considered. Whether it's a major or complex bridge or a simple boardwalk, every bridge must be designed by a trained professional and stamped by a licensed structural engineer.

Permitting by governing authorities will most likely be required. Bridges serve a useful purpose by keeping the trail at the approaching grade and above streams or drainage areas that can be difficult to cross when wet and also damaging to the water resources.

## Support Facilities

Support facilities such as parking lots, restrooms and rest areas should be designed to accommodate the greatest spectrum of current and future users of a trail system. Many funding sources or grants require that support facilities meet both AASHTO and ADA requirements.

## Trailhead Parking

To prevent conflicts with adjacent landowners, it is imperative to provide adequate parking for people using trails and associated facilities. Consider overflow parking options for extremely busy times.

Consider also special parking needs. Equestrian trails, for example, require parking areas large enough for horse trailers carrying up to six animals to turn and exit safely. If any trail facilities are open after dusk, parking areas should be well lighted.





## Information Kiosks



It is important to provide trail users with emergency contact information, maps, rules and other information they need to enjoy trails safely. Enclosed kiosks offer a protected environment for the distribution of this information. In addition to providing key points of interest, distances, directions and the like, maps must be clearly marked with current location and proper navigational orientation.

As technology advances, providing GPS locations on maps and at key points along the trail may be useful. Kiosks offer an opportunity for the display and distribution of historical and other

educational materials as well. Public message boards offer trail users the opportunity to post signage about lost animals and community events.

## Trail Amenities

Depending on the location and volume of users, a trailhead could be a gathering spot or a welcomed rest area. Benches, bike racks and other site amenities may encourage use. If bikes are not permitted in a park, the trailhead offers an ideal location for bike racks. At entrances to equestrian trails, hitching posts should be installed on natural earthen surfaces.

Optimally, trail users, pets and livestock should have access to potable water. When possible, restrooms should be available. Before amenities are added; however, safety issues, maintenance and repair costs must be considered.



# Signage



Signage serves many purposes including traffic control and education. Before any sign is designed or its location determined, we recommend consulting current AASHTO, FHWA and ADA guidelines.

On hard-surface trails such as concrete, signage may be painted directly onto the trail surface. Otherwise signage may be posted at ground level or higher, with or without lighting. Signage should be easy to read and interpret and remain free from obstructions.

A well-planned and well-executed signage package will help protect the safety of the individuals who use the trail system and provide information to enhance their trail experience. Most signs fall into one of three categories:

Environmental Signs may be used to warn trail users of potential dangers including water depth, changes in the trail surface, the presence of animals in the area, and the fact that there are crossing indicators ahead.

Interpretive Signs including trail maps and educational plaques may be posted to provide directions and indicate points of interest.

Mile Markers will help trail users determine distances between points and may also serve as location identifiers.



# Landscaping

Improvements to the landscape can enhance trailheads and the important features of any trail. Accent plantings provide interest and subtly warn users to slow down. Well-designed landscape plantings can provide shade as well as attractive spots for rest and relaxation. Successful landscaping can also be used to direct or block user sightlines and can even become the focal point of a trail.

The West Houston Trails Master Plan development team recommends that trail developers consider planting shade trees where none exist. In a warm climate such as ours, shade will draw users to a trail and turn a barren landscape into a green and attractive one.

## Protecting Existing Vegetation

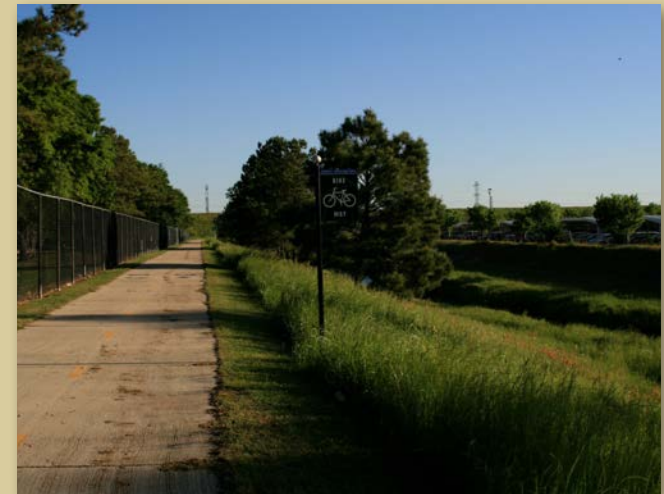
Where possible, trails should be routed to limit the impact on area vegetation and to avoid damaging existing trees. Optimal design would position the edges of a trail at a tree's drip line or canopy edge and never closer than 10 feet from the trunk of a tree.

## Selecting New Vegetation

The West Houston Trails Master Plan development team recommends the use of native or indigenous plants to restore wildlife habitats and to reduce dependency on supplemental watering and maintenance. Plants should be selected based on existing soil conditions, sun exposure, flowering characteristics, their size at maturity and long-range maintenance requirements.

Along trails, large trees will provide shade and wind protection. Native shrubs, grasses and understory will provide visual interest. When planted in mass, these native shrubs and grasses have a much better chance of survival.

Wildflowers should be considered as an alternative to grassy areas. Typically, wildflower species native to the site require less mowing, water and maintenance than grass does, while providing a higher degree of color and interest throughout the year.



# Security & Maintenance



## Security

The level of security required on any trail system is determined by a variety of factors: the type of trails, length, location and number of users. For a trail and its amenities to be used and supported, the safety and security of users must not only exist but must be perceived as important by the community. The more activity there is on a trail, the less likely it is to attract a criminal element. Important safety factors to consider at the outset of any trail plan include lighting, accessibility by law enforcement, emergency access, emergency phones and security cameras.

Opportunities for criminal activity may be greatly diminished when community input is sought at the planning stage and when a design professional familiar with crime prevention is consulted.

Important safety factors to consider at the outset of any trail plan include lighting, accessibility by law enforcement, emergency access, emergency phones and security cameras.

## Maintenance

All trail systems require maintenance. Over the useful life of the trail, maintenance costs will most likely exceed construction costs. The absence of proper maintenance may lead to safety issues and increased liability.

For more information, please refer to the Operations and Maintenance section of the West Houston Trails Master Plan.

# Summary

Good design can make the difference between an active trail and an empty one. It can enhance the terrain and improve sustainability.

Good trail design can create awareness of historically significant and culturally important areas. It can connect people with one another, with area retail and businesses, with schools, churches and other community resources.

Good design can provide areas for intense recreation and for quiet contemplation. It can help keep trail users safe while providing them with a diverse array of healthy outdoor activities.

Good trail design can improve the quality of life of entire communities, now and for generations to come.





# Operations & Maintenance Guidelines

<b>Operations &amp; Maintenance Guidelines</b> .....	<b>pg 88</b>
<b>Trails Usage</b> .....	<b>pg 90</b>
<b>Safety &amp; Security</b> .....	<b>pg 92</b>
<b>Communication</b> .....	<b>pg 93</b>
<b>Maintenance</b> .....	<b>pg 94</b>
<b>Summary</b> .....	<b>pg 101</b>

# Operations & Maintenance Guidelines



## Planning for a better trails system.

The West Houston Trails Master Plan Operations and Maintenance Guidelines are intended to provide general information that may be useful to decision makers involved in trail operations and trail maintenance. In establishing these guidelines, the WHTMP development team does not intend to describe every condition or situation that might arise.

We strongly suggest that a professional be consulted before trail design and construction begin. We also recommend that these guidelines be used in conjunction with the West Houston Trails Master Plan Design Guidelines. We recognize that there are redundancies in the documents. Once a trail or other amenity had been built, however, the Operations and Maintenance Guidelines may serve independently.

The West Houston Trails Master Plan development team's goal is to aid in the creation of a trail system that is complete and fully connected, demonstrates sustainable practices and sound construction, and safely serves the largest number of users while being good stewards of land and waterways.

The operation of a recreational or commuting trail or trail system involves a broad array of services and a variety of consultants. Even if your plan is to provide operations and maintenance work using in-house personnel, you will likely need outside assistance which might include legal consultation, landscape architectural consultation, engineering, janitorial, grounds maintenance, lighting, safety and security consultation, and construction management.



## Contracting

Personnel familiar with contracting and bidding will be responsible for:

- Contract preparation and renewal
- Contract review
- Bidding
- Contract negotiation and award
- Work authorizations and purchase orders
- Liability considerations and insurance

## Budgeting

Maintenance and repair will be a significant expense of a park and trail system. We recommend that the trail management team forecasts maintenance expenses five to 10 years out, developing a standard repair timetable and a budget to cover those life-cycle costs. It is important to add an adequate budget for repairs due to vandalism.

Since many trail and transportation systems overlap jurisdictional boundaries, creating partnerships may be an effective and cost-efficient way to approach maintenance issues.

By combining similar operations –



resurfacing, mowing, utility servicing, litter disposal and security – economies of scale may be realized.

There are many organizations that will “adopt” a section of trail for maintenance purposes. Check with Home Owners Associations, schools, local companies, health facilities, boy and girl scout troops, and other organizations that provide community service or support outdoor activities in your area. In

addition to significantly reducing maintenance costs, this volunteer involvement may help create community interest in your project. Some organizations require that volunteers sign waiver forms; check with your legal counsel.

# Trails Usage



Ideally, a trail is designed after the decision has been made regarding its uses. Allowable uses should be communicated to the public via a well-designed signage system.

Uses that are not allowed, particularly those harmful to the resource or to public safety, should be clearly posted and infractions enforced. Managers of West Houston trails are encouraged to coordinate allowable uses with managers of adjacent trails so the user experience is as seamless as possible.

## Hours

Unless lighting is provided, a trail system will typically be used from the minutes just before dawn until just after dusk. If lighting is provided or if a trail falls within a park or other area with restricted hours of operation, trail hours should be posted. This will help authorities to enforce curfews and will provide neighbors the hours of quiet they deserve.

For trails located in linear corridors with multiple opportunities for access -- as is the case in most of West Houston's existing and proposed trail systems -- enforcing hours may best be accomplished by monitoring access points.

## Closure Policies

Sometimes conditions such as repair work may warrant trail closures and it is advisable to forewarn users of such predictable occurrences. When emergency situations like flooding mandate the closure of a trail or trail system signage should be promptly posted at all access locations including trailheads. Physical barriers such as gates, cones, barricades and safety barrels may be used to alert traffic to stay off trails. Once a trail is reopened, all postings and barriers should be removed as quickly as possible.

## Trail Etiquette and Rules

A trail is intended for enjoyment. To ensure a positive experience, all users must practice proper trail etiquette, respecting both the trail itself and other users. Rules and restrictions should be designed to protect resources and user safety. Along with enforceable etiquette and trail rules, designated trail use should be posted at ingress and egress points.

Rules will vary by system and trail manager. However, the West Houston Trails Master Plan development team recommends that the following rules be considered:

- Unauthorized trails should be reported. (This applies beyond equestrian areas that may be designated for open riding.)
  - Even when lighted, trails should be closed between 10 p.m. and 6 a.m.
  - No littering. Take only photographs; leave only footprints.
- Users must stay on designated trails.
  - The use of motorized vehicles is prohibited except where specified or for security reasons.
  - All pets must be kept on leashes.
  - Owners must pick up after their pets.



# Safety & Security



Safety is paramount. The objective of any good management team is to minimize the number of accidents on a trail and to prevent criminal incidents. Proper maintenance and the enforcement of trail rules will help eliminate accidents. By encouraging community input during the planning process and by hiring a design professional with crime prevention experience, good design can and will discourage criminal occurrences.

## **More activity, less crime.**

Many factors contribute to the creation of a secure environment but the best deterrent to unacceptable behavior is a high volume of legitimate activity on a trail. The presence of too many security measures – including people and devices – may give the impression that the area is not safe.

The WHTMP development team recommends that trail managers seek input from the community and provide security personnel as appropriate and desired. We further recommend that all security personnel – be they law enforcement officers working for

city or state governments or private security employees – patrol by bicycle or on horseback, not in motorized vehicles. It is important to note which law enforcement agencies have jurisdictional authority over particular sections of a trail.

Neighborhood watch and volunteer groups may serve as eyes and ears for security purposes and as sources of information regarding trail upkeep. These volunteers may benefit from having knowledge of simple bike repair and should be equipped with first aid kits, trail maps, cell phones and manager contact information.



# Communication

Communication is an important factor in the success of a trail system. Users must understand not only what to expect but what is expected of them. A good communications system will help inform users about trail types and conditions. It will also serve to control how the trails are used and to help keep users safe.

## Posting Rules



It is important to have trail and/or facility rules located at all points of access to a system including trailheads and kiosks. Additionally, rules should be posted on appropriate websites, allowing users to find out in advance if a certain trail is managed to their liking.

Rules are designed to protect area resources and the safety of the users. They should be flexible enough to be modified as conditions warrant and should; therefore, be printed onto mounted surfaces, not imbedded into plaques or carved into stone. This also facilitates timely replacement if postings are vandalized.



We encourage trail managers to share rules with one another, ensuring that rules are compatible within a greater system. We also suggest that legal counsel review all rules prior to acceptance or posting.

Rules that sound friendly are more likely to result in compliant behavior. Too many rules and restrictions may create rebellious behavior.

## Safety Warnings

All safety-related communications should be developed by personnel familiar with governing authorities and regulations. We recommend that safety warnings be reviewed and evaluated before signage is contracted or fabricated.

## Policy

A communications policy or protocol for the distribution of information to employees and the public should be developed before an emergency arises. Detailed public policies may be provided online and electronic addresses referenced on signage.

# Maintenance

The true cost of any development project must reflect its maintenance expectations and use requirements.

The West Houston Trails Master Plan team suggests that trail system managers develop a description of services and schedule for all inspections, repairs and general maintenance requirements.

This will not only help keep your trail system in good repair, it will help you to make budget projections.

## Trail Maintenance Considerations

No trail or trail surfacing is 100% maintenance-free. Trail maintenance is an essential part of sustaining a safe and usable trail. The following are issues to consider as you develop short- and long-term maintenance plans.

## Ownership Limits

Most trail systems will cross multiple properties so it is important to know where boundaries exist. It is advisable to



coordinate with neighboring ownerships to set maintenance standards. In the best circumstances, the transition between properties is seamless.

## Jurisdictional Issues

It is critical to understand who has jurisdiction on any section of a trail. Before instituting a maintenance plan, new managers should check with existing parties in case standards for maintenance and repair have already been set.

## Cultural and Historic Resources

Once areas of cultural or historic significance have been identified, it is imperative that the land be treated with particular care. Houston, particularly west Houston, is ripe with vegetative ecosystems, bayou systems and historically significant trails. Interpretative programs along trails and at ingress/egress points could provide educational opportunities about area ecosystems and early settlers.

## Varying the Trip Experience

Trail maintenance will have a profound effect on the user experience. The most interesting trails have a varied topography: some areas may be mown regularly, others seeded with wildflowers or left to grow naturally. Seasonal flowers and shrubs may be planted to enhance the beauty of a trail.



## Environmental Impact

The WHTMP development team believes it is important to limit the environmental impact of maintenance on our natural resources. The goal of a trail manager should be to not only sustain resources but to improve them. To that end, we recommend that green products be employed whenever possible.

## Floodplains, Floodways and Jurisdictional Maintenance

The maintenance requirements of floodways and floodplain areas may be different than other areas of a trail. If your trail includes wetlands, it's prudent to consult the governing agency (at time

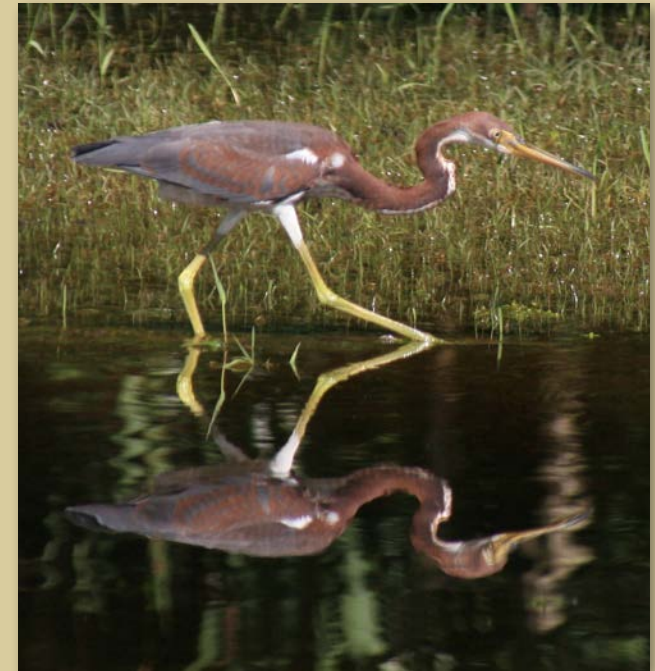
of publication, the U.S. Army Corps of Engineers) to verify that your proposed development will not have significant impact.

## Site Inspections

Regular inspections can prevent a simple repair from becoming a major issue. Trail and trailhead inspections may take many forms.

## Owner Reviews

Owners are encouraged to walk or bike on a trail regularly – as often as once a week – looking for conditions that need attention.



# Maintenance



## Professional Maintenance Inspections

Scheduled at regular intervals, professional inspections may reveal areas to be repaired before situations become dangerous, protecting fiscal resources and owner liability.

## User Assessments

Home Owners Associations and scout troops are often willing to “adopt” a trail. While providing regular maintenance services like trash pickup and weeding, these volunteers may look for issues

and report those back to trail managers via an email “suggestion box” or other reporting method.

## Grading and Drainage

It is important to maintain a defined swale on trail edges to direct water to inlets and drainage structures. Trail grades and drainage structures should be inspected at least every three months and after every significant rain or flood event. Grates and culverts should be inspected and cleaned of debris at least once a month and after every significant

rain. Prompt repair will help keep minor incidents from turning into major ones.

## Intersection Maintenance

For safety reasons, inspections of trail intersections should be performed at least once a week.

## Approaches

To alert users of upcoming situations, some form of textural change may be added to trail surfaces at intersections. This might involve scoring a concrete surface or adding a thermoplastic strip.



Warnings should have color differentiation as well. Where trails intersect with roadways, it is advisable to add signage and grade markings so that drivers do not mistake trails for narrow access roads.

Please note that current transportation standards and ADA requirements supercede any recommendations proposed in this guideline.



## Bollards

Though they are used to limit unauthorized vehicular access, bollards must be inspected regularly to ensure they remain removable, allowing access by emergency vehicles.

All objects 36" or taller should be routinely checked for structural integrity.



# Maintenance



## Gates

Gates should be checked for rust, sharp edges or other damage that may cause personal injury. Swing gates should be secured in fully opened and fully closed positions; partially opened gates are difficult to see and should be considered hazardous.



## Bridge Maintenance

Trail bridges should be inspected at least every six months and immediately following extreme events such as heavy traffic use or flooding. Routine inspections offer a quick assessment of damage and/or deterioration for the purposes of identifying safety hazards and determining repair needs. Particular attention should be given to:

- Condition of deck surfaces
- Adequacy of deck drainage
- Damage to bridge railings
- Structural damage
- Bank erosion
- Condition of the waterway



## Signage

Maintaining directional, safety and informational signage is vital to providing a safe environment and preserving the trail investment. The WHTMP development team recommends that signs be inspected at regular intervals. Damaged signs, including those scarred by graffiti, should be replaced as quickly as possible. Quick response indicates good maintenance and reinforces a no-tolerance policy for criminal acts.



All trail signage should be subjected to the same, meticulous care:

- Informational kiosks and maps
- Maintenance limits markers
- Overhead signage
- Pole signage
- Surface signage
- Water-depth markers

### Support Facilities

Specific procedures will be determined by facilities and traffic volume but it is important to schedule regular maintenance for all trail facilities including:

- Columns and fencing
- Emergency phones
- Lighting
- Parking lots



- Restrooms
- Security devices
- Shade structures
- Site furnishings including benches, water fountains, trash receptacles and bike racks

### Landscape Maintenance

Lush and healthy plants enhance a positive trail experience. With consistent maintenance, landscaping will thrive, adding beauty and interest to your trails.



# Maintenance

## Maintenance Review

Maintenance schedules will vary from trail to trail, depending on trail use and traffic volumes. Generally speaking, items requiring maintenance fall into one of three categories: those requiring daily maintenance, those requiring weekly or monthly maintenance, and those requiring occasional, perhaps annual, maintenance.

## Daily Maintenance Items

- Trash cans
- Parking lot litter

## Weekly or Monthly Maintenance Items

- Drinking fountains
- Graffiti removal
- Irrigation systems
- Lighting systems
- Mowing
- Pavement issues including pot holes and restriping
- Signage issues including the removal of dead and encroaching vegetation

## Annual Maintenance Items

- Boardwalks
- Concrete, asphalt or aggregate surface inspection
- Natural or earthen surface replenishment and repair
- Paver inspection and replacement
- Tree inspection and risk assesment

## Existing Vegetation

Sensitive and protected vegetation areas should be respected and monitored weekly.

## Trees

Trails should be checked weekly for low-hanging or broken limbs. Proper pruning will provide a safe, natural canopy as well as uninterrupted sight lines. To ensure user safety, nothing should hang lower than eight feet from the base of a trail. Damaged or dead limbs or trees should be removed immediately to keep trails clear.

## Turf

High-visibility areas and trailheads may require more frequent mowing than along the trails themselves. Workers must use care to avoid hitting trees and shrubs which could lead to bark damage. Each time an area is mown, paved surfaces should be immediately cleared of debris.

## Wildflowers and Native Grass



Wildflowers should be considered as an alternative to turf along a trail. Typically wildflowers require less mowing, less water and less general maintenance than does turf, while providing more color and interest.

## Irrigation Maintenance

Irrigation systems require periodic inspection and repair to function properly and effectively. Regular maintenance will ensure that small problems do not become large ones.

# Summary

Rules that are clearly posted are more likely to be followed. Trails that are maintained and kept free from debris are more likely to be enjoyed. Owners who provide systematic maintenance are less likely to encounter issues of liability.

By providing thoughtful maintenance at regular intervals, an owner can keep small problems from becoming large ones, protecting the natural resource as well as the initial investment in a trail or trail system.

Good maintenance practices help ensure that a trail is enjoyed and supported as intended, that it is used safely and frequently and that it will serve to improve the quality of the community and its citizens for years to come.





# Outreach, Education & Marketing Strategies

Outreach, Education & Partnerships.....	pg 104
Outreach Program Goals.....	pg 105
Outreach Program Development .....	pg 106

# Outreach, Education & Partnerships

## Target Audiences

- Citizens – Individuals, HOAs and Neighborhood Groups
- Intergovernmental – MUDs, LIDs, County, State and Federal
- Private Sector – Local Business, National Corporations and Foundations
- Professional Societies
- Special Interest Groups
- Law Enforcement
- Media

Outreach is defined as two-way communication between an agency and the public with the goal of fostering mutual understanding, promoting public involvement and improving the foundations for stewardship and partnerships. Focusing outreach efforts to build a unified understanding of the West Houston Trails Master Plan (WHTMP) mission will create visibility, promote benefits, and develop mutually beneficial partnerships. This outreach strategy is intended to ensure that the WHTMP is building relationships with partners who can implement the trails plan and who wish to support and promote its realization. Additionally, outreach should provide helpful and accurate information to the public, increase awareness and visibility of the WHTMP, what it can do and how it benefits the region.

WHTMP development team members believe that an organized entity to support trail use and implementation is key. The form this entity may take has not been determined; it could be a coalition of partners or a formal,

not-for-profit organization. In general, partnerships bring together people with a variety of different backgrounds, experiences and perspectives to create an environment conducive to developing a unified trail system. Additionally, by pooling fiscal resources, a coalition may be able to accomplish projects that a single agency or organization could not.

The outreach strategy proposed here would be a major undertaking of the new organization. Education efforts are intended to influence behaviors, attitudes and actions. In the case of the West Houston Trails Master Plan, the encouraged behaviors will result in a community that understands the values of trails and actively promotes them. Another intended result is increased trail use in the region.



# Outreach Program Goals

## Goal 1

Promote the vision for the West Houston Trail System and its goals to key audiences and stakeholders to develop partnerships and promote implementation. This may be achieved by:

- Establishing a WHTMP Outreach Director and staff or volunteer team.
- Developing an outreach program to provide guidance and focus for communication, partnerships and funding efforts.
- Forming a network of support.
- Soliciting collaborations to achieve mutual goals and objectives between stakeholders.
- Developing partnership activities and communication tools to reach the public and potential partners.
- Encouraging face-to-face interaction with the community and key decision makers.
- Obtaining long-term commitments from key players within transportation-planning and decision-making systems.
- Better use of existing resources and available funding through implementation of a master plan.

## Goal 2

Educate the community on the quality of life and environmental benefits of trails.

This may be achieved by:

- Creating educational programs geared toward various age, interest and target groups.
- Developing printed and electronic communication tools to reach the public.
- Increasing WHTMP public awareness and fostering a sense of community pride, strengthening community connectivity, building support through face-to-face interactions such as community events.



## Goal 3

Encourage trail use for beneficial purposes, including health, fitness, environmental protection, recreation, tourism and transportation. This may be achieved by:

- Helping promote health and fitness goals.
- Supporting the linking together of numerous trails to form a unified system, rather than a group of stand-alone pathways.
- Promoting tourism in the region.
- Encouraging safe routes for alternative transportation.
- Providing opportunities for volunteers and youth conservation groups.
- Providing efficient greenway links to community-based infrastructure systems.
- Identifying rare and endangered species to protect and heritage sites to promote.

# Outreach Program Development

Outreach Plan Worksheet:	
Task:	Action:
1. Activity Title:	"Outreach Plan for (list specific activity)"
2. Issue:	Clearly state the issue in one or two sentences.
3. Target Audience:	Determine individuals or groups that will most likely implement change or achieve the desired outcome.
4. Message:	Keep message focused, concise, and consistent.
5. Contacts:	List parties responsible for delivering the message.
6. Desired Outcome:	Identify why the message is being communicated.
7. Implementation of Results:	Identify who will be responsible for implementing the results of the outreach activity.
8. Outreach Tools:	
<ul style="list-style-type: none"> <li>Print:                             <ul style="list-style-type: none"> <li>Master Plan</li> <li>Document</li> <li>Brochures</li> <li>Fact sheets</li> <li>News Releases</li> <li>Feature Articles</li> <li>Flyers</li> <li>Newsletter</li> <li>Educational Curricula –</li> <li>Coloring books, trail safety guide, historic map</li> <li>Letters to Editor</li> <li>Direct Mailing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Electronic:                             <ul style="list-style-type: none"> <li>Public Service Announcements</li> <li>Videos</li> <li>E-mails</li> <li>Documentaries</li> <li>Radio Interviews</li> <li>Television</li> <li>Community Access Cable TV</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Internet:                             <ul style="list-style-type: none"> <li>Website</li> <li>Facebook</li> <li>Blog</li> <li>Unified Web Links</li> <li>Bulletin Boards</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Visuals:                             <ul style="list-style-type: none"> <li>PowerPoint presentations</li> <li>Slides</li> <li>Photos</li> <li>Displays</li> <li>Exhibits</li> <li>Posters/ Billboards</li> <li>Signs</li> <li>Bulletin Boards</li> <li>Give-aways – water bottles, maps, stickers, magnets, pens</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Personal Contact:                             <ul style="list-style-type: none"> <li>Workshops</li> <li>Presentations</li> <li>Lectures</li> <li>Demonstrations</li> <li>Tours</li> <li>Meetings</li> <li>Conferences</li> <li>Face-to-Face Encounters</li> <li>Fund Raising Events</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Other:                             <ul style="list-style-type: none"> <li>Partnerships</li> <li>Cooperative Agreements</li> <li>Volunteers</li> </ul> </li> </ul>
9. Resources:	List personnel, funds, and supplies that are needed to implement the outreach effort.
10. Distribution:	Identify distribution of outreach materials.
11. Establish Deadline:	Include associated timeline with specific dates needed to complete the outreach effort (also include level of urgency).

## Developing Outreach Plans

In order to ensure that outreach supports the WHTMP mission and objectives and is implemented in the most effective and efficient manner, a lot of planning must take place. To that end, individual outreach plans should be developed for all major efforts. An Outreach Coordinator would be responsible for working with staff and/or volunteers to develop these plans. In addition, a worksheet (see left) would be created as a guide to specify the type of information included in each plan. It is important to consider how information is presented to various groups and how the groups will interact with one another.

## Tracking Outreach Activities

The outreach program must account for all activities conducted in the region on behalf of the organization and its partners. An accessible database would be established to track activities on a routine basis and it is imperative that staff or volunteers inform the Outreach Coordinator of proposed outreach activities. The Outreach Coordinator would enter data pertaining to the activity including the type of communications used, date of execution, message, desired outcome, targeted audience, allocated resources, and contact person – all information readily available if individual outreach plans are created.



## Initiating Education Efforts

Health, environmental and community-based education efforts are important components of the outreach program. However, education programs do not replace relationships with key opinion leaders and decision makers. The Outreach Coordinator could supervise the development and dissemination of educational materials to schools and scientific organizations and establish an internet-based archive of educational handouts, science stories, photos and presentations. He or she could also maintain a speakers bureau to present to interested community groups.

## Working with the Media

Communicating through broad-based media such as television and newspapers may prove effective for the WHTMP cause. Press releases, public service announcements, articles and websites will be useful communications tools.

## Establishing Mutual Partnerships

Communications with public and private funding partners can be enhanced through partnerships with WHTMP stakeholders, public entities, neighborhood groups, trail users and other organizations. By providing partner organizations with knowledge of priority areas and the regulatory process associated with the development and implementation of the WHTMP, the chances for funding are greatly improved.



As with any partnership, outreach partnerships should involve a clear articulation of goals and objectives as well as the role that each partner plays. Each partner should have skills and resources to contribute towards specific goals and should derive some benefit from their participation. Collaboration with the Outreach Coordinator ensures that a consistent message is delivered to the public and potential funding partners.

## Identifying Funding Resources

Funding to cover costs associated with developing promotional materials, web page support, mailings and other activities will be required. In an effort to establish a budget for outreach programs, all plans should be evaluated for priority and cost-to-benefit ratio prior to implementation. Potential funds for outreach activities could be pursued with stakeholder contributions, fund raising activities, and proposals for public or private grants.



# Conclusion

# Conclusion



## The Value of a System

The West Houston Trails Master Plan represents a solution for developing a trail system to be used for a variety of purposes by a large number of individuals including commuters and outdoor recreation enthusiasts. The Plan, created through an extensive community-based process, indicates broad support for an interconnected

system that reflects the lifestyles valued by area residents. Those lifestyles preferences include:

- Safely transporting people to places they want to go without using a car.
- Easily accessing a trail near home or work so that exercise, recreation and outdoor enjoyment become part of daily life.

- Using urban design to attract employers and future workers, to maintain and enhance real estate values, and to encourage visitors to enjoy an extensive trail system.

## What the Recommended System Would Look Like

The primary recommendation of the WHTMP is the interconnected trails

system shown on the map on page 17. One of the plan developers described the trails that currently exist in the study area as a “bag of Cheetos on a picnic table,” i.e. many little pieces of disconnected trails. The desired goal of an interconnected system in West Houston would create a non-motorized transportation “grid” with major arterial trails, called spines, linked to secondary trails that connect into neighborhoods, parks and reservoir lands. The overall system would offer users a diversity of experiences: fast-track commuter trails, meandering dirt-trail loops through scenic areas, and improved pathways of different surfaces along bayou banks, drainageways, utility corridors, and road right-of-ways. There is room in this envisioned system for walkers, runners, bikers and horseback riders, to name just a few.

The spine trails proposed in this plan comprise a 104-mile system, of which 32 miles currently exist and 72 new miles are proposed. The existing Terry Hershey, George Bush and Cullen Park Trails serve as models that

demonstrate how segments of the full system might look. For example, Terry Hershey Trail makes good use of a scenic creek corridor. Here a trail runs below the bridges, allowing users to avoid negotiating at-grade crossings of intersecting roadways. This model could inform designs of spine trails along Bear, Langham, Mason, Horsepen and South Mayde Creeks, and along Brays Bayou.

Several of the spine trail corridors are named after the roadways along which they would run: Eldridge Parkway, Barker-Cypress, Greenhouse, Kingsland, Clay and SH-6. Plan developers propose these trails to be a minimum of 8 feet in width, separated from the vehicle portion of the roadway by curb and preferably a vegetated buffer. An existing example of a trail adjacent to the roadway is the Eldridge/Energy Corridor Spine Trail where the 8-foot, multi-use trail is found in the right-of-way, rather than in the roadway like a bike lane. For areas where sufficient right-of-way has yet to be obtained for grade-separated parallel trails, bike lanes or sidewalks would be the fall-back design.

“My family loves living near the trails in Barker Reservoir but we are buying a new home and will be influenced by proximity to trails, safe bike routes and outdoor recreation. These trails are now a part of our life.”

—Anonymous Survey Respondent

# Conclusion



## Implementation Expectations

The development of the West Houston Trails Master Plan represents a collaborative effort on the part of many governmental agencies, trail advocates and area businesses. It will be important for the construction and management of new trails to occur through collaborative partnerships as well. While the Energy Corridor District and the National Park Service shepherded the planning process, the entities that will implement

the trails proposed in the plan will be varied. Implementation will occur as partners develop trail-specific plans and funding strategies that match their own priorities. The vision statement put forth in the WHTMP calls for a 100+ mile system of interconnected trails with an objective of completing 15 new miles of trail in the next five years. Implementation of the full system is likely to pick up speed as gaps are completed and users begin to experience what it is like to travel long distances with little interference from traffic.

The plan identifies some recommended partners and strategies for each of the proposed spine trails. The suggested roles for various partners are based on jurisdictional authority, trail corridor characteristics, anticipated uses and likely benefits to the partners. Marketing and outreach plans identify ways in which trail supporters can promote the overall plan and individual trail strategies to those entities that can implement the trails.

## Policies to Effect Faster Implementation

The plan coordinators wish to call attention to the key policies found in the Recommendation Chapter. These are intended to promote the ease and speed of implementing a trail system. If, for example, the practice of designing bridges over creeks and drainageways to accommodate trails beneath them is adopted for all new and retrofitted roadways, adding trails along creeks will be easier, safer and less expensive. This approach would also lessen the burden on already over-loaded transportation corridors.

If entities that need linear corridors for purposes other than trails are willing to also obtain rights for trail use, then corridors for drainage easements, road right-of-ways and utility easements can quickly and efficiently become part of the trails system. Once developers realize that residential and commercial projects sell faster and for higher values when trails are included in the design, the overall trails system will become a reality much faster. All these efforts can





help speed the process for completing the 104-mile spine trail system in a projected 25 years.

Since the nature of the West Houston planning area involves multiple jurisdictions, one strategy to speed implementation is the formation of an organization representing all the diverse players in the region. The entity could be a regional trail authority with representatives of all governments, land managers, MUDs, user advocacy groups and businesses. Or it could be a

non-profit organization with fundraising and advocacy missions. Either way, the formation of a multi-partner group would mean faster trail implementation, which benefits everyone in West Houston: residents, businesses and governments alike.

“Though I do not live or work in the proposed region, as a citizen of the greater Houston community I want to share my belief in the need for investment in the pedestrian infrastructure of the suburbs. These trails offer interactive community structures that often lack in suburban areas and encourage more health conscious and environmentally responsible lifestyle choices in the population.”

—Anonymous Survey Respondent

## Appendix

Master Trail Plan Planning Process .....	pg 114
Survey Results.....	pg 120
Planning Maps.....	pg 128
ECD Bicycle Master Plan Project Priority List .....	pg 132
Historic Trails and Development of the Area .....	pg 133

## Master Trail Planning Process

### Overview

The Energy Corridor District and the National Park Service Rivers, Trails and Conservation Assistance Program have coordinated the development of the West Houston Trails Master Plan (WHTMP). These two leading coordinators identified five stages of the planning process, briefly reviewed below.

### Start-Up Phase

#### Steering Committee

Beginning in 2008, the WHTMP partners identified the major governing agencies that manage land in the 130,000-acre subject area that falls within a 6-mile radius centered at IH-10 and State Highway 6. These major agencies began serving as the WHTMP Steering Committee; they

represent federal, state, county and city-level government organizations. The Committee reviewed and approved the planning process that would steer the course of the West Houston Trails Master Plan for the next two+ years.

#### WHTMP Steering Committee

City of Houston- Parks and Recreation  
City of Houston- Planning and Development  
City of Houston- Public Works & Engineering  
Energy Corridor District  
Harris County Flood Control District  
Harris County Precinct 3  
Harris County Precinct 4  
Harris County Public Health & Environmental Services  
Harris County Public Infrastructure  
National Park Service  
US Army Corps of Engineers

## GIS Mapping Effort

After the steering committee was in place, the team began collecting data to help develop the trails plan using GIS. Baseline data included:

- Existing public trails managed by each government and the various municipal utility districts (MUDs)
- Trail corridors proposed for new public trails in any officially adopted government trail plans
- Private trails (such as those of homeowner associations)
- Bikeways (designated bicycle routes including bike lanes and signed, shared lanes)
- Publicly owned open space land (as defined by Harris County Appraisal District )
- Bayous, creeks, and drainage ways
- Harris County Flood Control District rights-of-way (including fee-owned, easements, and others)
- Schools and libraries
- MUD boundaries
- METRO Park & Ride sites

Project team members verified the collected GIS information for existing trails by checking questionable trails on the ground and correcting their alignment.

## Community Input Phase Community Stakeholder Workshop



The primary form of community input into the initial plan for new trails for West Houston involved a Saturday workshop. Team members worked hard to develop a comprehensive database of more than 250 names and organizations, including contact information, used to invite potential stakeholders to the workshop, held on October 11, 2008. The invitee list and subsequent 78 attendees included elected officials, staff of affected agencies, representatives of businesses in the study area, transportation interests, recreation and conservation organizations, and MUDs.

The workshop included the following components with results:

### Review of Draft Goals and Objectives

This session collected more than 25 comments on the proposed goals, the primary request being to add more elements to the trail plan and to promote its benefits.

### Mapping Exercise

Participants drew approximately 90 new proposed trail lines on aerial maps of the study area. Trails were added along bayous, utility corridors and along major roadways (adjacent to the roads, separated from motor vehicle traffic). People stressed commuter routes, connecting trail segments to form loops, and connecting to schools and parks. There were also requests for more trails within the natural areas of Addicks and Barker reservoirs.



### Criteria for Prioritizing Trails

Five break-out groups discussed the qualities that would make some trail corridors more desirable than others. Some of the top criteria included:

- Origin/destination connections – residential, retail, parks, schools, work centers
- Trail connections to destinations, public facilities, urban mixed-use centers
- Missing link trails – trails connecting to larger park systems and existing trails, hierarchy of trails
- Encouraging long-distance spine trails to serve maximum population
- A positive user experience – trails along bayous, trails away from roads, scenic variety, aesthetics

### Partnership Building

Participants signed up to continue helping develop the trail plan and its components. Committees formed to recommend criteria for prioritized trails: design guidelines; operation, maintenance and use guidelines; education, outreach, and marketing strategies; and funding strategies.

## Subcommittee Process

After finding interested volunteers at the workshop, the project partners began convening the five subcommittees, offering each a draft charge of the desired outcomes for each committee’s topic. Participation on the committees included representatives of city departments, MUDs, consulting firms with specialized expertise, trail user groups, and others knowledgeable of the study area and its resources and existing conditions. Each committee met between two and eight times, contributing 3,800 hours of volunteer or pro-bono time to the planning process. The following indicates the work of the various committees.

### Criteria Committee and the Spine Trail Selection Process

The Criteria Committee began developing objective scoring criteria to rank individual trails. The criteria were based on the priorities identified during the stakeholder workshop and improved upon with the committee’s input. The Criteria Matrix table (*right*) indicates the types of measurements considered to determine priority trails.

Ultimately, the committee proposed a draft set of spine trails that formed a network that met the majority of the

criteria considered objectively as well as subjectively. The committee reviewed all the proposed trails and recommended highlighting as priorities those likely to provide the greatest connectivity, the major “arterial” trails of a network. These priority trails are called spine trails in this plan and are defined as trails with substantial length that have high potential to connect existing and proposed trails to destinations like parks, neighborhoods, workplaces and shopping areas.

Armed with a draft list of proposed trail corridors, members of the committee conducted a “windshield” survey of the corridors to verify their feasibility on the ground.

This analysis helped identify major physical constraints and resulted in adjustments being made in the corridor alignments.

A contractor with GIS and programming expertise assisted the group in assessing whether the selected spines met objective criteria. After a review of corridors that were not initially included as spines but that ranked high using objective criteria evaluation, a few additional corridors were added. The group selected a list of 12 corridors to be included in a public review of the draft-planning map.

After the public comment phase, the spine trail network was revised and reviewed by

CRITERIA MATRIX	
Goals	Examples of Measurements
Connectivity/ Linkage Potential	<ul style="list-style-type: none"> <li>• Connects to existing trails</li> <li>• Connect to destinations</li> <li>• Serves population &amp; job centers</li> </ul>
Ease of Implementation	<ul style="list-style-type: none"> <li>• Public ownership of corridor</li> <li>• Included in agency plans</li> </ul>
Social & Environmental Benefits	<ul style="list-style-type: none"> <li>• Provides increased recreation</li> <li>• Offers scenic views</li> <li>• Educational/interpretive opportunities</li> </ul>
Constraints	<ul style="list-style-type: none"> <li>• Avoid sensitive environmental features</li> <li>• Physical barriers</li> <li>• Unsafe</li> </ul>

the Criteria Committee which approved the modifications.

#### Design Guidelines Committee

This subcommittee was charged with recommending design guidelines that could be used by the variety of trail-implementing partners in the study area. The West Houston area is comprised of numerous governmental jurisdictions as well as interested and potentially contributing partners and the committee members recognize that each agency – county, city or special district – may have its own preferred design criteria. The purpose of creating trail design guidelines; however, is to bring attention to design issues so that the trails constructed by different entities might be compatible with one another. The other driving factor was to promote sustainable trail design that will not harm – and may even enhance – the natural and cultural environment in the trail corridor. Good design also contributes to the degree of maintenance that a trail requires over the years.

The design committee met in person approximately five times over the early months of 2009. Members researched other guidelines and wrote sections of the Master Plan design chapter that addressed considerations specific to the

West Houston area’s terrain, climate, demographics, trail uses and complexity of ownerships. Drafts were shared electronically and modified through group participation during the latter part of 2009 and early 2010.

#### Operations, Maintenance and Use Guidelines Committee

Similar to the Design committee, a group of volunteers participated for more than six months in 2010, utilizing face-to-face meetings and electronic document sharing in efforts to draft recommendations that would address the following charges:

Establish use guidelines and recommendations for enforcing them.

- Address safety, safe use of trails and trail etiquette.
- Address conditions for closures to prevent trail damage.
- Develop guidelines for operating and sustainably maintaining trails.
- Include recommendations that would minimize maintenance needs and frequency of maintenance.
- Develop guidelines for maintaining areas adjacent to trails.

- Recommend a vegetation management program that will support the reestablishment of native grasses, understory growth and hardwood trees and support habitat restoration and wildlife observation.
- Address means to maximize conservation techniques that filter runoff and exhibit storm water management practices.

#### Funding Committee

The funding committee began meeting in 2010 with a charge to determine suitable sources of funding for trail development and other activities that support trails. This committee helped to create the resource listing featured later in this Appendix and spent time contributing to the implementation strategies for each spine trail. The group met approximately three times over several months. They also recommended a “how-to” document to help citizen advocates master the process of promoting favorite trails and making them realities.

### Education, Outreach and Marketing Committee

This group of volunteers met a few times in person and by conference calls in early 2010. The committee honed its charges, determining that many of the strategies to promote the proposed trail network would occur after the plan is released. The group was charged with identifying existing programs and gaps in programming that would market the use of trails to West Houston residents and visitors. The overall belief is that people who use trails and who know where trails are suitable are more likely to be engaged in the process of promoting the trails to the entities key to trail development.

## Review Phase

### Web-based Community Review

The planning team determined that the primary method for community review would be through on-line surveys after reviewing the posted draft map. For just over a month in the fall of 2009, the Energy Corridor District hosted a series of trail pages on its website. The trail pages included brief background information on the Master Plan, work accomplished to date, and proposed next steps. The site directed viewers to review the plan's draft map and to provide input regarding proposed trails, preferences for and patterns of trail use.

The interactive map of the study area [<http://www.energycorridor.org/west-houston-trails/map.aspx>] gave the viewer opportunities to turn on and off various layers of proposed and existing trails, spine trails, bikeways, drainageways, trail photos, MUDs, and others. The site featured the proposed trails, highlighting the 12 spine trails with descriptions and photos, and encouraged viewers to answer surveys about the trails and the overall plan. The results of the overall survey and the individual trail surveys are shown in the following section.

Open-ended comments on both the Master Plan survey and the individual spine trail surveys gave the planning team ideas on how to modify the proposed trail network. Many participants wished the network would extend outside the current study area, linking to the town of Katy on the west and connecting to trails closer to downtown Houston on the east. North-South trails also garnered comments and requests for trail extensions. Most of these expansion recommendations have been incorporated into the revised planning map, however, the feasibility of trail corridors extending outside the initial area has not been studied.

Other open-ended comments requested prohibitions of motorized vehicles on

trails. Equestrians requested that horses be allowed on as many trails as possible, indicating that some residents of the West Houston study area have horses and would enjoy riding from home to trails. They also noted the appeal of transporting horses to designated equestrian loop trails and requested that trailhead parking accommodate horse trailers.

### Community Meeting

On September 9, 2009, the partners held a community review meeting at Wolfe Elementary School to show the draft map and seek comments. Attendees viewed the spine trail map and associated planning maps and were presented (twice) a slide show by Energy Corridor and National Park Service team members on the process used to develop the trail plan. Additionally, development team members gave a website tour of the interactive, on-line map. Approximately 60 people attended the meeting and they were encouraged to make comments either on-line or using distributed survey forms.

Attendees learned of the following development and implementation recommendations:

- Keep all agency-proposed trails on map.
- Keep all workshop-proposed trails on map.

- Revise spines based on combined community input.
- Encourage all trail implementation by partners.
- Recommend implementation strategies for spine trails.
- Include trail design guidelines.
- Develop outreach and marketing strategies for the plan as a whole.

## Strategic Planning and Endorsement Phase

After incorporating community input into the trail network, the planning team developed the actual Master Plan document. The primary “strategy” is the promotion of spine trails as backbone for an interconnected system. The spines were segmented based in large part on ease of implementation.

The complexity of the multi-jurisdictional nature of the West Houston area makes obtaining official adoption of the document by all the affected governing bodies a significant challenge. Since the Master Plan was developed through a collaborative, community process, the planning team chose to seek endorsement of the plan rather than official adoption. The team prepared a briefing on the draft plan and presented it to a number of elected officials as well as to leaders

in various agency departments with jurisdictional authority. These key leaders can affect the implementation of trails within their parks, open spaces, road right-of-ways, and flooding/drainage right-of-ways. Support for the plan has been positive. The planning team will seek key leader endorsements.

## Implementation Phase

The West Houston Trails Master Plan represents a solution to develop a trail system for a large variety of users, commuters and outdoor recreation enthusiasts. This proposed trail system does not imply that funding exists nor does it imply that such a trail system will be automatically funded in the future. Rather, this plan provides a strategy useful for seeking funding and in-kind support from public and/or private sources. By engaging the community in the planning process, this Plan demonstrates the strong support of such a system and the unquestionable importance of this regional amenity not only to the West Houston area but also to the City of Houston and Harris County as a whole. The trail system itself is designed to be flexible to adjust to changing conditions, always with an unwavering commitment to connectivity and safety.

Implementation strategies shown for each spine trail represent suggested roles for various partners: agencies, MUDs, advocacy groups, and private corporations and foundations. The suggested roles are based on jurisdictional authority, trail corridor characteristics, anticipated uses, and likely benefits to the partners. The proposed partners may not have endorsed their specific roles at the time of publication. Over the next 10 to 20 years, enthusiasts of an interconnected system are likely to develop the most appropriate and creative implementation strategies.

By involving governing agencies of the public lands associated with the trail system, the hope is that each agency will support the recommendations of the Plan by funding and developing trails as priorities and budgets allow. As the Plan crosses many jurisdictional boundaries, it demonstrates the importance of interagency coordination that will ultimately benefit the citizens of Houston and Harris County and develop a quality of life that can only be accomplished through synergistic efforts.

## West Houston Trails Master Plan Survey Results

In the fall of 2009 surveys were made available to the public to allow them to indicate their interest level and potential uses for the trail plan and specific spines. Participants for the trail master plan survey were asked to indicate how important they felt trails were to West Houston, the likelihood of trail use, desired activities, and current frequency of use. Potential users for individual spines were asked to indicate which activities they would most likely participate in, which activities they would not like to see occurring, and what type of surface they would most prefer. All survey respondents were given a chance to make general comments and zip code information was collected to analyze geographic areas of trail interest.

Four hundred and seventy-three people took the West Houston Master Plan survey. ISP's (internet service provider) addresses were analyzed to gauge the likelihood that single individuals were attempting to sway the survey results

by answering the survey multiple times. This was not deemed to be a problem as the majority of ISP addresses were unique. Of those that were the same (most likely public access points as opposed to individual accounts), the answers given were different enough to dispel the suspicion of manipulation. When given the opportunity to make general comments 65% (287 people) did so and 61% (264 people) requested e-news to keep abreast of further developments with the trail system.

### Where Respondents Live

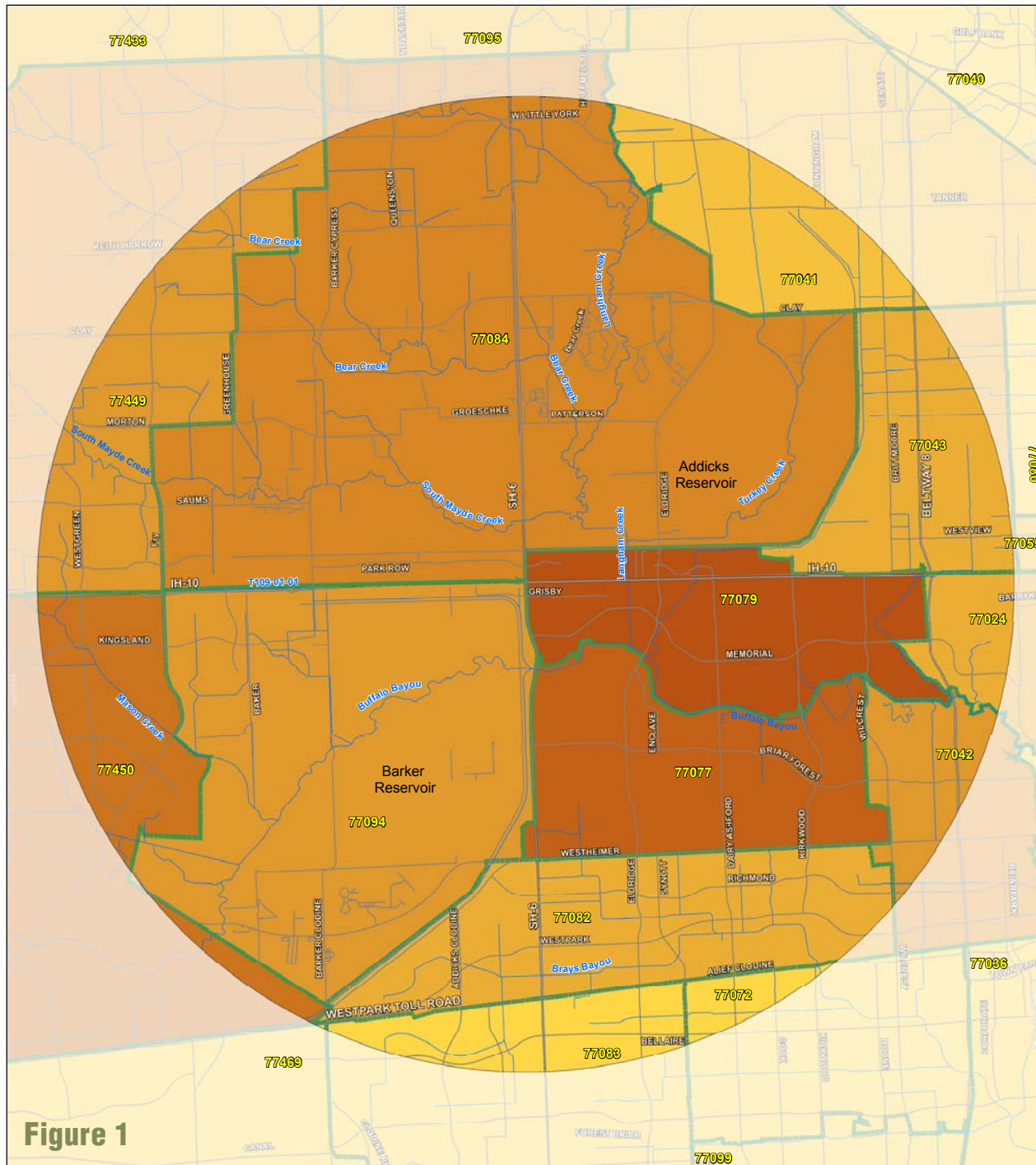
The zip codes and number of responses from each are shown in Figure 1. Sixty-seven zip codes were reported with the highest number of responses coming from zip code 77079, the area that includes the Energy Corridor District and follows Memorial Drive. Thirty percent of respondents came from areas beyond the map of the study area. The zip codes beyond the study area with the largest number of participants indicate a strong interest in the trail system from connecting population centers west of SH-6.

“I think this is a wonderful idea. My family and I would use these trails to get to remote parks and other destinations by bike, rollerblade, or jogging. Adds value to area we live in.”

—Anonymous Survey Respondent



# Survey Responses by Zipcode



## Legend

- Zipcode Boundaries
- Highway
- Major Roads
- Drainage Ways

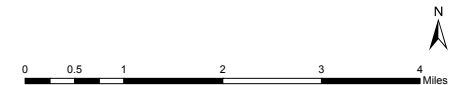
## Responses / On Map Zipcodes

1 - 5	31 - 40
6 - 10	41 - 50
11 - 20	51 - 60
21 - 30	61 - 70

77024	11	77077	51	77094	23
77041	10	77079	69	77449	22
77042	25	77082	11	77450	44
77043	14	77083	4	77469	1
77072	4	77084	33		

## Responses / Off Map Zipcodes

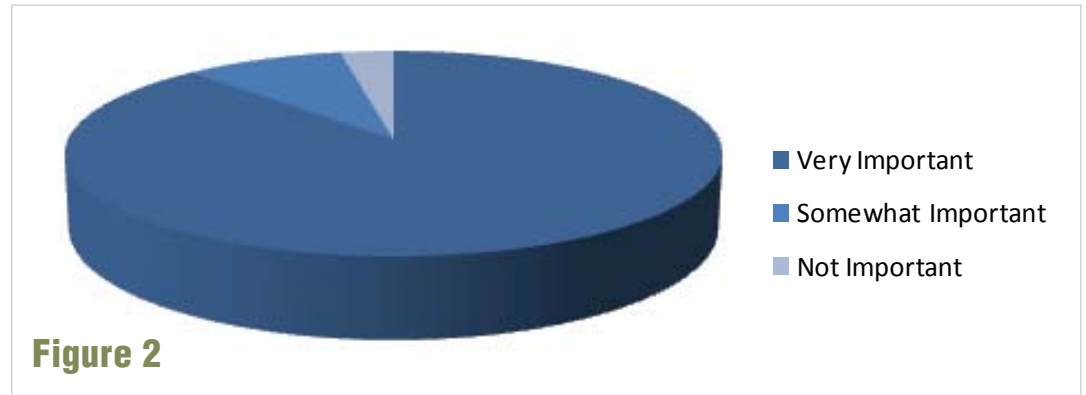
77005	4	77068	1	77429	8
77006	3	77070	2	77430	1
77007	4	77074	1	77433	6
77008	2	77080	2	77441	1
77009	1	77081	1	77447	1
77014	1	77092	1	77459	2
77019	2	77095	8	77477	1
77030	2	77096	3	77478	1
77035	2	77098	5	77479	4
77036	2	77099	3	77489	1
77040	3	77284	1	77493	8
77053	1	77327	1	77494	23
77055	6	77355	1	77498	1
77056	2	77363	1	77521	2
77057	3	77377	2	77586	1
77063	5	77384	1	77835	1
77064	2	77406	3	77972	1
77065	4	77407	2		



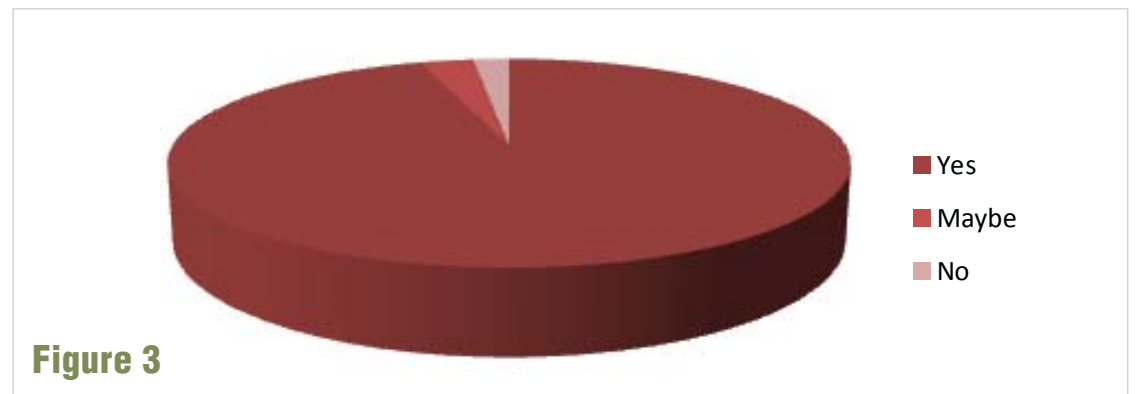
## Support For the Trail System and Anticipated Increased Use

Respondents were asked “How important is the need for more trails in this West Houston area?” Responses indicated support for the trail system is generally high. The majority of respondents (88%) felt that trails were “very important” to the West Houston area with only three percent answering that trails were “not important” (see Figure 2). Similarly 95% of respondents said they would use trails more often if they were safe and easily accessible from home or work. Less than two percent answered that they would not use the trails more often and three percent were unsure. (See figure 3)

## How important is the need for more trails in the West Houston Area?



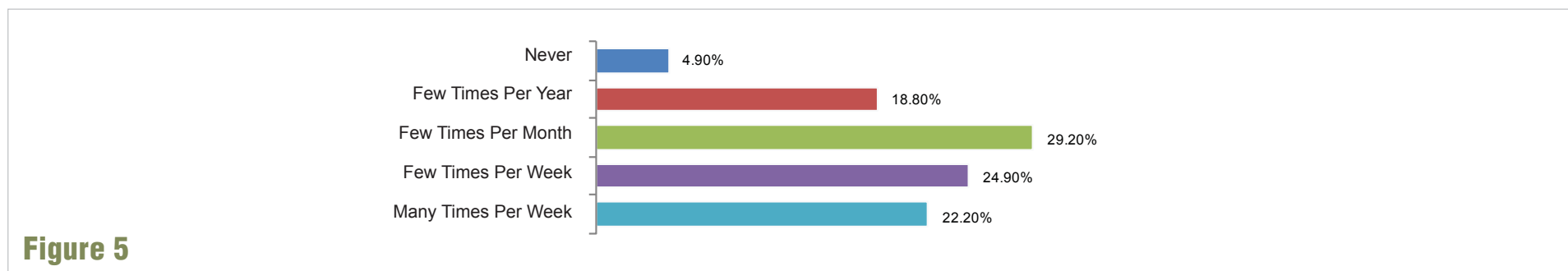
## Would you use a trail more often if it was safe and easily accessible from your home or work?



## If the trail system gets developed, how would you most like to use the trail?



## How often do you use trails now?



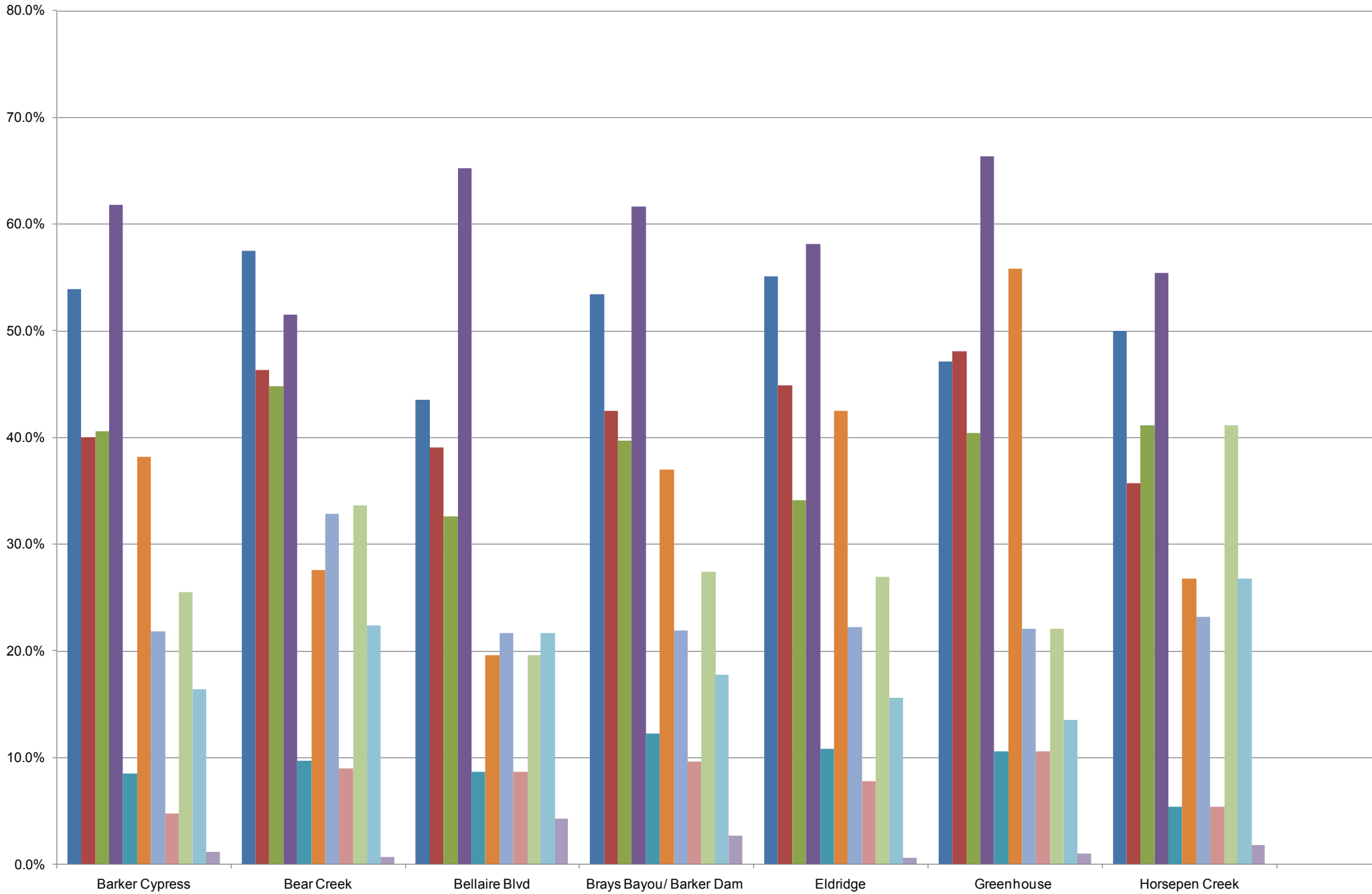
### Desired Types of Trail Uses

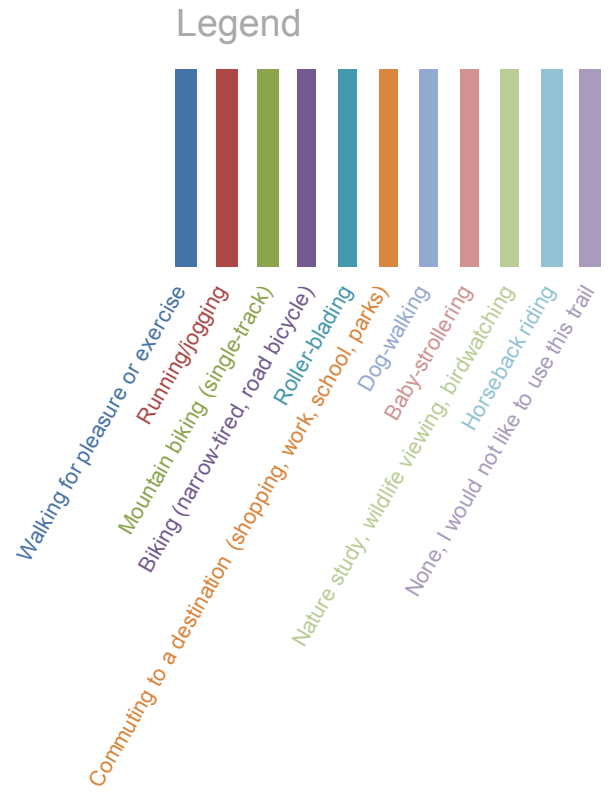
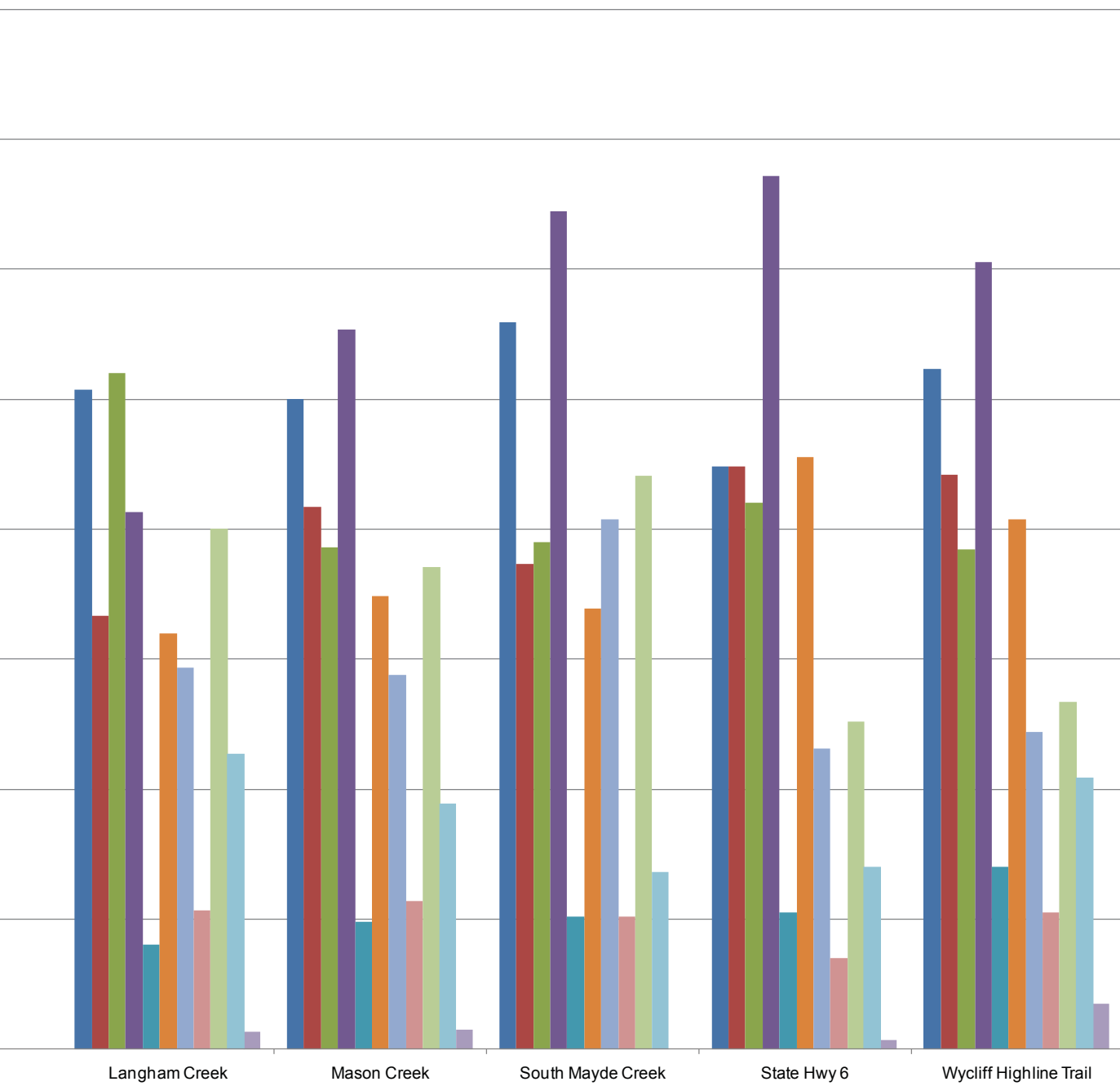
Respondents to the survey on the overall master trail plan were asked how they would most like to use the proposed trail system (figure 4). They were able to answer yes to more than one category of activities. Exercise (top kind of use) and recreation (second most identified use) were by far the categories of greatest interest to respondents. One emphasis of the proposed master plan is the interconnectivity of trails, a quality that would lend itself to commuting. The project team believes that as recreational trail users become more experienced in biking and walking on trails, they will add the use of trails as a mode of transportation for destination-based trips. The desired use of trails for exercise is a good sign that these trails could contribute to restoring health to the sedentary lifestyles too common to Americans in the 21st century.

### Comments to Open-ended Questions

Respondents were given the chance to provide comments on the overall master plan survey. Open ended responses were varied. People used this as a means to express support for other future trails, express concerns and make suggestions relative to safety, and to comment on trail design with the biggest issue identified being the separation of walkers and bikers.

# Desired Uses of Individual Spine Trails Figure 6





## Individual Spine Surveys

Survey respondents were given the chance to comment on 12 individual proposed spine trails. After the survey, the project team revised the spines to make more implementable segments. Thus, there is not a perfect correlation between the survey spines and the revised spine trails shown in this plan in the Recommendations section. The survey responses, however, still provide important information for spine trails based on their locations within the study area, corridor surroundings, and land uses being linked.

## Desired Activities by Trail

Respondents were asked which specific trail activities they would like to do on each trail. As in the survey on the whole trail system, respondents could answer multiple activities (see fig. 6, previous spread). Desired use of the trail varied by respondent and trail. For most trails, narrow tire biking (41-67%) and walking for pleasure or exercise (44-58%) are most common responses to type of use desired. Running/jogging (33-48%) and mountain biking (33-52%) typically followed next. Nature study and wildlife

viewing were highly desired on the trails that are located along creeks or through park or reservoir land and sometimes surpassed running and mountain biking. High nature study responses (34-44%) were found on South Mayde, Langham, Horsepen, Mason and Bear Creeks. Langham Creek stood out with mountain biking being the most common response. The Greenhouse Road and State Highway 6 Trails were exceptions in that “commuting” was the second most popular response following biking. Walking was third choice for both of these spines. It is no surprise that trails proposed adjacent to roadways would be good candidates for commuters and those walking to businesses. Horseback riding was initially not asked, however, as the most common added option to the “other” question, its responses have been added to the figure. Baby strollering and roller blading were the least popular choices.

## Undesired Activities or Trails

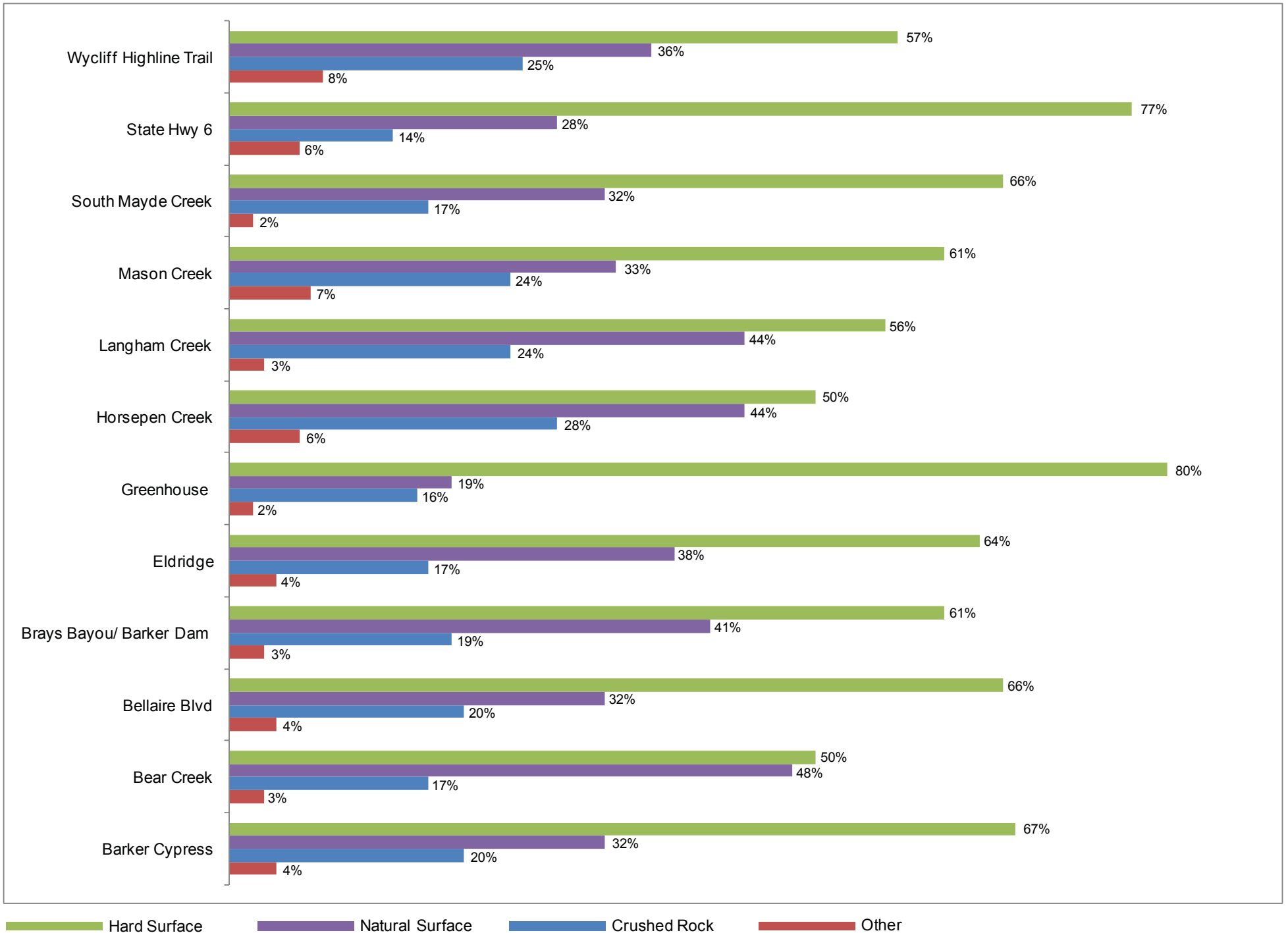
Respondents were given the opportunity to indicate if there were any activities they would not want to see on the individual trails. Motorized traffic of any kind is the most common activity

wished to be disallowed. Horseback riding, however, also comes up on this list indicating a potential conflict at some sites. Respondents were also asked if they would not like to use the proposed trail. For the 12 spine trails assessed, “not like to use” was answered in a range from 0-4%, with the largest number of nays being 2 or 3 individuals.

## Surface Preferences

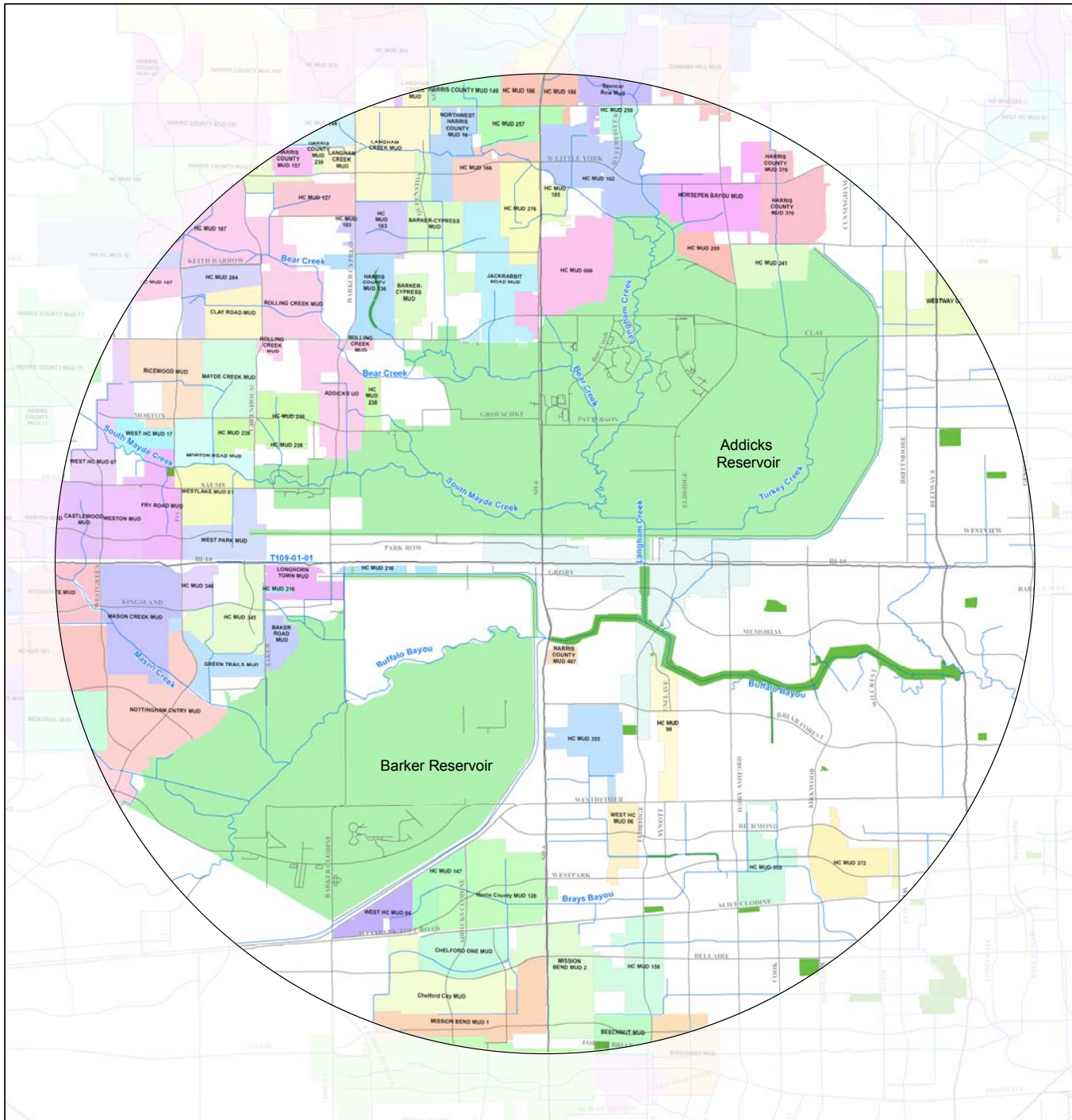
Respondents were given a chance to weigh on trail surfacing materials with sample photos of three types: hard surfaced (asphalt or concrete), crushed rock, and natural surfaced (native soil) (see fig. 7). They could respond for more than one on the same trail. Hard surfaced trail is clear preference with natural surface being the second choice. Exceptions to this are Langham Creek where natural trail is preferred (56% to 44%) and Bear Creek Trail which is split nearly evenly between hard and natural surface (50% to 48% respectively). Of the respondents answering “other” the most frequent comments were that while a hard surface is preferred, “anything is better than nothing” and that asphalt be used in preference to concrete.

# Surface Preferences by Spine Trail Figure 7










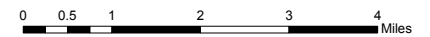
■ Hard Surface    
 ■ Natural Surface    
 ■ Crushed Rock    
 ■ Other

# MUD Map



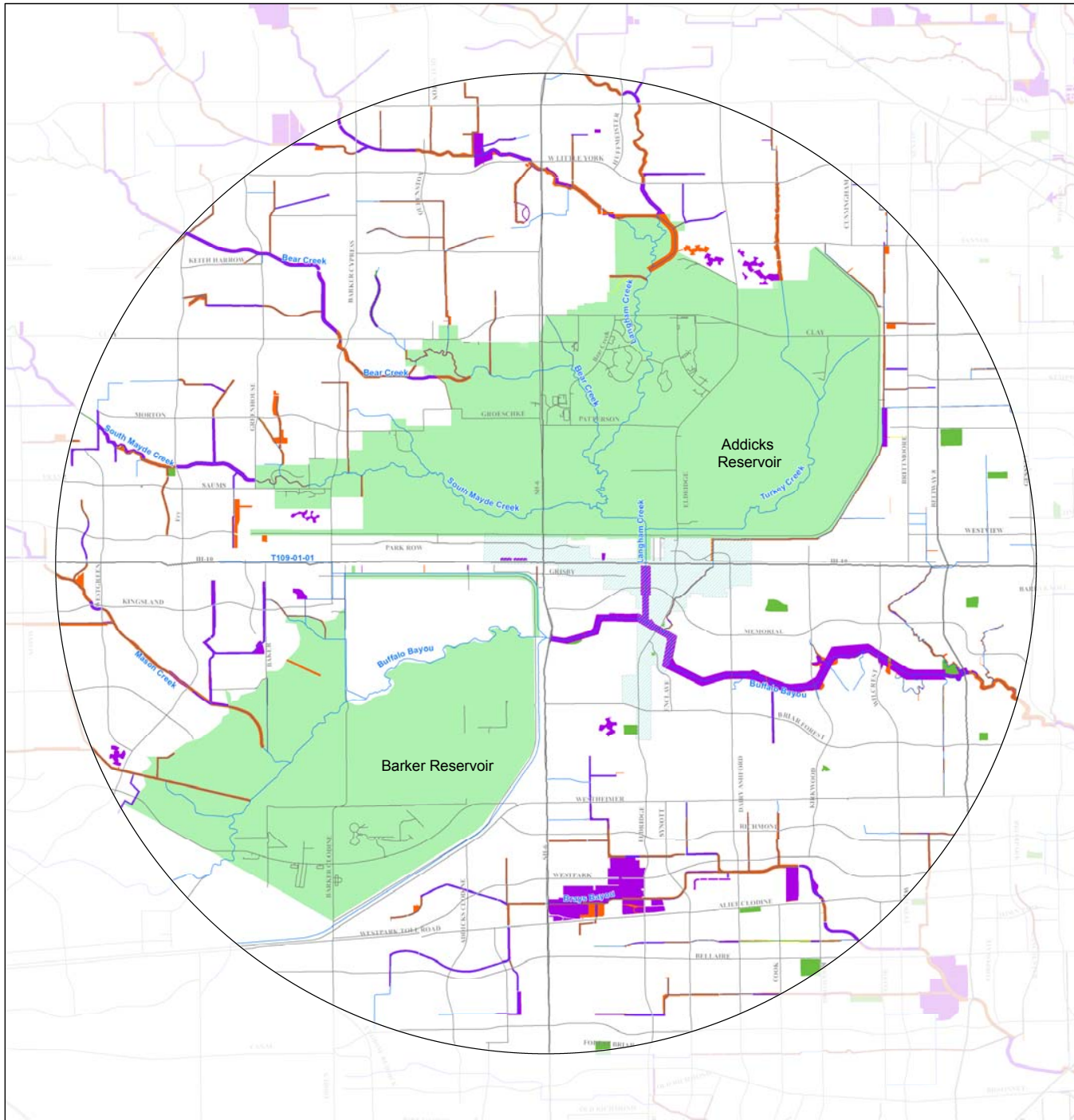
## Legend

-  Drainage Ways
-  Highway
-  Major Roads
-  ECD Limits
-  Reservoir Parks
-  Other Parks
-  MUDs





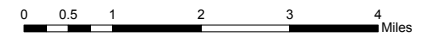
# HCFCD Drainage Rights-of-Way



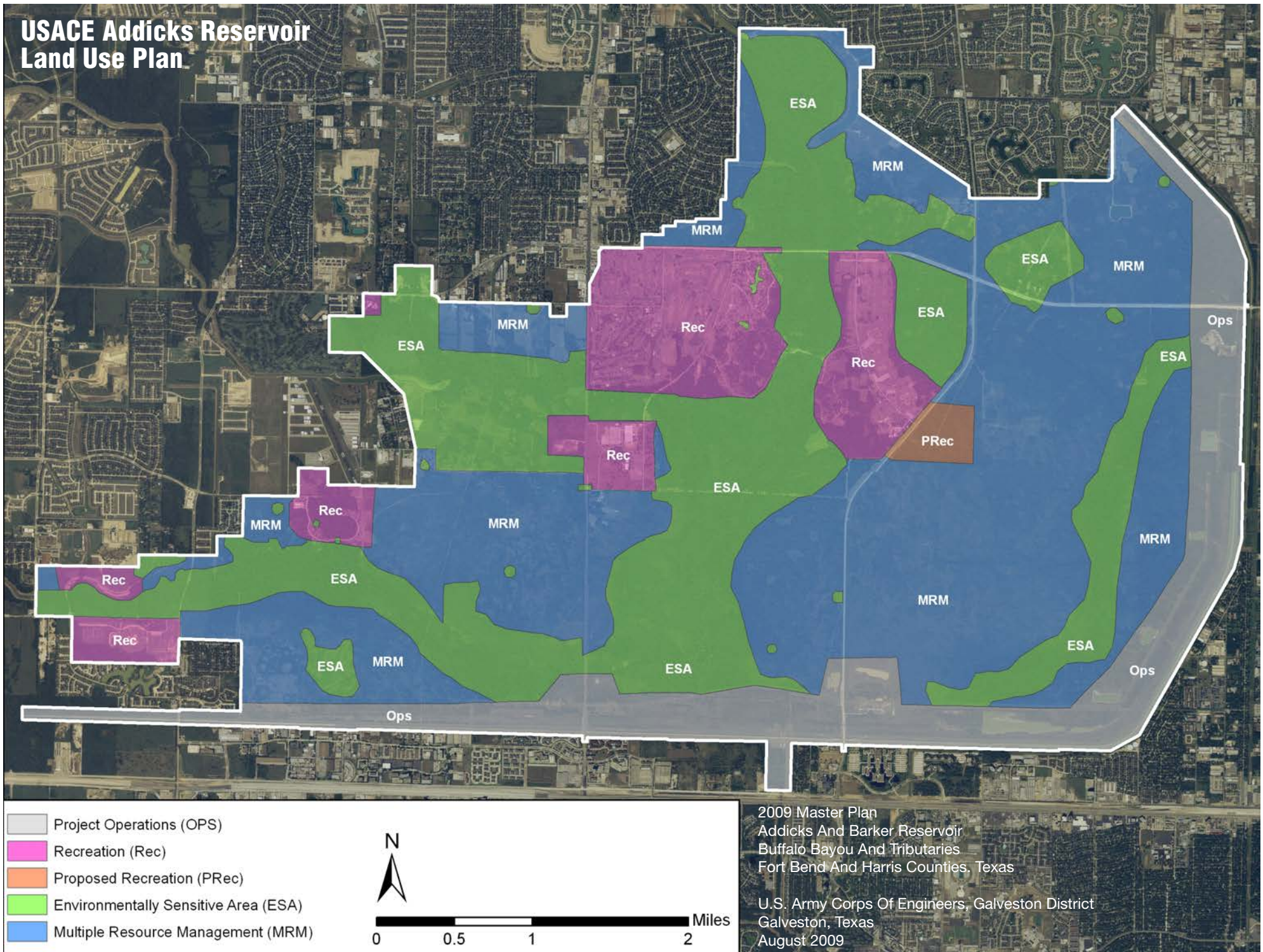
## Legend

### HCFCD Drainage Rights-of-Way

- EASEMENT
- FEE
- LICENSE AND PERMISSION
- Drainage Ways
- Highway
- Major Roads
- ECD Limits
- Reservoir Parks
- Other Parks



# USACE Addicks Reservoir Land Use Plan



2009 Master Plan  
Addicks And Barker Reservoir  
Buffalo Bayou And Tributaries  
Fort Bend And Harris Counties, Texas

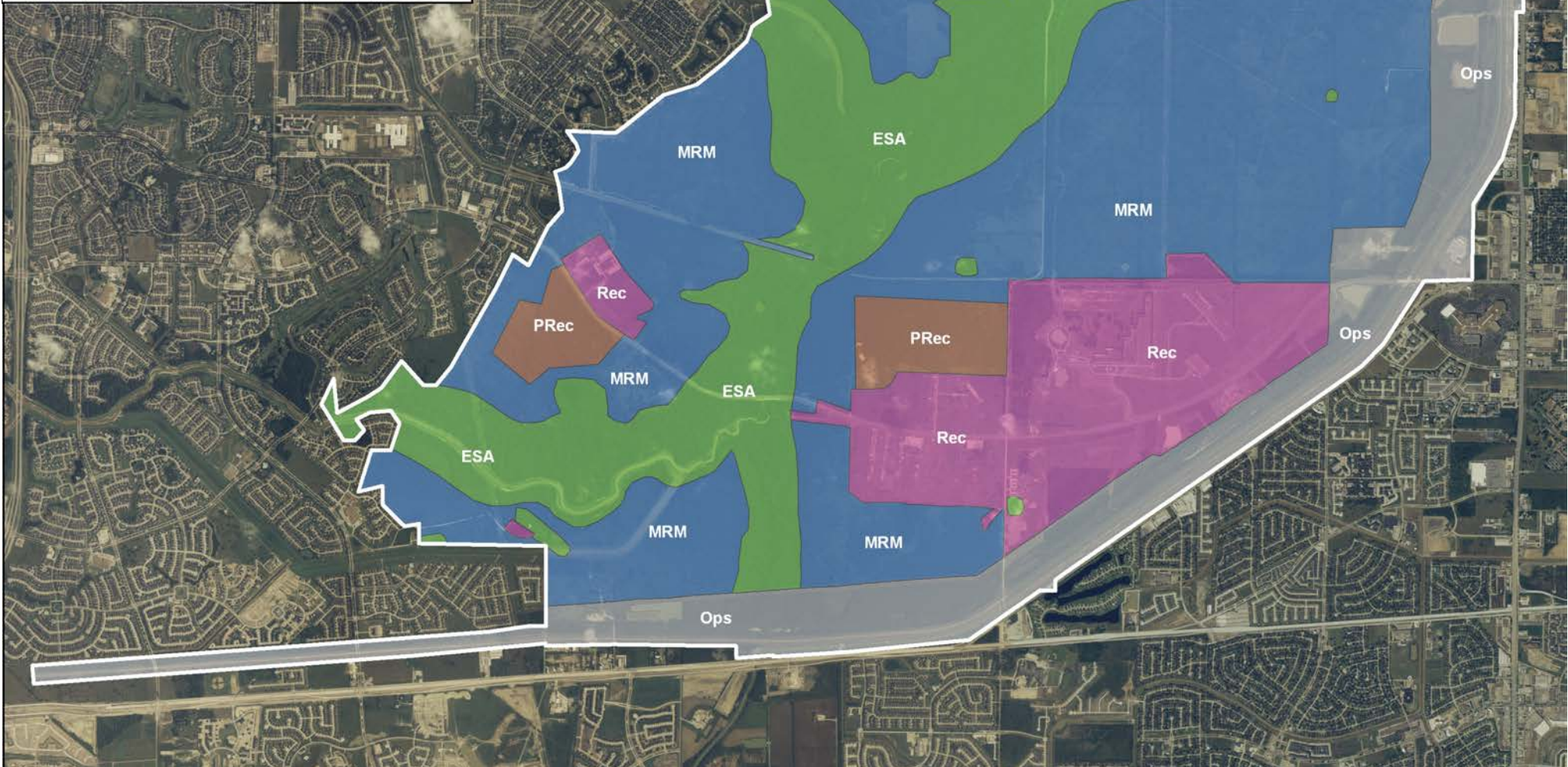
U.S. Army Corps Of Engineers, Galveston District  
Galveston, Texas  
August 2009

# USACE Barker Reservoir Land Use Plan

- Project Operations (Ops)
- Recreation (Rec)
- Proposed Recreation (PRec)
- Environmentally Sensitive Area (ESA)
- Multiple Resource Management (MRM)



0 0.5 1 2 Miles



## ECD Bicycle Master Plan Project Priority List

Energy Corridor District Bicycle Master Plan - Prioritized Projects	
Project	Notes
1. Bicycle Commuter Education and Promotion	High benefit and low cost for increasing safe use of existing and new facilities.
2. Terry Hershey Park N. Trail Extension	STEP project by Harris County Precinct 3
3. Barker Cypress Shared-Use Trail	TxDOT/ COH Transportation Enhancement project connecting Cullen Park to George Bush Park Shared-Use Trail
4. Patterson/ N. Eldridge Parkway Shared-Use Trail	Connecting Cullen Park & Bear Creek Pioneers Park to Terry Hershey Park N. Trail and Addicks Dam Trail
5. Grisby Shared-Use Trail	Connecting Barker Dam Trail to SH-6
6. IH-10 North and South	Frontage Roads Shared-Use Paths Connecting SH-6 to N. Eldridge Parkway and Terry Hershey Park Trails
7. Eldridge Parkway Underpass	On south bank of Buffalo Bayou under bridge connecting Terry Hershey Trail to Eldridge Parkway pedestrian bridge
8. Eldridge Parkway Shared-Use Trail	Extend the existing Shared-Use Trail in the Energy Corridor District to connect Buffalo Bayou and Brays Bayou
9. Trailville Buffalo Bayou Bicycle/ Pedestrian Bridge	Between SH-6 and Langham Creek connecting Fleetwood subdivision to Terry Hershey Park Trail
10. SH-6 Shared-Use Trail	Connecting Cullen Park and Bear Creek Pioneers Park to Park Row
11. Addicks Howell Shared-Use Trail	Connecting Terry Hershey Park Trail to Memorial Drive and IH-10 with bridge over Buffalo Bayou
12. Turkey Creek Shared-Use Trail	Connecting Addicks Dam Trail to IH-10 Frontage
13. N. Dairy Ashford Shared-Use Trail	Connecting IH-10 and N. Eldridge Parkway to the Addicks Dam Trail
14. Noble Road Trail	Connecting George Bush Park Trail to Barker Dam Trail and Briar Forest bike lanes
15. Addicks Park & Ride Bike Station	For home-end or work-end storage of commuter bicycles

## Historic Trails and Development of the Area



*From the report prepared by Janet K. Wagner of J. K. Wagner & Company, Inc. (JKWCO).*

### Historical and Cultural Report

The Energy Corridor District represents the epicenter of western Harris County historic trails that fostered development, opportunity and subsequently economic prosperity to the region.

Texas coastal bays and large rivers provided easy water access for European adventurers since the 1519 Pineda survey of the northern coast of the Gulf of Mexico. Finding lush, green vegetation from Florida to the southern Texas tip, Pineda named the entire coast, Florida. Searching for gold and silver, European Explorers inland travel followed the

ancient Native American trails inside the woods of the tree-lined Buffalo Bayou, as well as the ridge trails between major rivers such as the Brazos and San Jacinto. Sandstone outcrops created by glaciation rivulets provided natural crossings on the upland streams as seen in Buffalo Bayou and Turkey Creek during low water conditions.

The Native Americans utilized two avenues of land trails through the Energy Corridor District, one running north-south on the ridges between the Brazos and San Jacinto, with the second hugging the stream vegetation inside the riparian forest for more clandestine, shaded travel. Native Americans moved tribal groups mainly across the north-south prairie trails from the Buffalo hunting grounds to coastal fishing camps. The rivers became natural “water fences” for free-range cattle, Spanish horse herds and wild game. The east west river trails along Buffalo Bayou, Bear Creek and Langham Creek, and north ward along Horsepen and Turkey Creeks, usually running on both sides of the streams, provided less visible travel, with opportunity for securing small game dinners, quick fish lunches and fresh-water mussel snacks.

The Energy Corridor prairie trails traversed the prairies of ridges between

the rivers providing safe passage for moving large groups of Native Americans traveling between seasons. The Karankawa spent winter months on and near the coastlines and bays engaged in fishing, digging clams and preparing for the summer inland Buffalo hunts. Spring-fed streams and high prairies of the interior lands fostered large game. The natural sandstone crossings, known as Fords, provided river passage during low water time.

These ancient western Harris County prairie and riverine trails interconnect in the center of the Energy Corridor complex representing the far western terminus of the East Texas Piney Woods. Here is where the upland prairies take command of the landscape as far as the Guadalupe and Colorado Rivers. Only stream edged or riparian trees and occasional isolated groves known as Motts punctuate the prairie grasses and marshy areas as found from in the western and northern sections of Harris County. The flat prairies, full of tall grasses and Oak Motts, lace western Harris County and constrain seasonal rains. The prairies pool the rainfall thus reducing extensive runoff and prevent massive flooding of the dendritic river system that slices west to east through the Energy Corridor. Due to the wetness, the



prairie and river trails thereby followed the highest landforms except at the major river crossings.

Along with goods and products, came the people. Native Americans for ten thousand years built up trails in the Energy Corridor that included members of the Orcoquiza, Karankawa, Deadose (Agdocas, Doxzas), Coco, Cujane, Coushatta, Bidai, Caddo, Alabama, and Lipan tribes at various times.

The prairie ridge trails between the drainage ways adapted easily to Spanish travelers and missionaries moving through western Harris County during the 17th and 18th centuries, leaving small

horses to forage and multiply along the way. Spain established a stronghold at San Antonio de Bexar in 1718 with a town, presidio and five missions. Large cattle ranches developed between the Rio Grande and San Antonio de Bexar. Spain then attempted to establish a line of East Texas missions that failed by the late 18th century. Travel from San Antonio to the East Texas missions came across several Texas major trails including the Brazos Ford at San Felipe and the Fort Bend Ford, both accessing the western Harris County prairie. A matrix of trails followed natural routes of game and previous explorers.

Spanish trading centers soon became prominent establishments along the ancient east - west trails, as well as the prairie trails. Pack trains guarded by soldiers, conveyed goods during the mid 18th century to the Orcoquiza tribes living on the lower San Jacinto and Trinity Rivers. The merchandise included French knives, scissors, tobacco, combs and firearms (officially opposed by the Spanish government). In exchange, the Orcoquiza gave horses, corn and hides of deer and buffalo. Traders, explorers, soldiers and missionaries traversed the trails on various missions for over 100 years between tribal settlements and Spanish settlements in Mexican Texas and Louisiana.

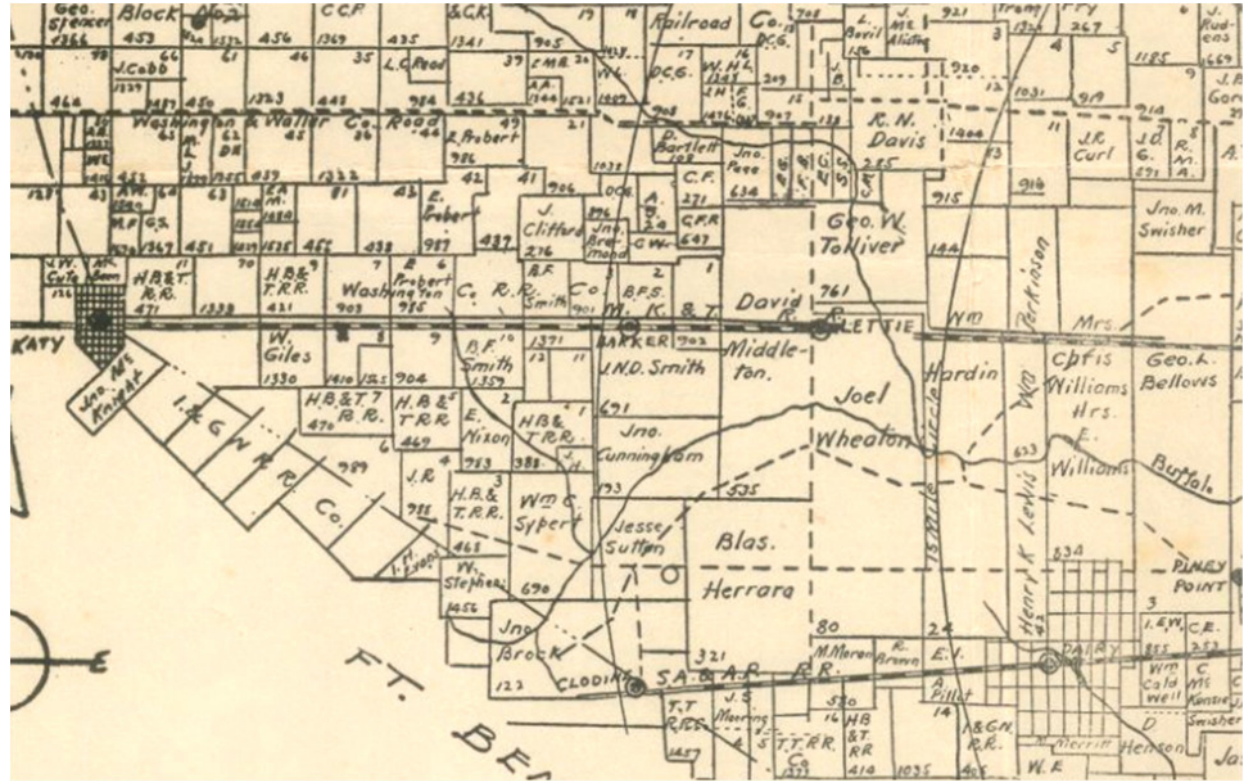
The Spanish used both directions of trails to attempt to stop the French “smuggling” of free-range horses and mules from the prairies between the Brazos and San Jacinto Rivers to Louisiana ports and markets. In an effort to halt the practice, the Spanish Governor removed the duty on all tallow, meat, salted meat and rice in 1805. Sentries and soldiers (road guards) stationed along the northeastern Texas trails, drove the smugglers to the southern trails circling Galveston Bay, on the trail known as the Camino Para Orcoquiza (later the San Felipe Trail). The Spanish then established a more direct route, the 1857 Atascosito Road known as a military highway trail. The military highway ran from Goliad to Atascosito on the Trinity River, running through the center of the present Harris County, but utilizing the ancient Brazos River Fords at San Felipe and the Magdalena (south of Hempstead). The military trail continued past the Atascosito Ranch to Opelousas and on to the port of New Orleans.

The 17th and 18th century Spanish Energy Corridor trail travelers included Governor Prudencio Orobio Bazterra (1745 Spanish La Bahia), Don Bernardo Miranda (Surveyor for King of Spain 1756), the Marquis de Rubi (1762), and Pierre-Marie-Francois de Pages (1767 Botanist, correspondent of the Academy of Sciences

at Paris). Additionally, the French explorer Rene Robert Cavelier, Sieur de la Salle, hide and fur traders, horse traders, cattle rustlers and smugglers of all nationalities passed through the area.

Bernardo de Galvez led the Province of Louisiana, when Spain declared war against England in 1779, taking the American side. Galvez began military preparations, recruited men for a land expedition against the English posts up the Mississippi River and the Gulf Coast. At the same time, the conflict was brewing between England and the American colonies, Spanish King Carlos III advanced a secret loan of one million livres to the Americans. Bernardo de Galvez in New Orleans then began sending gunpowder, clothing and arms up the Mississippi to aid the posts of George Rogers Clark as well as George Washington's Continental Army in Pennsylvania and Virginia.

Soon France and Holland joined the American fight against Great Britain. The troops of Galvez numbered 7000 and "marched on their stomachs." The Tejano Bexar-La Bahia ranches received a request for Texas cattle, sending 2000 head in June 1779, across the ancient trails of Harris County to Louisiana. From 1779 to 1782, over 9000 Texas Longhorns



trailed across western Harris County trails into Louisiana to feed the Spanish army assisting Washington's troops in the American war against the British. Well fed with Texas cattle, the Spanish defeated the British at Manchac, Baton Rouge, Natchez, captured Mobile and Pensacola, the British capital of West Florida. The ancient Energy Corridor trails now begin representing commerce, economics and political fortitude.

Stephen F. Austin placed the center of his 1824 Colony on the ancient stone ford crossing on the Brazos River, calling

the place San Felipe. The trail provided access westward through La Bahia (Goliad) and Gonzales to San Antonio and the major Spanish cities and ports. Points east, the trail spread travel toward three directions: the ports of Harrisburg; Rightor's Point (Morgan's Point) and Lynchburg; as well as to Nacogdoches and Los Adaes (Robeline); the Red River ports and Liberty, Opelousas, Baton Rouge and the port of New Orleans.

American and Euro immigrants found the soils of the Brazos and Colorado Rivers produced the finest conditions in Texas for



growing crops such as cotton and corn. The lower portions of the Brazos had soils well suited for sugar cane production, but the area around San Felipe provided the richest deep alluvial soil for general agriculture.

The Colorado and Brazos Rivers both had impenetrable sand bars at the mouth with shallow drafts of only 5 feet or less and highly meandering streams, as well as frequent high water floods. The Brazos River became known as rapid and dangerous and the Colorado River was seldom navigable for only the smallest boats. Galveston Bay had a bar of twelve feet passage with the best harbor of the entire Texas coastline, where large boats found good anchorage. The thirty-mile Bay became the transfer point for steamboats to bring trail products from inland rivers such as Buffalo, San Jacinto and Trinity to the Galveston Harbor. Fertile Brazos, Colorado and Guadalupe valley products trekked across the San

Felipe Trail to ports along Buffalo Bayou. The trails across western Harris County then became the primary corridor for sending agriculture products out and receiving manufactured goods.

So much danger existed for river travel on the Brazos and Colorado that all freight came from the coast by mules and oxen. Coastal ports received cotton hauled by wagons across the ancient trails from all parts of Texas. Free-range cattle traveled along the trails to slaughter houses set up near the river ports to export hides to Italy (returning as Italian shoes to Texas). The natural trade routes became the prairie and riverine trails established by the ancients. Products such as window glass, dressed lumber, hardware, cigars, plant seeds, iron pots, cloth, and various manufactured goods returned on the trails from the stores of New Orleans.

As Stephen F. Austin established the capital and urban center of his colony along with the colonial land office and Ayuntamiento (government) on the San Felipe Trail crossing of the Brazos River, the location became the center of regional activity. All immigrants desiring land grants in the colony traversed the San Felipe Trail to the town multiple times which, by 1828, had fifty log cabins, 200 residents, three general stores, two taverns, a hotel, a post office, and a

blacksmith. Cotton plantations developed in all directions and a grist and lumber mill nearby. The Brazos meanders rendered a water route to the coast far longer than land routes, thereby placing high importance on the San Felipe Trail connection to ports such as Harrisburg, Lynchburg, and Rightor's Point (Morgan's Point). San Felipe grew in population along with a school, church, Masonic Hall and Sunday school and so did node settlements along the route that remain today as mentioned in later text.

Thousands of German immigrants traveled along the San Felipe Trail through the current Energy Corridor to settle with the Adelsverein Colony in New Braunfels, the Castro Colony in Medina and the Fisher Miller Colony in Fredericksburg between 1842 and 1850. Prince Carl of Solms-Braunfels published descriptions and route information for his German immigrants arriving at the ports of Galveston and Indianola to assist the land journey to New Braunfels.

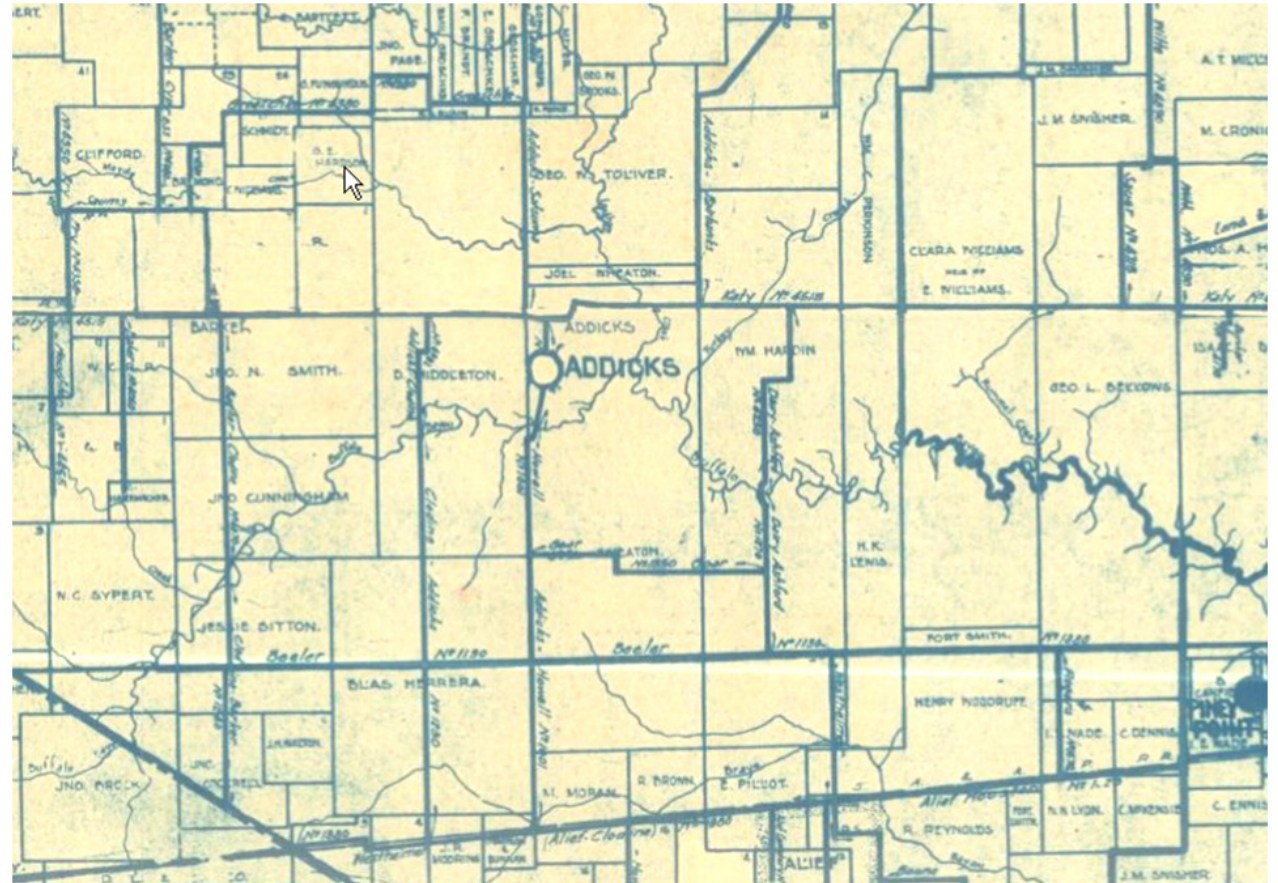
Price Carl's trail route from Houston to Gonzales begins with Houston to Piney Point ten miles, noting no drinking water; six miles further to Habermacher's Farm; and four miles on to Mrs. Wheaton's Farm on "Buffalon Bayou" (Highway 6 area at Buffalo Bayou). The next stop came twenty miles to Pine Island (later Cane



Island, now Katy) then on to Miskill's Farm and San Felipe where, by 1846 there was a ferry to cross the Brazos River. Prince Carl calculated the Houston to Gonzales winding trail at 196 miles. Prince Carl noted the extensive coastal plains varied in width from thirty to eighty miles. "There are many wooded sections along San Jacinto River and Buffalo Bayou, which flows into Galveston Bay. The farther south, the narrower one finds the coastal plains."

Alwin H. Sorgel also wrote in 1846 of traveling the San Felipe Trail toward Gonzales and stopping just past Piney Point to eat some bread and cooked meat, resting the horses.

"Past Piney Point, Buffalo Bayou and the tree growth receded to the north. You ride the open prairie for 6 miles when in the middle of nowhere you come upon an inn owned by a German (Habermacher's—north of Westheimer near Eldridge). Wanting to make up for our frugal noon meal, we asked for coffee and for corn for our horses. Here it is not customary to eat between meals. For our extravagant coffee, we each paid a half dollar. We continued our journey in the afternoon. We hope to cross, or at least reach, the heavily swollen Buffalo Bayou ..... three miles away (Wheaton's Ford)."



During the 1800s through 1830s, the trail travelers through the future Energy Corridor comprised fur traders and entrepreneurs collecting Spanish range horses for illegal sale in Louisiana; and Jane Long and Benjamin Harrison. Old 300 colonists frequented the trails such as the Baron de Bastrop, Stephen F. Austin, Samuel Mae Williams (Colony Secretary), John Austin, John Cook (Land Office Surveyor), Jared Ellison Groce, II, John Richardson Harris

(Harrisburg), Nathaniel Lynch, Peggy and Arthur McCormick, James Morgan, Dr. John Sutherland (Virginia MD), and Lorenzo de Zavala.

General Don Jose Antonio Mejia, Erastus 'Deaf' Smith, Susanna Dickinson, General and President Sam Houston, the Republic of Texas Cabinet and Officers, James Collinsworth, President Mirabeau Buonaparte Lamar, Congressman Mosley Baker, and Pamela Mann (saloon & bordello owner) also utilized the trail

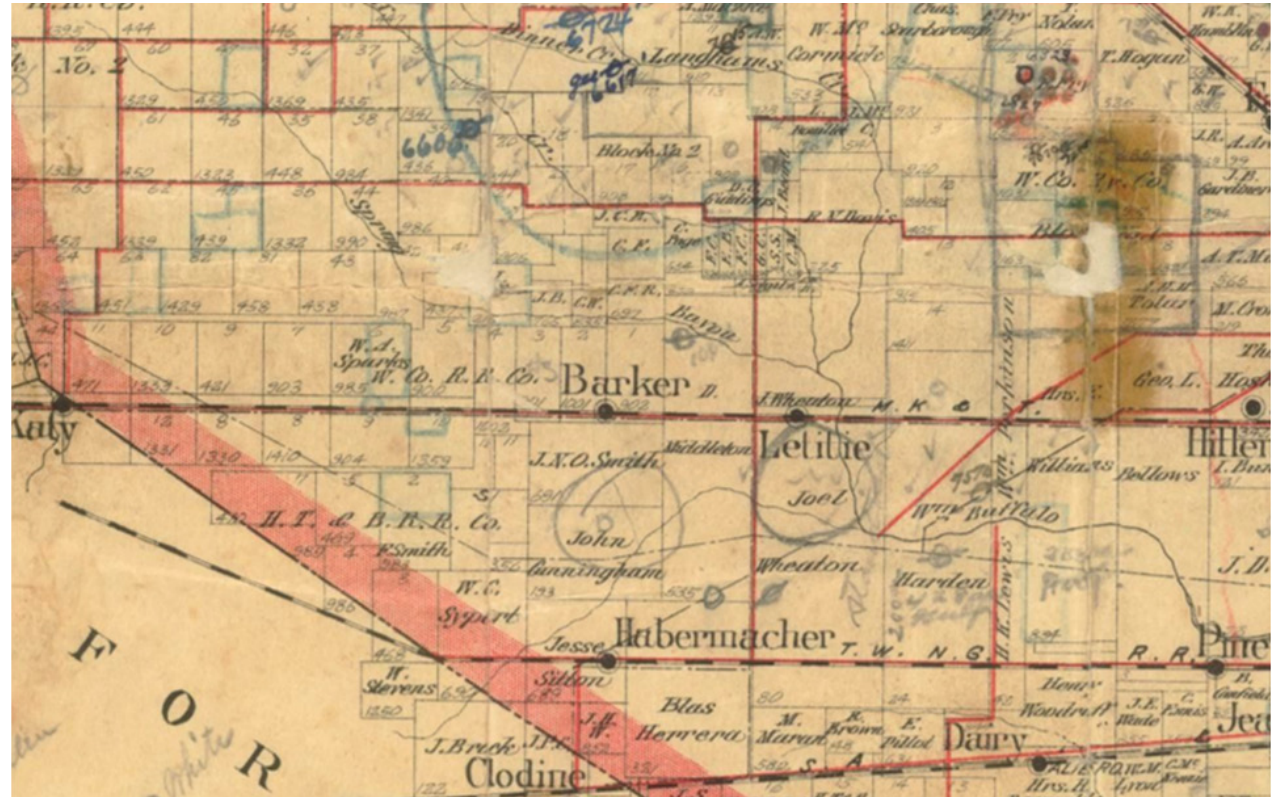
routes that initially blazed the crossroads to be known later as roadways within the Energy Corridor.

Other western Harris County trail travelers consisted of Father Michael Muldoon (Catholic priest); Gail Borden (newspaper publisher); Theodore-Frederic Gaillardet (professional writer), any person needing a surveyor or desiring a land grant in the Austin Colony, and families involved in the 1836 Runaway Scrape.

The left bank (looking downstream) of the Buffalo Bayou trail was the least desirable due to the wet ground and many spring crossings compared to the right bank route of the San Felipe Trail between Lynchburg-Harrisburg-Houston and Wheaton's Ford.

Between the Buffalo Bayou Ford at Wheaton's, the left bank of Buffalo Bayou through the high grass prairie provided a higher, well-drained route to the San Felipe crossing of the Brazos. The right bank trail of Buffalo Bayou from Wheaton's to the present town of Katy was generally wet, low ground with pools of standing water. Many travelers feared water moccasins in the pools as Sorgel noted in 1846:

“On our trail (the San Felipe) we met a German who advised us against following the road across the river (at Wheaton's Ford) but urged us to follow the right bank



up river for about six miles where a wagon track would lead us to a good fording place (Katy). Following the wagon tracks, the prairie being under water, on each side of the trail there were swamps which we were warned about.” Fearful of snakes, the group pushed on through the night, not stopping until the Buffalo Bayou crossing and higher ground.

A primary connection point for these trails naturally occurred where the “Pinery” met the prairie in the area now known as the Energy Corridor. Small communities and settlements of farming immigrants quickly

appeared along the east – west river trail became known as the San Felipe Trail. These 1820s and 30s settlements along the San Felipe Trail blossomed into many small towns and cities, including the present cities of Katy and Houston.

The 1840s brought German and Jewish immigrants and Botanists including Ferdinand Lindheimer, Alvin H Sorgel, Hermann Seele (son of Jonas Conrad Heinrich Seele), Gustav Dresel, Prince Carl Solms – Braunfels, John O Meusebach, Friedrich Wilhelm von Wrede, and Dr Ferdinand Roemer (father of Texas

Geology).

The late 19th century trail travelers included Frederick Law Olmsted, Czech and German immigrants, and local farmers. The ancient trail paths began to decline as the major travel route through Texas and the Energy Corridor during the 1850s to 1900 due to railroads. The exception was local communities and farmers who continued to use the trails for shorter travel to the new rail lines. With every more direct rail line, a shell or gravel road accompanied the rail line.

From the mid-19th into the 20th century transportation avenues for passenger travel, trade and merchandise shifted to the railroads. Many railroads followed the old Native American trails and Spanish routes but nearly all emulated the Spanish by developing a more direct route enabled by elevating the rail track above swamps and bogs.

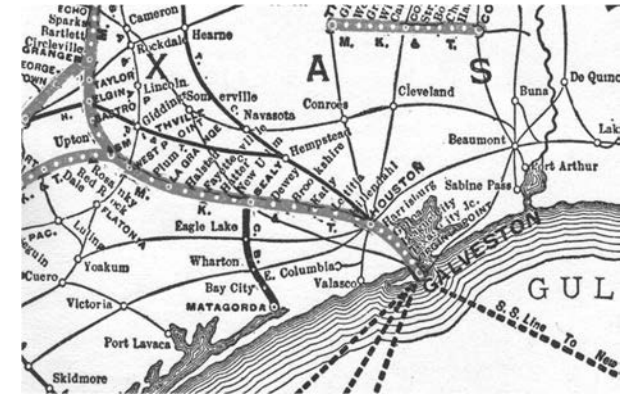
The Wheaton Ford became a settlement known as Letitia, later Addicks. Several north south prairie trails traverse the Energy Corridor District, the Burnet Road being the most prominent connecting from Wheaton's Ford

northward toward the old town of Montgomery, crossing Cypress and Spring Creek. Auto travel also created a direct,

point-to-point necessity for travel with Rangia clam shell (from Burnet Bay) and gravel paving to assist the new routes. State Highway 6, the old Addicks-Howell Road, mimics the near alignment of the old north south trail to Montgomery. The Missouri, Kansas and Texas Railroad soon followed the old San Felipe Trail westward alignment.

The Missouri, Kansas and Texas Railroad set track nearly due west from Houston to Cane Island (Katy) completing the over twenty-five miles to the Letitia (Bear Hill, Bear Creek) community in 1891. The town center became Addicks for the first postmaster, Henry Addicks in 1884. The MKT rail depot fostered town development, soon becoming a commercial center for local farmers and ranchers. The September 8, 1900 hurricane that devastated Galveston Island demolished the town of Addicks as well as the MKT depot. Rebuilt, the Addicks and surrounding Bear Creek community continued to thrive.

Abandoned and forgotten until the late 20th century and early 21st century, the old trail routes began a revival when bicycling and walking for exercise became popular. In recent years, renewal of trail travel, particularly the riverside areas with woods and shade, began to appear between communities and in park systems.



The significance of the adapted ancient trail system, particularly those through the Energy Corridor, initially facilitated an economic trade system that flourished between settlements. The trade route fostered by the trails through western Harris County became the major guiding force for agricultural expansion and product delivery to eastern and European markets.

First utilizing horse, mule, oxen and wagon, augmented by ferry and stagecoach, then railroads and paved surfaces, the ancient trail routes provided the avenue for a rapid and continuous economic growth of the region. Today the Energy Corridor Trail System fosters a new use and purpose for the ancient systems as recreation and commerce for local community and business culture.

## GOVERNMENT FUNDING

Federal and state funding sources vary from year to year, making information on them quickly out of date. Hopefully, the following websites will provide the most up-to-date information on funding programs, eligibility, due dates, and submission processes. In addition to grant funding opportunities, the trails in the West Houston plan may also be eligible to compete for Capital Improvement Program funding through City of Houston and Harris County.

Federal Grants – searchable  
<http://www.grants.gov/>

American Recovery and Reinvestment – TIGER  
(transportation grants)  
<http://www.h-gac.com/taq/stimulus/grants.aspx>

Americorps National Civilian Conservation Corps  
<http://www.americorps.gov/nccc>

Center for Disease Control and Prevention- Division  
of Adolescent and School Health  
<http://www.cdc.gov/HealthyYouth/about/index.htm>

City of Houston Capital Improvement Program  
<http://www.houstontx.gov/cip/>

Congestion Mitigation/Air Quality Improvement  
Program (CMAQ)  
<http://www.h-gac.com/taq/tip/default.aspx>

Harris County Capital Improvement Program  
<http://www.eng.hctx.net/pidcip.htm>

HGAC Community Enhancement Grants  
<http://www.h-gac.com/community/community/community-enhancement/default.aspx>

National Park Service - Challenge Cost Share  
Program  
<http://www.nps.gov/ncrc/programs/ccsp/>

National Park Service - Land and Water  
Conservation Fund  
<http://www.nps.gov/ncrc/programs/lwcf/grants.html>

National Recreational Trails Grant  
<http://www.tpwd.state.tx.us/business/grants/trpa/#trail>

Safe Routes to Schools Program  
<http://www.saferoutespartnership.org/state/statemap/texas>

Statewide Transportation Enhancement Program  
<http://www.dot.state.tx.us/business/governments/te.htm>

Surface Transportation Program – Metro Mobility  
(STP-MM)  
<http://www.h-gac.com/taq/tip/default.aspx>

Texas Commission on Environmental Quality –  
Managing Nonpoint Source Pollution  
<http://www.tceq.state.tx.us/compliance/monitoring/nps/grants/grant-pgm.html>

Texas Department of Health – Grant Finding  
Services/Grant Alert  
<http://www.dshs.state.tx.us/fic/fgrants.shtm>

Texas Parks & Wildlife Department - Outdoor  
Recreation Grant  
<http://www.tpwd.state.tx.us/business/grants/trpa/#outdoor>

Texas Parks & Wildlife Department – Community  
Outdoor Outreach Program  
<http://www.tpwd.state.tx.us/business/grants/trpa/#coop>

US Forest Service – Urban & Community Forestry  
<http://www.fs.fed.us/ucf/>

US Forest Service - More Kids in the Woods  
<http://www.fs.fed.us/recreation/programs/woods/>

## RECREATION AND CONSERVATION ADVOCACY GROUPS

The following includes Houston area organizations and national advocacy groups. Some websites provide lists and information on funds and resources of all kinds, including search functions. Many of the area organizations participated in the West Houston Trails Master Plan development and indicated a willingness to help fund trails or volunteer to maintain or patrol them.

American Hiking Society  
<http://www.americanhiking.org/>

American Planning Institute  
<http://www.planning.org/>

American Society of Landscape Architects  
<http://www.asla.org/>

American Trails – Funding Resources  
<http://www.americantrails.org/resources/funding/index.html>

Bayou City Road Runners  
[www.bcrr.org/](http://www.bcrr.org/)

Bayou Preservation Association - Riparian Preservation  
[www.bayoupreservation.org](http://www.bayoupreservation.org)

Boy Scouts of America  
[www.samhoustonbsa.org/](http://www.samhoustonbsa.org/)

Children & Nature Network  
<http://www.childrenandnature.org/>

Cyber-Sierra Conservation Grant Center  
<http://www.conservationsgrants.com/index.htm>

Girl Scouts of the USA  
<http://www.gssjc.org/>

Greater Houston Horse Council  
[www.ghhc.com/](http://www.ghhc.com/)

Greater Houston Off-Road Bicycle Association  
<http://www.ghorba.org/>

Houston Area Road Runners Association  
[www.harra.org/](http://www.harra.org/)

Houston Audubon Society  
[www.houstonaudubon.org/](http://www.houstonaudubon.org/)

Houston Bicycle Club  
<http://www.houstonbicycleclub.org/>

Houston Camera Club  
<http://houstoncameraclub.org/>

Houston Harriers  
[www.houstonharriers.com/](http://www.houstonharriers.com/)

Houston Master Sports Association  
[www.houstonmasters.org/](http://www.houstonmasters.org/)

Houston Photography Society  
<http://www.hpsonline.org/>

Houston Racing Triathlon Club  
[www.houstonracing.com/](http://www.houstonracing.com/)

Houston Striders  
[www.houstonstriders.org/](http://www.houstonstriders.org/)

International Mountain Bike Association  
<http://www.imba.com/programs> and  
<http://www.imba.com/resources/grants>

League of American Bicyclists  
<http://www.bikeleague.org/>

Native Plant Society of Texas/ Houston Chapter  
[www.npsot.org/Houston/](http://www.npsot.org/Houston/)

The Nature Conservancy of Texas  
<http://www.nature.org/wherework/northamerica/states/texas/>

Nature Rocks  
<http://www.naturerocks.org/>

Northwest Cycling Club  
<http://www.northwestcyclingclub.com/>

Sierra Club Houston/Houston Chapter  
[www.houston.sierraclub.org/](http://www.houston.sierraclub.org/)

Student Conservation Association – Houston Community Program  
<http://www.thesca.org/serve/community-programs>

Texas Active Living Network  
<http://www.texasactivelivingnetwork.org>

Texas Bicycle Coalition  
<http://www.biketexas.org/>

Texas Recreation and Parks Society  
<http://www.traps.org>

Texas Trails Network  
<http://www.texastrails.org/>

## POTENTIAL PRIVATE BUSINESS PARTNERS

The following businesses are present in the West Houston trail planning area. Many have formal giving programs at their headquarters or at the local store level. Others may be interested in partnering on an area trail project or program if asked to be a sponsor as it is believed that these projects will serve their customers and help business.

Academy - Sponsorships

<https://academy.sponsorwise.com/Login.aspx>

Bicycle World and Fitness

<http://www.houstonbicycleclub.org/>

Bike Barn

<http://bikebarn.com/>

Katy Fit

[www.katyfit.com/](http://www.katyfit.com/)

Methodist Hospital

<http://www.methodisthealth.com/mwhh>

Patagonia - Environmental Grants

<http://www.patagonia.com/web/us/patagonia.go?assetid=2942>

REI - Stewardship Program - PEAK

<http://www.rei.com/aboutrei/reikids02.html>

REI - Volunteer Match

<http://www.rei.com/aboutrei/volunteer.html>

Sports Authority - Donations & Sponsorships

<http://www.sportsauthority.com>

Sun & Ski

[www.sunandski.com/](http://www.sunandski.com/)

Texas Children's Hospital West Campus

[www.westcampus.texaschildrens.org/](http://www.westcampus.texaschildrens.org/)

Whole Earth Provision Company

<http://www.wholeearthprovision.com>

## FOUNDATIONS

Foundations typically have preferred areas of giving, both geographically and topically. The Foundation Center at Houston Library serves as a resource to inform new grant seekers in the best strategies to succeed in obtaining private foundation funding.

Allstate Foundation

<http://www.allstate.com/foundation/employee-agency-grants.aspx>

Apache Corporation - Stewardship

<http://www.apachecorp.com/Stewardship/index.aspx>

Brown Foundation, Inc.

<http://www.brownfoundation.org/>

Cullen Foundation - education, public service

P.O. Box 1600 Houston, TX 77251

Fondren Foundation - health care, youth services

(713) 236-4403

Foundation Center – research at Houston Public Library

<http://www.houstonlibrary.org/foundation-center>

Houston Endowment, Inc.

(713) 238-8100

Houston Parks Board

<http://www.houstonparksboard.org/>

Outdoor Industry Foundation

<http://www.outdoorfoundation.org/resources.html>

Wortham Foundation, Inc.

(713) 526-8849

The following people contributed to the West Houston Trails Master Plan in many important ways. We wish to acknowledge them and thank them for the roles they played in making this plan come to life and for those that will continue to play in turning the plan into reality.

## Steering Committee

The WHTMP planning team leaders, including representatives from the Energy Corridor District and the National Park Service, agreed that the initial steering committee should be comprised of managing entities of the public land present in the proposed West Houston target area. The following agencies and their heads were invited to participate. Agency staff also participated in the process.

### Project Development Managers

Robert Rayburn, ASLA, Development & Natural Resource Director, Energy Corridor District

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### Land Managers

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Jerry Eversole, Commissioner Harris County Precinct 4

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Joe Turner, Director Houston Parks & Recreation Department

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## Plan Development Subcommittees

We appreciate the contributions made by both citizen volunteers and agency staff that participated in the subcommittee process. Without this collaborative process, the WHTMP would not be as representative of local community opinions as this plan can claim.

### Criteria Committee

- Jim Beavers
- Brian Crimmins
- Lee Greb
- Yuhayna McCoy
- Bakeyah Nelson
- Kathryn Nichols
- Nadia Nijim
- Robert Rayburn
- Mary Sullivan
- Philip Teitel
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- Richard Levine
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### Operations and Maintenance Guidelines Committee

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### Funding Committee

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### Outreach, Education, and Marketing Committee

- Susan Cita
- Katie Daggett
- Bakeyah Nelson
- Kathryn Nichols
- Robert Rayburn
- Janet Wagner



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- Charles B. Cervas
- E. Alan Cochrane
- Robert B. Halick
- David W. Hightower, President
- Peter D. Johnston
- Gerry P. Leutner
- Tim Milligan
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### Energy Corridor District:

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### National Park Service:

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### Special Individuals

- Tracy Atkins, National Park Service
- Stuart Blumberg, GIS consultant
- Katy Bomar, Editor
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- Jennifer Friedmann, The Point Group
- Rusty Graham, Memorial Examiner
- Les Lee, eSiteful
- Peter Price, GIS consultant
- Stephen Rushing, eSiteful
- Steve Moskowitz, ConocoPhillips
- Tracy Dang, Katy Times
- Jenna Winters, National Park Service
- Carissa D. Lamkahouan, Houston Chronicle
- Lisa Gray, Houston Chronicle
- Donna Liams, Katy ISD
- Alton Frailey, Katy ISD
- Dr. Jacob Leblanc, Wolfe Elementary

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“To have a park along Buffalo Bayou named after my efforts to preserve one of Houston’s greatest resources was already a tremendous honor, but I am thrilled that Terry Hershey Park can play an important and integral part of a larger system like the West Houston Trails Master Plan. This plan’s potential to further expand our citizens’ exposure to the outdoor world may be our greatest legacy.”

—*Terry Hershey*



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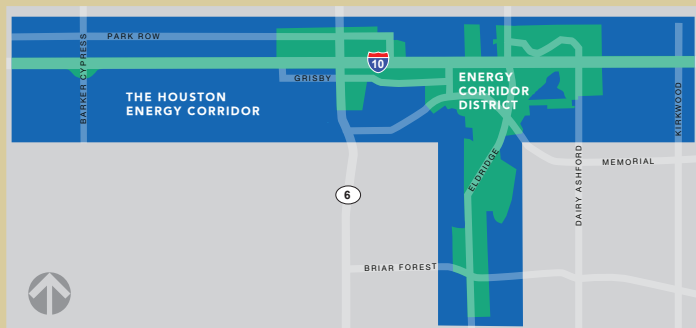
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### The Houston Energy Corridor

The best business center in the best business city in the United States. Located in West Houston along Interstate 10 from Barker Cypress to Kirkwood and along Eldridge Parkway to Briar Forest. Home to global energy and high technology companies with first-class hotels, convenient retail, attractive neighborhoods and the region's best school districts.

### Energy Corridor District

The 1,700 acre special district in The Houston Energy Corridor receives additional police protection, business development assistance, public space improvements and maintenance, multi-modal transportation choices and hike and bike access to the region's best park system.



### National Park Service

Since its establishment in 1916, the National Park Service has been entrusted to care for special places saved by the American people so that all may experience their heritage. The National Park Service professionals and volunteers take the mission on the road offering advice, technical assistance and recognition to help communities across the country preserve and create close-to-home recreation opportunities.

The National Park Service is honored to be invited into America's towns and cities to work with those who share their commitment to conservation, preservation and recreation. They are proud to join forces with the state and local governments, nonprofit organizations and private citizens through programs like the Rivers, Trails and Conservation Assistance program to plan and build trails, protect rivers and watersheds, recognize and promote local history and introduce the next generation to stewardship opportunities and responsibilities.

RTCA often acts as a catalyst to help assemble the necessary pieces to achieve on-the-ground conservation success, helping identify resources, navigate the planning process, and convert ideas into actions. By working side-by-side in partnership with communities throughout the country, the National Park Service is building a nationwide system of parks, open spaces, rivers, and trails.